

Environmental Statement – Volume 1

Mayfield Phase 1b

December 2024

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1. Introduction

1.1. This Environmental Statement ('ES') accompanies an application for Full Planning Permission to deliver a residential development of 879 residential units comprising apartments with lower ground and upper ground floor retail and leisure space, supporting residential amenity spaces, private terraces, and public realm ('the Proposed Development'). The Applicant is Mayfield Medlock Limited.

1.2. The Site comprises 1.66 hectares of vacant land located close to Manchester Piccadilly Station and falls within the Mayfield Strategic Regeneration Framework ('SRF') area. The site is bounded by the Mancunian Way to the south, Mayfield Park to the north, Hoyle Street to the east and Mayfield Phase 1a development plots to the west ('the Site'). A Site Location Plan is shown at **Figure 1.1**.

1.3. The Site is currently vacant, with its former use being used as storage, distribution and warehousing uses associated with the former Baring Street Industrial Estate prior to its demolition in 2019. The Site is currently hoarded on all sides by 2.4m fencing to screen the cleared Site.

1.4. The application for Full Planning Permission includes.

- Remediation and reprofiling works for the site to allow for the phased erection of two residential plots (J and K) comprising Phase 1b.
- The development plots comprise two podium levels to address the site level changes and provide a generous amount of ground floor frontage, comprising commercial space, supporting residential amenity areas that are accessible to the public, and various back of house storage spaces, surrounded by new high quality public realm.
- Above the two storey podium levels (lower ground and upper ground), residential blocks will provide accommodation in four building elements over two plots providing a mix of 1-, 2- and 3-bedroom units in each. The total number of residential units is 879 split between Plot K (Phase 1) and Plot J (Phase 2):
    - Plot K comprises two buildings on top of a podium level, with K1 being part 7, part 28 storeys and K2 being part 9 and part 20 storeys with lower and upper ground floor commercial spaces.
    - Plot J comprises two buildings on top of a two-storey podium level, with J1 being part 7 and part 17 storeys and J2 being part 10 and part 23 storeys with lower and upper ground floor commercial spaces.
- Creation of an at-grade multi-modal access route to the south of the residential blocks that will be traffic calmed to encourage pedestrian flows whilst allowing for a service road to be created, with a buffer zone between this route and the Mancunian Way.

1.5. The Planning Application seeks permission for the following description of development:

"Phased redevelopment of Mayfield Phase 1b comprising site remediation and reprofiling followed by the erection of two residential plots of development comprising 879 no. new homes (Use Class C3) contained within four buildings ranging from 7 storeys to 23 storeys in height (Plot J) and 9 to 28 storeys in height (Plot K), with upper and lower ground floor commercial spaces comprising restaurant and / or retail units (Use Class E(b) and/or E(a)), and / or indoor sports facilities (Use Class F2) together with highways works, access, servicing, rooftop plant, cycle parking and back of house, along with delivery of associated public realm and other associated works for each relevant phase."

1.6. The Proposed Development is outlined in detail at Chapter 4 of this ES and is hereafter referred to as the 'Proposed Development'. A phasing plan is provided in Figure 1.2.

1.7. 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

1.8. 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.

1.9. 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.

1.10. 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).

1.11. 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.

1.12. 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.

1.13. A request for a Scoping Opinion was submitted to Manchester City Council as Local Planning Authority on 11th of October 2024 and updated on the 23rd of October 2024, setting out the proposed technical chapters to be included in this ES plus the scope of their individual studies. A Scoping Opinion was received from the Local Planning Authority on the 21st of November 2024 and this Opinion has been used to refine the methodology in each chapter and set out in Chapter 3 of this ES.

Project Team

1.14. 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 Mayfield Phase 1b and has received technical input from a range of suitably qualified and experienced technical consultees, together "the Consultants".

Table 1.1 ES Project Team

Discipline	Assessment carried out by
Town Planning and EIA Coordination	Deloitte LLP
Architect	ShedKM – Plot J Studio Egret West – Plot K
Construction Management and Phasing	Construction Planning Associates
Climate Change	Buro Happold
Daylight, Sunlight and Overshadowing	GIA
Townscape and Visual Impact	Chris Burnett Associates
Wind Microclimate	Buro Happold
Human Health	Buro Happold
Socio-Economic	Buro Happold
Ecology	Buro Happold
Ground Conditions	Buro Happold / Civic Engineers
Water Resources	Buro Happold / Civic Engineers
Air Quality	Buro Happold
Noise and Vibration	Buro Happold
Heritage	Heritage Architecture
Transport and Access	Civic Engineers

Organisation of the Environmental Statement

1.15. This ES comprises 20 chapters and is supported by figures (located at the back of each chapter within Volume 1) and technical appendices (within a separate Volume 2), which are set out in full in the Contents section of this ES. A Non-Technical Summary ('NTS') of the full ES is provided as a separate standalone document.

1.16. 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 contained separately in Volume 2.

1.17. **Important notice**: This Environmental Statement has been prepared by Deloitte, with technical input from the Consultants. **Table 1.2** below sets out the structure and parties responsible for the technical content within Chapters 6-18 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 6-18 of this 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	Outline of the main alternatives considered by the Applicant.
4.	Site, Surroundings and Description of Development	Deloitte	Site description and details of the Proposed Development.
5.	Construction Management and Phasing	Construction Planning Associates	Details of anticipated programme for development and construction methodology are also included.
6.	Climate Change Resilience and GHG	Buro Happold	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.	Townscape and Visual Impact	Chris Burnett Associates	This assessment will evaluate the visual impact of the Proposed Development on the surrounding townscape and views, considering the sensitivity of visual receptors and the magnitude of change.
9.	Wind Microclimate	Buro Happold	This assessment will analyse the potential for the proposed buildings to generate wind acceleration at ground level, which could impact pedestrian comfort and safety.
10.	Human Health	Buro Happold	This assessment will examine the potential effects of the development on the physical and mental health of local residents, new residents, and workers, considering a wide range of health determinants.
11.	Socio-economic	Buro Happold	This assessment will evaluate the potential impacts of the development on the local economy, housing market, and social infrastructure, including employment, housing provision, spending, and demand for services.
12.	Ecology	Buro Happold	This assessment will evaluate the potential impacts of the development on ecological receptors, including protected and priority species and habitats.

Chapter No.	Chapter Title	Responsibility	Description
13.	Ground Conditions	Buro Happold / Civic Engineers	This assessment will address the potential risks associated with existing ground conditions, including contamination, and ensure suitable and safe conditions for the Proposed Development.
14.	Water Resources	Buro Happold / Civic Engineers	This assessment will examine the potential impacts of the development on water resources, including surface water flow, water quality, flood risk, potable water demand, and foul water drainage.
15.	Air Quality	Buro Happold	This assessment will analyse the effects of construction and operational traffic on air quality, considering emissions of nitrogen dioxide and particulate matter, and their impact on existing and future receptors.
16.	Noise and Vibration	Buro Happold	This assessment will evaluate the potential for noise and vibration impacts from construction activities, road traffic, entertainment uses, and building services plant, considering the sensitivity of nearby receptors.
17.	Heritage	Heritage Architecture	This assessment will evaluate the impact of the development on the setting of nearby listed buildings and conservation areas, considering both temporary construction impacts and permanent operational impacts.
18.	Transport and Access	Civic Engineers	This assessment will evaluate the impact of the development on pedestrian and cyclist safety, access, and movement, considering potential effects such as severance, delays, and changes to amenity.
19.	Summary of Residual Impacts	Based on conclusions of technical chapters	Summary of the effects that remain after mitigation.
20.	Type 1 Cumulative Effects	Deloitte	Review of inter project effects, which are combined effects arising from the Proposed Development on defined sensitive receptors.
Volume 2 – Technical Appendices (see List of Appendices section of this ES)			
Volume 3 - Non-Technical Summary			

Other Documents

1.18. Together with the ES, the following documents in **Table 1.3** will be submitted to Manchester City Council (MCC) as 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 is in Volume 2 of EIA.

Document	Responsibility
Application Forms and Certificates	Deloitte

Document	Responsibility
Accommodation Schedule	Plot K – Studio Egret West Plot J – ShedKM
Site Location Plan and Existing Site Plan	Studio Egret West
Proposed Plans, Sections and Elevations	Plot K – Studio Egret West Plot J – ShedKM
Landscape Plans	Studio Egret West
Design and Access Statements	Masterplan and Public Realm – Studio Egret West Plot K – Studio Egret West Plot J – ShedKM
Heritage Assessment*	Heritage Architecture
Planning and Tall Building Statement	Deloitte
Statement of Consultation	This is Influential
Archaeological Assessment	Civic Heritage
Environmental Standards Statement	WSP
Energy Statement	WSP
Ecological Assessment*	Buro Happold
Biodiversity Net Gain Assessment*	Buro Happold
Crime Impact Statement	GMP: Secure by Design
Transport Assessment*	Civic Engineers
Framework Travel Plan*	Civic Engineers
Waste Management Strategy	SLR Consulting
TV Reception Survey	Pager Power
Broadband Connectivity Assessment	Pager Power
Ventilation Strategy	WSP
Viability Assessment	Gerald Eve
Aviation Safety Assessment	Pager Power
Air Quality Assessment*	Buro Happold
Environmental Noise Survey*	WSP
Fire Statement	Jensen Hughes
Flood Risk Assessment*	Buro Happold
Drainage Strategy*	Civic Engineers
Phase 1 Preliminary Risk Assessment Desktop Report*	Civic Earth
Phase 2 Site Investigation Report*	Civic Earth
Phase 3 Remediation Strategy*	Civic Earth
Residential Management Strategy	LandsecU+I
UXO Survey	PlanitUXB

Document	Responsibility
Wind Microclimate Assessment*	Buro Happold
Daylight and Sunlight Assessment*	GIA

EIA Scenarios

1.19. So that environmental effects arising from the Proposed Development are robustly assessed, unless stated otherwise within chapters 6- 18 due to the nature of the technical chapters, the scenarios tested are as follows:

1. Scenario 1: Baseline (existing Site, including developments currently under construction);
2. Scenario 2: Baseline with Proposed Development Phase 1 (Plot K) under construction;
3. Scenario 3: Baseline with Proposed Development Phase 1 (Plot K) and Phase 2 (Plot J) under construction;
4. Scenario 4: Baseline with Proposed Development (both Phase 1 and Phase 2) operational; and
5. Scenario 5: Baseline with Proposed Development (both Phase 1 and Phase 2) operational and cumulative developments.

Environmental Statement Availability

1.20. 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.

1.21. 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

1.22. For copies of any of the above, please contact the Manchester Planning Team at Deloitte:

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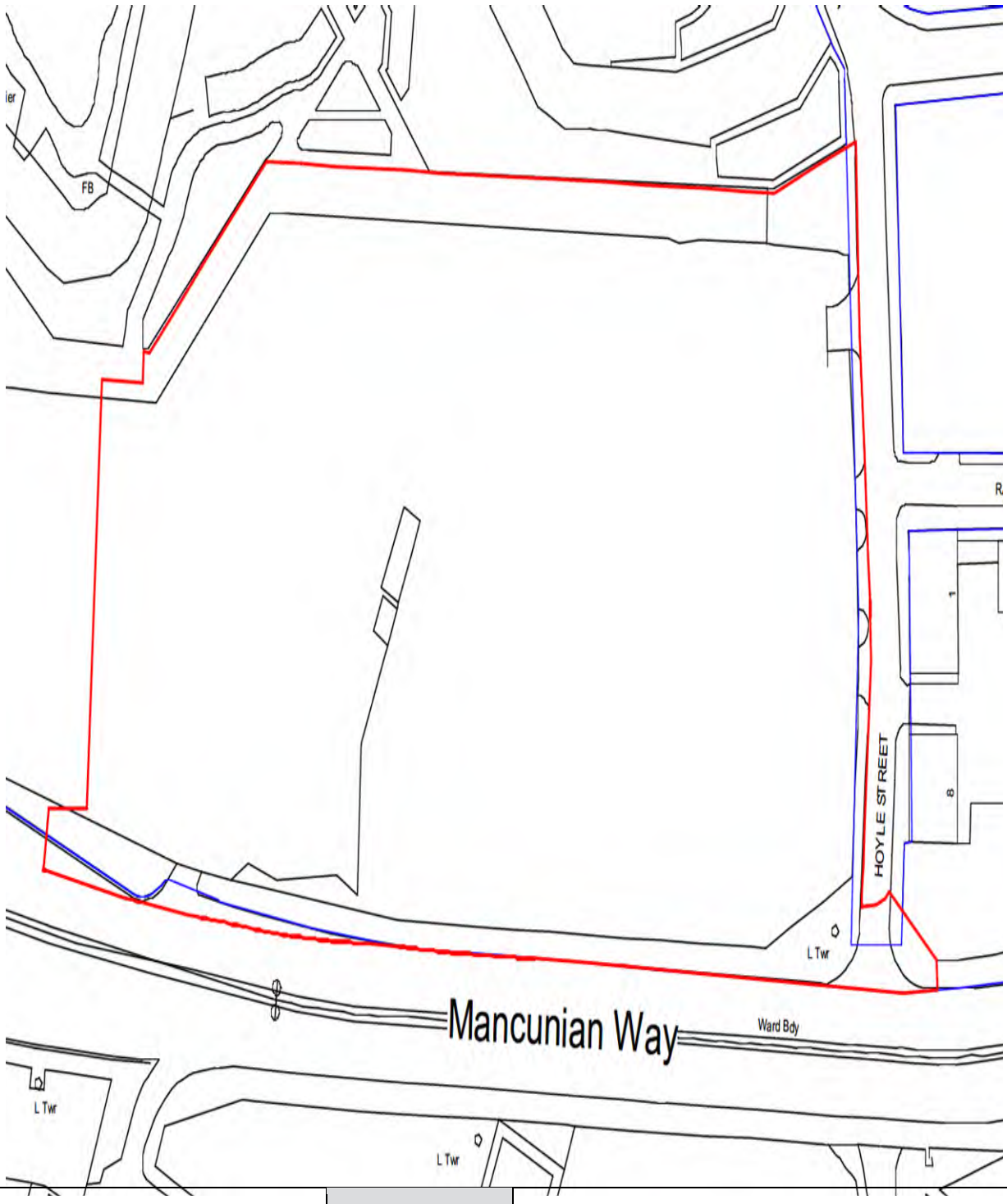


	Figure:	1.1		
	Title:	Site Location Plan (Studio Egret West)		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS



	Figure:	1.2		
	Title:	Phasing Plan (Studio Egret West) Plot K in blue and Plot J in yellow.		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	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. 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 Screening and Scoping Report dated October 2024
- Appendix 2.2 – Committed Developments
- Appendix 2.3 – Manchester City Council EIA Scoping Opinion dated November 2024

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 2024 (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)

- Places for Everyone (2024)
- 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 Screening and Scoping Opinion Request was issued to Manchester City Council on the 21st of October 2024 (see **Appendix 2.1**) and a formal scoping opinion was received on 21st of November 2024 (**Appendix 2.3**). As part of this process, the EIA Scoping Request 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, for which an explanation for each discipline is provided in the EIA Scoping Report in **Appendix 2.1**:

- Agricultural circumstances;
- Archaeology;
- Aviation; and
- TV and Telecommunications.

2.10. The LPA, in their EIA Scoping Response (Appendix 2.3), provided clarification on the following details set out in the EIA Scoping Report:

- **Baseline:** The council disagreed with the inclusion of buildings not under construction in the baseline scenario.
- **Alternatives:** The scoping report lacks a discussion of reasonable alternatives to the Proposed Development and needs to be included in the ES.
- **Air Quality**: The assessment should include PM_{10} and $PM_{2.5}$ in addition to NO_2, consider fugitive dust emissions during demolition and construction, and address impacts on adjacent schools and nurseries.
- **Built Heritage**: The assessment should consider the impact on the Mayfield Depot as a Non-Designated Heritage Asset and include views 4, 5, and 6 as heritage views.
- **Climate Change**: The assessment should include a broader approach and methodology for assessing climate change impacts, incorporating information from other technical chapters.
- **Construction Management**: The assessment should provide evidence of baseline traffic flows and daily construction vehicle movements, and the CEMP should include more detailed mitigation measures.
- **Water Resources**: The assessment should address the medium and high flood risk areas, ensure a 50% reduction in surface water runoff through SUDS, and demonstrate that surface water management follows the drainage hierarchy.
- **Noise and Vibration**: The assessment should consider noise impacts on adjacent schools, nurseries, and residential properties in Ardwick, as well as noise from the Mayfield Depot.
- **Townscape and Visual Impact**: View 14 does not appear to be in the previously agreed location and therefore needs to be assessed in the kinetic view.
- **Transport and Access**: The assessment should identify mitigation for increased traffic generation and pedestrian/cyclist movements, in consultation with TfGM, UTC, and MCC.

2.11. Additionally, the council requested the inclusion of assessments for Lighting and Waste, which were not covered in the scoping report, as standalone non-EIA reports. The above comments have been taken on board in the preparation of this ES, which have all been accepted within the assessment in each technical chapter.

Approach to Technical Studies

2.12. 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.

2.13. 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 sought to ensure 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.

2.14. The technical studies have been undertaken in accordance with current best practice. Specific guidance used is referenced within each of the respective assessment chapters.

2.15. The majority of assessments involved consultations with statutory and non-statutory bodies, desk-based research, site inspections and surveys, impact prediction and mitigation.

2.16. The assessment and conclusions of the ES are based on the description of the Proposed Development provided in Chapter 4.

Structure of Technical Chapters

2.17. Each technical chapter of the ES (Chapters 6 to 18) 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.
Assumptions and Limitations	This section describes any assumptions and limitations which have been made that are relevant to the environmental disciplines.
Legislation, Policy and Guidance	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.
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.

Technical Chapter Structure	
	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 20. • 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 summary outlining the potential residual effects of the Proposed Development.

2.18. 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 18.

Assessment and Evaluation of Significant Effects

2.19. 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.

2.20. The guidelines, methods and techniques used in the process of determining significance of effects are contained within each of the technical chapters presented.

Magnitude

2.21. 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

2.22. 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

2.23. 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 2.4: 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

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

2.24. 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'.

2.25. For the purposes of this ES, an effect will likely be 'significant' if it is classed as either 'moderate' or 'major' unless for a specific reason set out in each chapter.

Baseline Conditions

2.26. 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 18) includes a clear description of what is assumed as the baseline against which the assessment is being made.

2.27. The baseline includes nearby schemes under construction. 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

2.28. 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.

2.29. 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.

2.30. Detailed mitigation recommended during the demolition and construction phase will be set out in the Demolition and Construction Management to be agreed with MCC prior to the commencement of work and implemented throughout the duration of the works. Outline mitigation measures to be provisionally included are set out in Chapter 5: Construction Management and Phasing

2.31. Mitigation to be implemented during the operational phase will be secured through approved documents, planning conditions and obligations.

Residual Effects

2.32. 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

2.33. 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'). 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 several schemes for which cumulative effects are considered likely. A full list, as of October 2024 and submitted as part of the EIA Screening and Scoping Request, is contained at Appendix 2.2, which has been updated in accordance with Appendix 2.3 (MCC Scoping Response).

2.35. Each technical chapter (Chapters 6-18) has assessed the potential for likely significant effects on the environment because of the above committed developments, together with the Proposed Development.

2.36. In addition, Chapter 19 sets out all of the residual effects from each of the chapters and Chapter 20 assesses the Type 1 Cumulative effects, which sets out the interrelationship between disciplines on specific identified and sensitive receptors.

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 2024 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. The ecology chapter has also used a baseline assessment from 2019 to reflect the site conditions prior to being cleared in 2020;
- 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 construction and operation of Proposed Development as recommended in each individual technical chapter; 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, considering 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 as Local Planning Authority, members of the public, in addition to 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. This Site is not making an efficient use of land in its existing condition as a cleared site in a strategically important area of Manchester. Despite being screened by site hoardings; it is a negative contributor to the local environment and street scene in terms of its visual appearance.

3.1. Given Mayfield Phase 1b's strategic location within the wider SRF area, it is geographically well-placed to play a significant role in satisfying this demand for new homes to support population and economic growth. The City Centre location offers many of the ingredients sought by residents in terms of location, scale, accessibility to public transport and employment.

3.2. The Site falls within the boundary of the Mayfield Strategic Regeneration Framework (2018), which identified the Site as an opportunity to not only transform the immediate neighbourhood through residential development, but to also act as a catalyst for regeneration and growth of the neighbourhoods around it. Mayfield will truly capitalise on its strategic location adjacent to Piccadilly Station and the city centre to become a world class, transformational and distinctive commercially led neighbourhood that becomes a powerhouse of socio-economic productivity.

3.3. The Site itself could help to contribute to the ambitions of the city by supporting the creation of a new, best-in-class mixed use and commercially led community on vacant brownfield land, expanding the award winning Mayfield Park through the delivery of new landscaping and buildings that are designed to sit within the park. Building on recently approved applications for commercial development in Phase 1a (Baring Street Campus) to the west, Phase 1b (Hoyle Street West) could further help to create a vibrant neighbourhood and will provide a catalyst for other schemes to come forward and support the realisation of the potential in this part of the city.

3.4. Therefore, the 'do nothing' scenario has been discounted due to the established need for regeneration of this part of the City Centre as well as providing suitable land for the strong demand for high quality housing required by Manchester's growing population.

Consideration of Alternative Locations

3.5. The Proposed Development is directly associated in addressing the under-utilisation and strategic location of the Site in accordance with the Strategic Regeneration Framework. The framework anticipated that several benefits can be achieved through the regeneration of this part of the City Centre:

- Create a vibrant new city centre district with exceptional design, restored heritage assets, new public spaces, and a focus on sustainability.
- Generate significant economic growth by creating up to 10,000 new jobs, providing high-quality workspaces, and attracting inward investment.
- Deliver 1,500 new homes in a diverse and inclusive neighbourhood, addressing the city's housing needs and supporting its growing workforce.
- Enhance natural capital by creating a new city centre park, restoring the River Medlock, and increasing biodiversity and access to green space.
- Improve connectivity by physically, socially, and economically linking key regeneration areas and transport hubs.
- Deliver local socio-economic benefits including apprenticeships, job opportunities, and supply chain expenditure.
- Capitalise on transport infrastructure investment by leveraging the economic benefits of improvements at Piccadilly Station, including HS2.

3.6. There are very few remaining sites within Manchester that can deliver this level of transformational change. Any site that has the capacity to be able to is already subject to its own strategic regeneration framework and associated development partners. Whilst there are a range of sites available for large scale residential development, they are also needed to meet Manchester's housing targets on a local and regional level alongside other economic priorities around job creation and social infrastructure. Therefore, whilst there are other sites that may be able to accommodate these objectives set out above, there aren't any that are readily available to do so or that don't already have similar plans in place.

3.7. As such, there is a clear opportunity for the Site to contribute directly to securing the economic potential of the city through new, high quality residential development in combination with the employment generating uses already approved in what is considered integral to the success of the commercially led Framework. Therefore, this Chapter does not consider that there are any other viable alternative sites within the context of the planning application as there is an identified need to redevelop this Site as a key contributor to this regeneration area in Manchester City Centre.

Consideration of Alternative Uses for the Site

3.8. In its existing context, the surrounding area in which the Site is located is predominantly residential, with some commercial, industrial and storage and distribution uses. Ardwick is located to the south with is a residential community that also encompasses an industrial estate, sports pitches, open space and leisure facilities such as the Apollo. To the east of the site, there are some industrial and commercial uses in five one storey building plots.

3.9. To the north is the Mayfield Park with Mayfield Depot operating as a mixed-use commercial venue beyond, which contains food and beverage operators (Freight Island), late night live music (Mayfield Depot) and other leisure, retail and conferencing uses. To the west of the Site lies cleared land associated with Phase 1a of Mayfield, which has approval for 40,000 sq. m. of commercial development across two buildings, a 481-space multistorey car park, cycle hub and ground floor retail uses across each development plot.

3.10. Commercial office uses tend to principally generate activity during the day, with ground floor retail, leisure and restaurant uses extended into the evening. Residential uses tend to be less active during typical working hours in the week and then spread that activity into the evening and on weekends when they are less likely to be in work. On this basis, there is an ambition to deliver a more balanced day and night offering at Mayfield through residential development with ground floor commercial retail and leisure spaces, in accordance with the Strategic Regeneration Framework.

3.11. Notwithstanding this, other uses have been considered in the past for this part of Manchester. The area was firstly earmarked for new development in 2009, when the Mayfield SRF was first endorsed alongside proposals for a wider Piccadilly Masterplan prepared by Bennetts Associates. This considered that the area was a good fit to support the delivery of a new Civil Service Campus and all development to the south of the River Medlock within the Mayfield SRF area was proposed to be commercial development (**Figure 3.1 and Figure 3.2**).

3.12. The 2018 Strategic Regeneration Framework for Mayfield evolved the proposals for the area so that they remained commercially led, but offered a more appropriate mix of uses to ensure that residential formed part of the proposals. This is the latest endorsed Framework for this area and is a material planning consideration for any development coming forward within its area (**Figure 3.3**).

3.13. To complement the approved 40,000 sq. m. of office space to the west and in accordance with the uses in the endorsed Framework, the Proposed Development therefore comprises a high-density residential scheme comprising of a range high quality 1, 2 and 3 bed apartments. This supports an increasing number of people who are seeking to live within the City Centre and the social and economic benefits that provides. There is a clearly identified need for City Centre housing to meeting residential demand as identified within MCC's Core Strategy and Greater Manchester Combined Authorities' 'Places for Everyone' (2024) plan which emphasises the City Centre as providing a significant number of new homes for the region.

3.14. For the reasons above, alternative uses have been tested in the past and have been discounted by virtue of a revised Framework being endorsed, which reflects residential development is proposed to be brought forward on the Site. The proposed residential scheme is therefore considered the most appropriate in the context of this location, responds to identified regeneration priorities and housing need.

Consideration of Alternative Scale and Massing

3.15. Different scales and massing options have been considered for the Proposed Development during design development and over the course of the area's 15-year regeneration journey since initially being endorsed for development as part of an SRF. Ultimately, the aim has been to develop proposals in the context of the latest SRF that will create a viable scheme that provides a wide range of public benefits and addresses strategic policy aims whilst minimising negative impacts on adjacent land uses and the environment.

3.16. The first iterations of the Mayfield SRF envisaged commercial buildings up to 19 storeys on this Site (Figure 3.4), which evolved in the SRF to become a series of residential blocks that indicatively proposed buildings of up to 14 storeys (Figure 3.5). However, since the SRF was endorsed in 2018, there has been a greater pressure for brownfield sites that are in highly sustainable locations to maximise their contribution to meeting housing and economic targets. Development costs have also increased due to finance and cost of labour, alongside regulatory changes in the residential sector that requires all residential buildings over 5 storeys tall to include a second stair core for fire escape purposes.

3.17. This combination of factors has created viability challenges for all forms development in Manchester and more broadly across the country. On this basis, there has been an identified need to increase the massing of the proposals compared to those shown indicatively in the latest SRF, which are more aligned with the heights shown in the 2009 iteration of the Strategic Regeneration Framework. Notwithstanding these viability challenges and identified need to increase housing density on brownfield land, a key component of the SRF is to maintain maximum daylight and sunlight levels into the park, which is a key amenity space for Manchester city centre.

3.18. On this basis, detailed option studies have been carried out on the form of development, acknowledging that around 850-900 units are required to make the development viable. This has tested two tower options, three tower options, four perimeter blocks, four finger blocks and five blocks in a range of configurations (Figure 3.6). This showed that there was a marginal difference between the different options, with the key component requiring the tallest elements to be set back away from the park as much as possible.

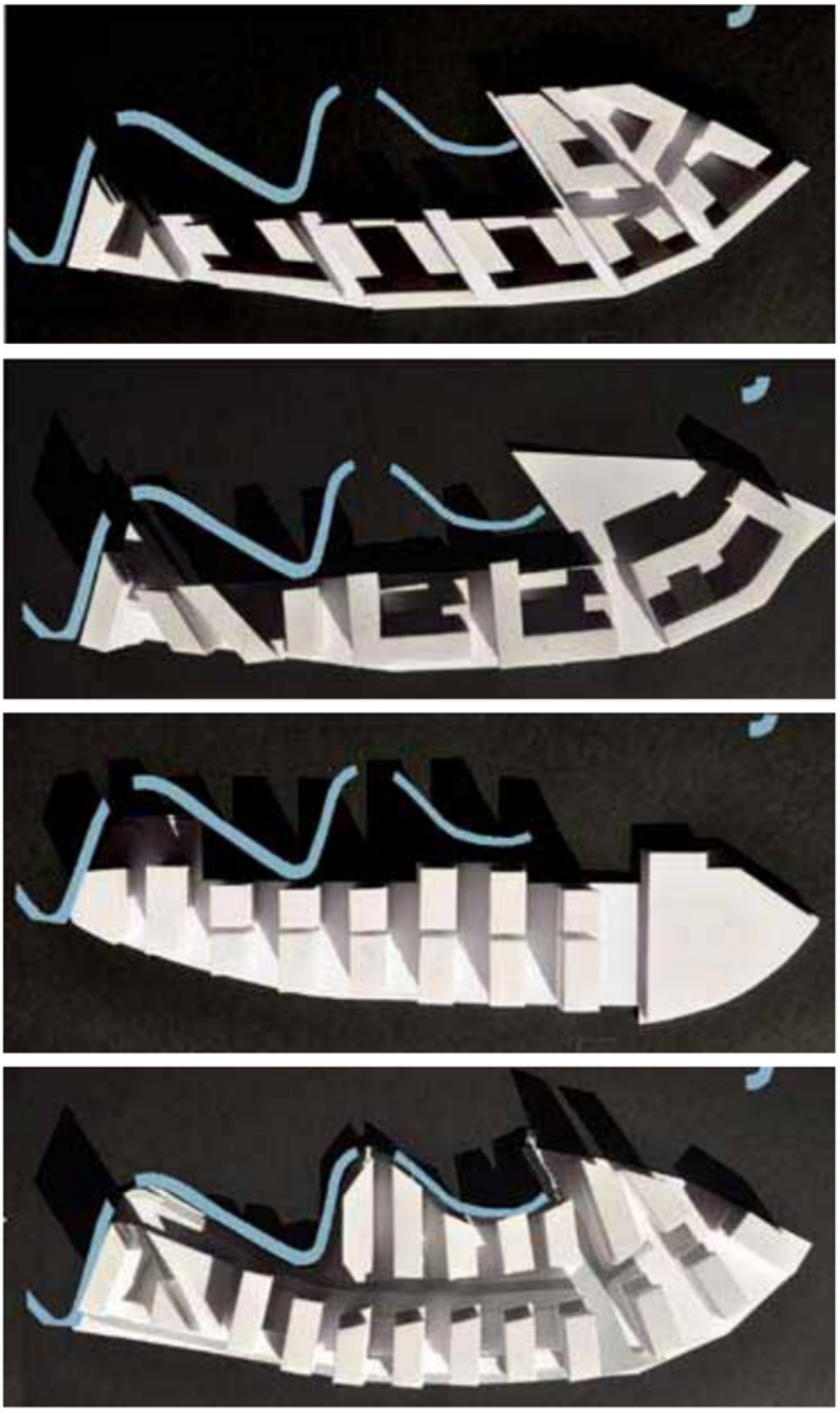
3.19. After rigorous testing, which is set out in detail within the Daylight, Sunlight and Overshadowing Chapter set out in this ES (Chapter 7), it is considered that the optimum solution for a viable scheme is to provide a four-finger block consideration as per the Proposed Development. This means that the park passes the relevant BRE Guidance tests on amenity sunlight hours, but also provides over 6 hours of direct sunlight to most of the park in June each year. The buildings have been chamfered and set back to maximise the amount of daylight. As the park currently gets unfettered amounts of daylight and sunlight, lack of shade has been noted in consultation comments as an issue, and the buildings provide an opportunity to deliver different landscape character areas and purposeful areas of shade for visitors to the park.

3.20. For further information please refer to the Design and Access Statements prepared by SEW and ShedKM. For the reasons above, the proposed scale and massing options is considered to be a suitable solution to delivering the most efficient use of land, whilst leveraging the highest amount of social and economic benefits for Manchester.

Summary

3.21. Where possible, alternative options have been considered throughout the design process and the above summary has set out why the Site is considered suitable for the Proposed Development. This process has been informed by the SRF, viability, and the desire to create a positive relationship with the surrounding developments.

3.22. 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.



Option studies for the land to the south of the river

	Figure:	3.1		
	Title:	Mayfield SRF (2009) - Option Study for Mayfield		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS

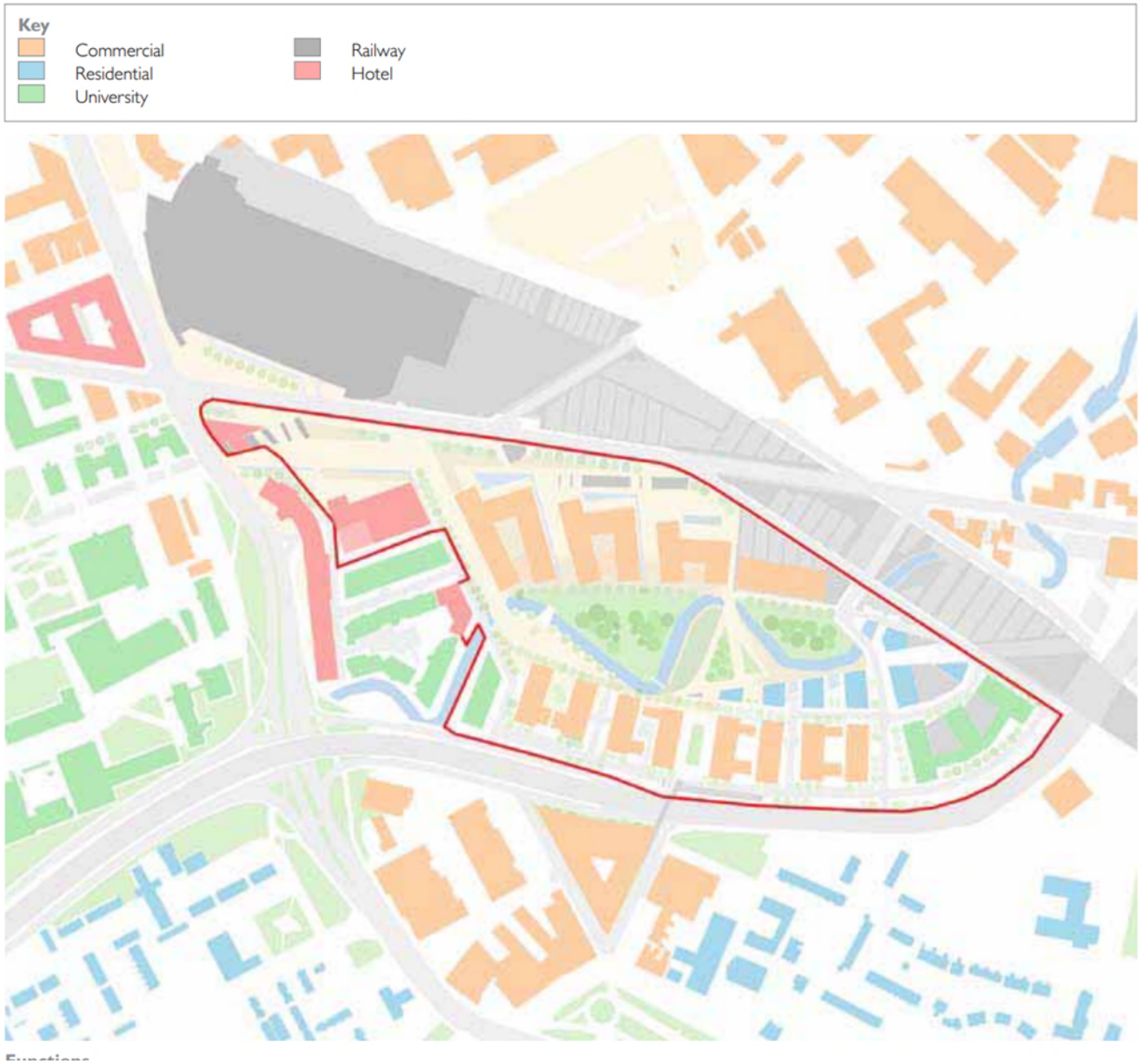
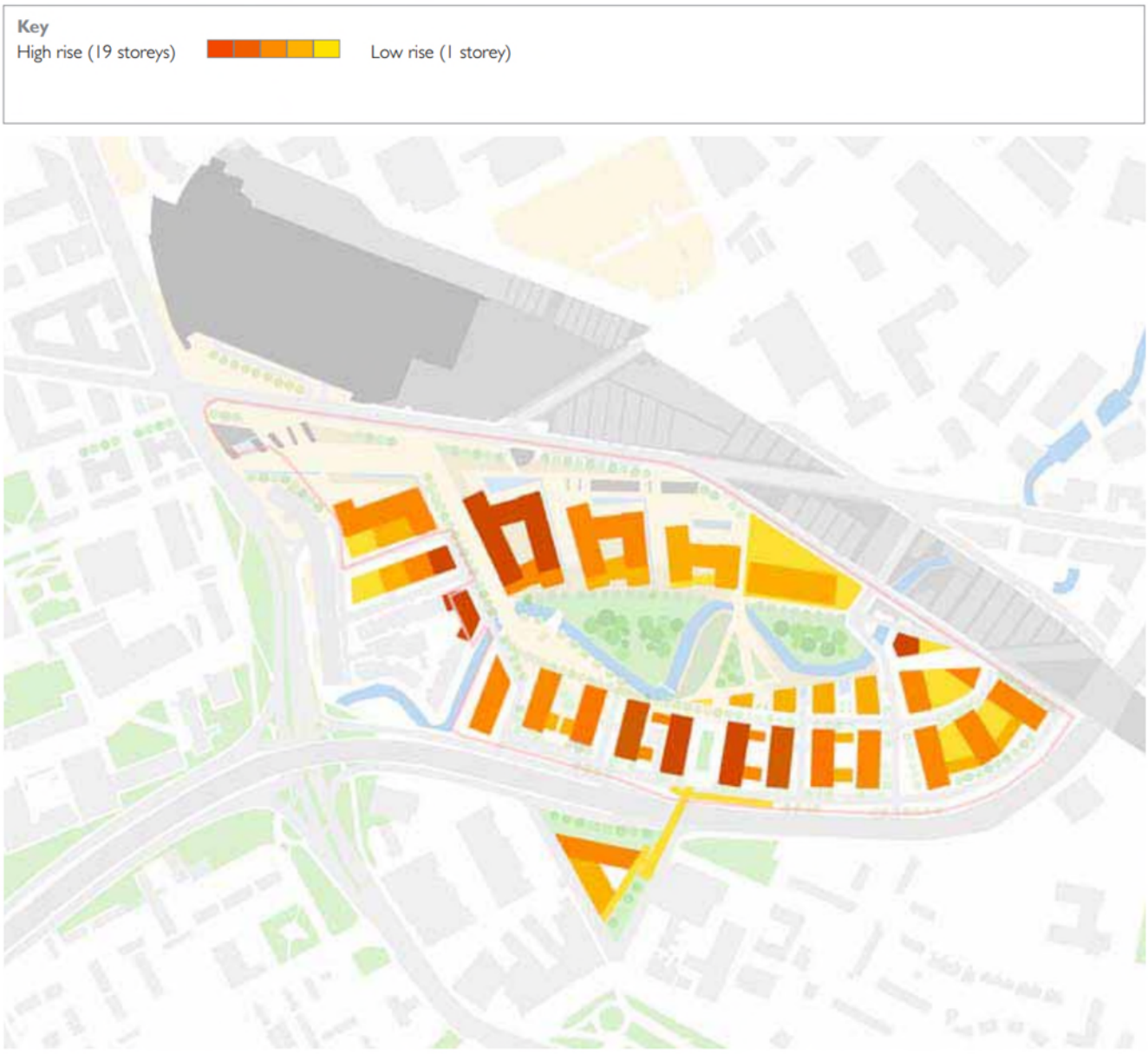


	Figure:	3.2		
	Title:	Mayfield SRF (2009) – Uses Plan		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS

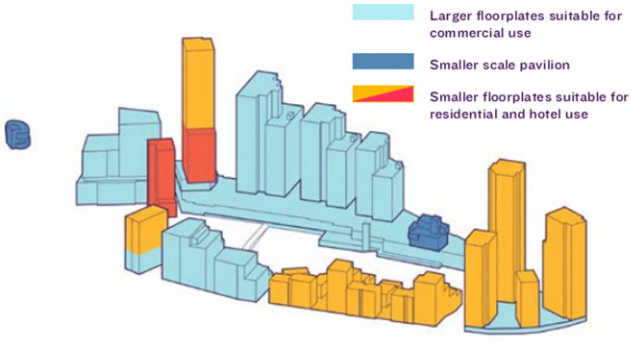


	Figure:	3.3		
	Title:	Mayfield SRF (2018) – Proposed Uses		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS



Building heights

	Figure:	3.4		
	Title:	Mayfield SRF (2009) - Indicative Heights		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS



Indicative proposed building footprints and massing in relation to building use.



Indicative building heights. This should be read in conjunction with the massing model above.

	Figure:	3.5		
	Title:	Mayfield SRF (2018) - Indicative Heights		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS

	Figure:	3.6		
	Title:	Massing Evolution and Options Tested		
	Project:	**Mayfield Phase 1b**		
	Date:	December 2024	Scale:	NTS

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

Site Description

4.2. The Site is located adjacent to the north of the Mancunian Way, to the south of Mayfield Park, to the west of Hoyle Street and to the east of Mayfield Phase 1a, with Baring Street beyond. It measures 1.66 hectares in its entirety.

4.3. The Site comprises previously developed land, which has been largely cleared following the demolition of a former logistics warehouse and vehicular compound in 2019. Following the demolition of those structures, the Site was used as a site compound for materials and vehicles during the construction of Mayfield Park between 2020 and 2022.

4.4. Since the completion of the park, the Site has remained a mix of hard landscaping, alongside areas of made ground and the remains of material piles. There are limited areas of low-quality scrubland around the perimeter of the Site. The Site is accessible to vehicles from Hoyle Street and Baring Street (via the Phase 1a sites).

4.5. The Site is currently surrounded by hoardings to provide physical security and to improve the visual quality of areas surrounding the Site by screening the vacant land from the park and from residents of Ardwick.

4.6. A Site Location Plan identifying the area of redevelopment for Phase 1b is provided at Figure 4.1.

Site Context

4.7. The Proposed Development forms the first residential phase of development as part of a wider commercially led regeneration priority area within Manchester City Centre. In 2018, Manchester's Executive Committee endorsed the 'Mayfield Strategic Regeneration Framework' ('SRF'), which sets out a clear ambition to guide the redevelopment, re-modelling and refurbishment of the Site within SRF boundary.

4.8. The ambition for Mayfield, as set out in the SRF, is to deliver a world class, transformational, distinctive and imaginative commercially led neighbourhood, anchored by Mayfield Park, which will become a powerhouse of socio-economic productivity.

4.9. Following the endorsement of the SRF by Manchester City Council in 2018, applications were submitted in 2019 and approved in 2020 relating to the Poulton, multi-storey car park, Mayfield Park, and the Republic, comprising over 400,000 sq. ft. of commercial floorspace, as described below under Planning History. In summary, the park is now fully complete and operational to the north of Phase 1b, and the Mayfield Depot further to the north has permission until 2030 to be used as a mixed-use cultural venue.

Site Accessibility

Pedestrian

4.10. There are footways to either side of Mancunian Way that are approximately 3.5m wide, however there are no pedestrian crossings over Mancunian Way in the immediate vicinity of the Site.

4.11. The closest pedestrian crossing over Mancunian Way is 320m to the east where there is a signal-controlled crossing at the junction with Fairfield Street. To the west there is a signal-controlled crossing around 430m from Hoyle Street at the junction between Mancunian Way and the A6.

4.12. Mayfield Park provides a network of pedestrian-only routes that extend between Baring Street and Hoyle Street. Hoyle Street and Baring Street provide footways that are all around 1.8m wide, however these are currently in a poor condition and subject to frequent incidences of pavement parking and Baring Street and Fairfield Street provide the most direct pedestrian link to Manchester Piccadilly. Fairfield Street benefits from footways that are around 3m wide, and most road crossings are uncontrolled with dropped kerbs and tactile paving.

4.13. Some junctions have wide crossings. The junction of Fairfield Street and Travis Street has one arm where the pedestrian crossing is roughly 25m and crossing facilities are inadequate.

Cycling

4.14. There are 8 cycle spaces facilities in the immediate vicinity of the Site at the entrance to Mayfield Park on Baring Street, in addition to cycle stands at Piccadilly Station that accommodate up to 43 bicycles.

4.15. Several cycle routes are accessible a short distance away. National Cycle Route (NCR) 66 can be followed from Manchester Piccadilly northbound up the Rochdale Canal, past Rochdale. From here, it continues east through Leeds towards Hull.

4.16. To the west, the on-road cycle lanes on Grosvenor Street connect with the segregated cycle route that runs along Oxford Road. Cycle lanes also exist on London Road where it connects into the A6.

4.17. To the east, there is local route 86 which follows the River Medlock that connects to NCR 60, which travels east before heading south to traverse westbound across south Manchester.

Bus

4.18. The closest bus stops to the Site are on Fairfield Street around 250m to the north of the site. This pair of stops are used by the number 219 bus, which is a service between Manchester and Ashton-under-Lyne and Stalybridge and runs at frequent intervals of not more than 10 minutes during peak hours.

4.19. During the week, services start at 0425 from Ashton and 0500 from Manchester and run until 0200, with frequent journeys operating until midnight. The 220 and 221 also use these stops but between them only operate eight services a day, only on weekdays.

4.20. There are also bus stops on London Road that are served by several other bus routes some 300m to the west of the Site. These include the 192, 201, 202, 203 and 205 that operate regular services between Stockport and Manchester.

Metrolink

4.21. The nearest tram stop is at Manchester Piccadilly located 600m (8-min walk) to the north from the Site. Services to Ashton-under-Lyne, Bury, Eccles, and Altrincham all depart from here. All services operate a peak service of 12-minute frequency, except for the Ashton line, which runs every 6-minutes.

Train

4.22. The nearest train station to the Proposed Development is Manchester Piccadilly station around 600m (8-minute walk) to the north of the Site. This is the busiest station in Manchester with an estimated 30.3M entries and exits in 2018-19.

4.23. Manchester Piccadilly has frequent commuter rail services to destinations throughout northwest England. It is open and staffed 24 hours a day, seven days a week. The station also provides direct national services to London, Birmingham, Glasgow, Edinburgh, Liverpool, and Leeds.

Local Highway Network

4.24. The Site is bounded by the Manchester ring road (Mancunian Way) to the south with access via Hoyle Street. The Hoyle Street/Mancunian Way junction is left-in/-out only so only accessible to traffic travelling anti-clockwise on the ring road.

4.25. The ring road provides connections to all the radial routes into and out of Manchester, which in turn connect to the strategic motorway network in the north of England.

4.26. The Site is therefore very well located for access to the strategic highway network allowing for connections around the north of England and nationwide.

Site Specific Environmental Designations

Heritage

4.27. The Site is not located within a conservation area, nor does it contain any listed buildings. Stevenson Square, Ancoats and Whitworth Street are the three nearest Conservation Areas. There are 20 listed buildings within a 500m radius of the site boundary. Refer to Chapter 17 and Appendix 17.1 for full details of the Site's heritage context.

4.28. In summary, the nearest listed buildings are to the south in Ardwick namely six addresses on Manor Street (Grade II) and Ardwick Green North (Grade II), the Church of St. Thomas (Grade II) and the Drill Hall (Grade II). To the north lies the Star and Garter Pub (Grade II), Piccadilly Station (Grade II*), the Manchester-Altrincham Railway Viaduct (Grade II), the former Station Goods Office (Grade II) and London Road Fire Station (Grade II*). The Mayfield Depot is a non-designated heritage asset, based on the Scoping Response (Appendix 2.2) from Manchester City Council.

Flood Risk and Drainage

4.29. The nearest surface water feature to the Site is the River Medlock, which passes through Mayfield Park to the north. The river is approximately 10m away from the Site boundary at its closest point. There are no other notable surface water features within a 500m vicinity of the Site.

4.30. The Site falls within the North West River Basin District. Within this, it is situated within the Irwell management catchment. The associated River Basin Management Plan sets a number of actions to meet the requirements (i.e., good status) of the Water Framework Directive (WFD).

4.31. With regard to the WFD classification system, when last assessed in 2022, the River Medlock at its nearest location to the site was classified as heavily modified and was designated as achieving moderate ecological status. Chemical status was not assessed in 2022 but was classified as fail in the 2019 assessment cycle.

4.32. The Site does not lie within a drinking water or groundwater safeguarding zone.

4.33. The gov.uk flood map for planning indicates much of the Site is within flood zone 1 and is therefore at a low risk of flooding from rivers and the sea. However, a small area (approximately 0.1ha) to the north boundary lies within flood zones 2 and 3, within which the risk of flooding from rivers is medium. Surface water flood risk is considered to be very low risk across the site and flooding from reservoirs or groundwater is unlikely in the Site.

4.34. The Site is served by United Utilities (UU) for surface and foul water drainage services, and potable water supply. The site is situated within UU's 'Strategic Resource Zone'. More than 90% of UU's water supply is derived from rivers and reservoirs, with the remainder from groundwater. The EA has not identified the area

UU serve as one under serious water stress. Their 'Water Stressed Areas – Final Classification' report (2021) finds the region to be classified as 'not serious'.

Air Quality

4.35. The Site is located within the Greater Manchester Combined Authority Air Quality Management Area (AQMA), which was declared in 2016 due to exceedances of national air quality objectives (AQO) for annual mean nitrogen dioxide (NO_2) and 24-hour mean particulate matter PM_{10} concentrations. The Site is in an area where the local air quality is primarily affected by road traffic emissions from the local road network surrounding the Site, including Mancunian Way and Hoyle Street.

4.36. GMCA have deployed two monitoring networks, to fulfil the requirements for Local Air Quality Management (LAQM) and the Clean Air Plan (CAP). The most recent year of publicly available air quality monitoring data is 2022, which was published by the GMCA. The Air Quality Chapter of this ES (Chapter 15) presents air quality monitoring sites in proximity to the Site and the wider study area.

Planning History

4.37. The proposals for Phase 1B follow the approval in February 2020 of Phase 1a, referred to as the Baring Street Campus, which was approved under planning permission references 124972/FO/2019 (Application 1) and 125248/FO/2019 (Application 2), which have since been partially delivered, as amended.

4.38. Development commenced in Spring 2020 to remediate the Site and the park was fully completed in September 2022. The permissions for Phase 1a were subject to amendments that were then approved in September 2023 (LPA Ref.: 137350/JO/2023 (Plot N – MSCP), 137263/FO/2023 (Plot O – Poulton Office) and 127349/JO/2023 (Plot M – Republic Office).

4.39. The Site also forms part of a temporary planning permission (LPA Ref.: 137072/FO/2023) to provide a construction compound, which was approved to support the delivery of railway infrastructure proposed at Manchester Piccadilly. The area covered by this permission is predominantly to the east of the Site, located on the other side of Hoyle Street and forming Phase 3 of the SRF. However, a non-essential phase of the compound sits on the Phase 1b site, which would fall away once Phase 1b commences development.

4.40. The Site has no other relevant planning history.

The Proposed Development

4.41. The description of the Proposed Development is as follows:

"Phased redevelopment of Mayfield Phase 1b comprising site remediation and reprofiling followed by the erection of two residential plots of development comprising 879 no. new homes (Use Class C3) contained within four buildings ranging from 7 storeys to 23 storeys in height (Plot J) and 9 to 28 storeys in height (Plot K), with upper and lower ground floor commercial spaces comprising restaurant and / or retail units (Use Class E(b) and/or E(a)), and / or indoor sports facilities (Use Class F2) together with highways works, access, servicing, rooftop plant, cycle parking and back of house, along with delivery of associated public realm and other associated works for each relevant phase."

4.42. The proposed uses, mix, number of residential units within each building is broken down in Table 4.3.

Table 4.3: Proposed Development Quantum

	Residential Units	Commercial (E(a)(b)(c) and/or (d))	Back of House	Height
Plot J	385 (1, 2 and 3 bed types)	1,175 sq. m. (GIA)	1,405 sq. m. (GIA)	Plot J1 – part 7, part 17 storeys

	Residential Units	Commercial (E(a)(b)(c) and/or (d))	Back of House	Height
				Plot J2 – part 10, part 23 storeys
Plot K	494 (1, 2 and 3 bed types)	2,436 sq. m. (GIA)	2,118 sq. m. (GIA)	Plot K1 – part 9, part 28 storeys Plot K2 – part 11, part 20 storeys
Plot J + Plot K	879	3,611 sq. m. (GIA)	3,523 sq. m. (GIA)	Maximum height of 28 storeys
Site Area	1.66 ha			
Cycle Storage	570 cycle storage spaces			
Car Parking	7 accessible bays			

	1 bed	2 bed	3 bed	Total
Building J1	55 no. (37%)	84 no. (56%)	11 no. (7%)	150
Building J2	68 no. (29%)	159 no. (68%)	8 no. (3%)	235
Plot J	123 no. (32%)	243 no. (63%)	19 no. (5%)	385
Building K1	78 no. (28%)	181 no. (65%)	19 no. (7%)	278
Building K2	86 no. (40%)	121 no. (56%)	9 no. (4%)	216
Plot K	164 no. (33%)	302 no. (61%)	28 no. (6%)	494
Overall	287 no. (33%)	545 no. (62%)	47 no. (5%)	879

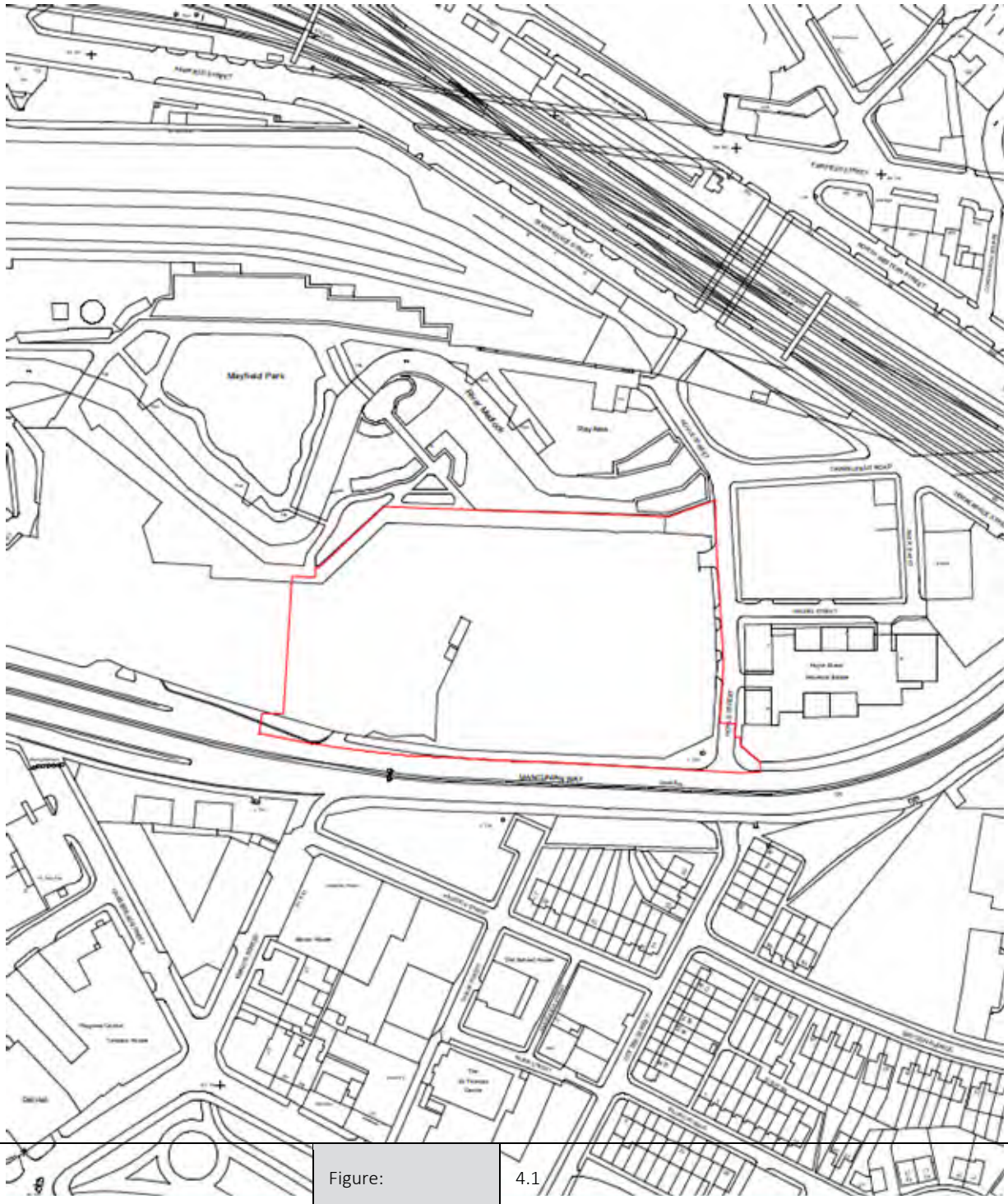


Figure:	4.1			
Title:	Site Location Plan			
Project:	**Mayfield Phase 1b**			
Date:	December 2024	Scale:	NTS	

5. Construction Management and Phasing

Introduction

5.1. This Chapter of the ES has been produced by Construction Planning Associates and is to provide an overview of the construction programme and key activities that will be undertaken.

5.2. The main aim throughout the construction period is to minimise the impact on the surrounding properties, highways and members of the public for the duration of the works. Close collaboration with all project teams for all construction phases will be maintained at all times to achieve this aim.

5.3. The following narrative explains this methodology and timescales envisaged at the time of the planning application. More detailed proposals will be development once Contractor(s) are appointed and prior to the commencement on site. This will include preparation of detailed plans to incorporate Construction Management Plan, Construction Phase Health and Safety Plan, Site Waste Management, Traffic Management and Logistic Management.

5.4. Detailed consideration of potential impacts during the construction process and any necessary mitigation measures are provided in each relevant chapter of the ES.

Programme

5.5. The works will be a staged over an approximately 5-year construction period.

5.6. The indicative timetable is as follows:

- Phase 1 (Plot K plus public realm and estate road): Start on site mid-2025 (circa 4 year programme).
- Phase 2 (Plot J plus public realm): Start on site end 2025/start 2026 (circa 3.5-year programme).
- Expected year of completion Phase 1 and Phase 2 – 2030.

5.7. Works within each phase will generally follow: -

- Construction site establishment, enabling works, piling, ground works and substructure followed by structural frame, façade cladding, internal fit out, final inspections, Gateway 3 Regulatory Approval, Practical Completion and handover.
- Works will be sequenced to minimise the impact to the surrounding highways and properties. Modern Methods of Construction will be used and will reduce the traffic movements.

5.8. Following planning permission the final programming timings can be established. The key durations for Phase 1 and 2 are anticipated to be as follows and covers plots K & J.

- Substructure (including Piling):
    - Substructure works are anticipated to take 6 months per plot and will include on-site service diversions, piling, cropping of piles, foundations and construction of ground floor slabs. Tower

crane foundations will be constructed and tower cranes erected towards the end of this substructure phase.

- Superstructure:
    - The cores will be of jump-form construction and take approximately 10 months to construct per plot. The structural frames will commence when the reinforced concrete (RC) core is at level 4 and progress for 12 months per plot. These works include lift overruns, parapets and concrete upstand.
- External Envelope:
    - The façade on Block K1 is a light red brick with aluminium windows to the 28-storey structure and dark red brick with aluminium windows to the 9-storey structure. The façade on Block K2 is light red brick with aluminium widows to the 21-storey structure and dark red brick with aluminium windows to the 11-storey structure.
    - The façade on Blocks J1 & J2 comprise of 'as struck' concrete arches, polished precast concrete panels, traditional brickwork on steel framing system (SFS)/cement particle (CP) board with metal cladding infill, windows and anodized panels and bolt on balconies to the Parkview units. Block J1 is part 18 and 7 storey; block J2 is part 24 and 10 storey.
    - A combination of tower cranes, hoists, scaffold, and mast climbers will be used to access to construct the external envelope. Works to SFS framing will commence when the RC slab is complete at the 5th floor of the respective block.
    - External hoists, mast climbers and tower cranes will be erected for vertical material distribution.
    - The overall duration for the external envelope per plot is up to 18 months.
- Internal fit out:
    - The internal finishes for the building will use a high proportion of pre-finished materials. The internal partition walls will generally be formed from dry construction to minimize the volumes of material import and limit waste generation.
    - Modern Methods of Construction (MMC) will be utilised where feasible and these may include utility cupboards, bathroom pods, plantroom skids and horizontal pipework distribution.
    - The envelope and finishes have been chosen to limit the volume of site works and the number of operatives required to complete the installation, as well as limiting the volumes of waste materials generated by the installation.
    - Internal fit out works will commence on the ground floor with works to the plant rooms. Fit out of the units will commence after the unitized cladding or windows are installed to the 6th floor of the respective block Fit out works will progress rising up the building from ground to top floor.
    - Lifts will be installed when the building is partially watertight and commissioned. The lifts will be protected, and beneficial use of lifts will allow the striking of external hoists and completion of hoist flats.
    - The overall duration for the fit out is 18 months per plot.
- Landscaping:

- The external landscaping works will commence following the completion of the external envelope. Both Plots incorporate a podium, and these areas will be loaded out with landscaping materials before striking of the tower crane and infill of crane apertures.

- Landscaping works will include works to the Estate Road and Public Highway. Works to the Public highway will be carried out under a Section 278 Agreement, with an overall duration of 13 months. The scope of works to the Public Highway (including location) will be set out in the Section 278 Agreement.

- Gateway 3 Regulatory Approval, Practical Completion and Occupation:

  - The Building Safety Act established a legal framework and gateways in respect of fire safety. The Building Safety Regulator (HSE) has a hold point at the end of a project before occupation can occur. The BSR reviews the 'Golden Thread' of building information and undertakes statutory consultations as appropriate. Gateway 3 must be passed, a Completion Certificate issued and the building registered with the BSR before occupation.

  - This is a new process to the Construction Industry and the timeframes are not firm, and a provisional duration of 3 months has been allowed for each block.

  - The start on site date will be informed by the Planning Application determination, contractor procurement, follow on design stages, and Gateway 2 approval.

Working Hours

5.9. Manchester City Council guidance[1] is that noisy work should only take place between 07.30-18:00 Monday to Friday and 08:30 to 14:00 on Saturdays. No noisy work should be done on Sundays or Bank Holidays.

5.10. Access to the site will be permitted 30 minutes prior to the working day commencing with noise being kept to a minimum for these first 30 mins of the day.

5.11. In the event that specific works need to be carried on outside of normal working hours such as deliveries of equipment requiring special craneage, these will subject to specific license application to the relevant local authority department (Environmental Control and / or Highways). The adjoining property owners and other affected neighbours will also be separately notified of these proposed arrangements prior to their implementation.

Construction Methodology

5.12. 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 materials to the disposal of waste.

Construction Activities

5.13. Phase 1 works generally comprise the following:

- Construction site establishment including adjustment of hoarding lines and site entrance gates.

- Granular pile mat & piling.

- Crop piles, construction of pile caps, foundations and sub structure works.

[1] www.manchester.gov.uk/info/100006/environmental_problems/2956/tackle_a_noise_problem/9

- Tower crane foundations.
- Ground floor slab
- RC cores followed by RC frame.
- Waterproofing.
- External envelope.
- Internal fit out.
- Lift installations.
- Utility connections.
- Strike external hoists/scaffold.
- Completion of hoist flats.
- Test & commission.
- Strike tower cranes.
- External landscaping.
- Completion of building works.
- Prepare & submission of Gateway 3 - Building Safety Regulator.
- Gateway 3 submission approved, and Practical Completion issued.
- Handover & commence occupation.

5.14. Phase 2 works will generally follow the same sequence as Phase 1.

Transport

5.15. Road transport is a major source of local air and noise pollution and contributes to carbon dioxide emissions. Opportunities to minimise construction traffic are to be considered, measures may include for example, reducing the transport impacts of materials and construction staff.

5.16. The Contractor will define the method of delivery / removal of materials and plant from the site, including the identification of access routes for deliveries and personnel. This will be incorporated within the Detailed Construction Management Plan (CMP). The baseline traffic flows are set out in Chapter 18 (Transport and Access), which will be considered in the preparation of a Detailed CMP.

5.17. The construction of the Site could result in the closure of roads and footpaths, physical works within the highway to form new site access points, layout improvements, service upgrades and the need to accommodate regular deliveries of materials and construction equipment. It is acknowledged by MCC that the precise nature of the construction related highway effects are difficult to identify in detail until a final construction programme and delivery phasing plan has been undertaken.

5.18. The routing of construction traffic and associated swept-path assessment will be incorporated in the Detailed Construction Management Plan. The site has good access and links to the A57(M) Mancunian Way.

5.19. The CMP will identify vehicle access points into the site and traffic management measures to control deliveries, highway users, pedestals and cyclists.

5.20. To minimise the potential impact of construction workers travelling to the area a Travel Plan will be implemented to promote and encourage the use of sustainable mode of travel to and from the site and minimise the use of private cars. The Travel Plan will be included within the Detailed Construction Management Plan.

5.21. The travel plan will identify alternative means of transport for operatives as there will be limited parking facilities on site given the site constraints.

5.22. The Contractor will ensure that pro-active measures are taken to prevent dust from vehicles leaving site during the works being deposited on the public highway as set out in the Dust section of this document and IAQM (Institute of Air Quality Management) recommendations.

5.23. All vehicles will be loaded and unloaded within the site boundary and hoardings Location of the site hoardings will be illustrated in the CMP for the relevant phase.

5.24. All muck away lorries will be fully sheeted to minimise the risk of any mud over-spilling onto the highway. All other deliver vehicles will be sheeted or covered where possible to avoid dust.

5.25. A jet wheel wash apron will be established in front of the exit gates to control dust and mud being tracked out of the development onto the Highway.

5.26. All site staff will be trained in traffic management as a pre-requisite of the contract to ensure that when there is site related traffic, the residents will not have their movements hindered by delivery and waste lorries.

5.27. All construction vehicles over 3.5T will meet the following conditions: -

i. Operators must be a member of Fleet Operator Recognition Scheme at the Bronze level.

ii. All drivers will have undertaken cycle awareness training such as the Safe Urban Driver module through FORS or similar.

iii. All vehicles associated with the construction works will have: -

a. side guards fitted;

b. a close proximity warning system fitted comprising of a front mounted, rear facing CCTV camera (or Fresnel Lens where this provides reliable alternative), a close proximity sensor, an in-cab warning device and an external warning device to make the road user in close proximity aware of the driver's planned manoeuvre; and,

c. a Class VI Mirror.

iv. Prominent signage on the rear of the vehicle to warn cyclists of the dangers of passing the vehicle on the inside.

v. Banksmen will be attendance when lorries enter and leave the site.

Health and Safety

5.28. A site compound will then be established for contractors, operatives, visitors and Clients and comply with Schedule 2 of the Construction (Design and Management) Regulations 2015 (CDM 2015) and include the following:

- Temporary offices & welfare facilities.
- Designated safe access routes from the Highway.
- Utility and sewer connections.
- External security lighting.

5.29. The site compound will also incorporate:

- Materials delivery and storage areas.
- Waste segregation area.
- Sub-contractors storage area for containers and tools storage.
- Refuelling area. All fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001. Refuelling will only be undertaken in a designated area, designed to contain contaminated runoff, and by trained personnel. Emergency spill kits are to be readily available.

5.30. Site hoarding will be erected to secure the site and prevent un-authorised access to the site.

Construction Materials

5.31. Construction vehicle movements will be limited to the working hours specified in the planning consent and will not be undertaken on Sundays or public holidays unless separate agreement/notification has taken place.

5.32. A Highway dilapidation survey will be conducted before the works commence with photographic records and commentary of the condition of the carriageway/footways on construction routes adjacent to the site, and a copy of the survey will be issued to Manchester Highways.

5.33. It will be a requirement for all vehicles and driver management practices to comply with the Fleet Operator Recognition Scheme FORS and Construction Logistics and Community Safety (CLOCS).

5.34. Given the limited space on site all deliveries will be managed using a booking in system where all deliveries will have an assigned delivery slot.

5.35. No vehicles will be permitted to wait in the surrounding streets.

5.36. All vehicles will be loaded and unloaded within the site boundary and hoardings.

5.37. Banksmen will be attendance when lorries enter and leave the site.

5.38. Materials required for the scheme will principally be concrete, steel, bricks, windows, doors, plasterboard, mechanical and electrical, kitchens and sanitary ware.

5.39. The use of a consolidation centre has been considered but is not considered practical.

5.40. Concrete & rebar deliveries will already be consolidated with full loads planned to maximise operation efficiency and minimise traffic movements.

5.41. Bricks & rebar deliveries will full loads and unloaded via Hiab or tower crane.

5.42. Internal finishes (plasterboard, kitchens etc.) will be delivered by HGV as appropriate, and all loads will be maximised.

5.43. The strategy is for vehicles arriving at site to target 75% full loads or greater.

Site Security and Safety

5.44. Security of the site is of utmost importance not only to ensure security of the materials stored on site, but also to ensure that unauthorised personnel and in particular children are not able to access the site outside of working hours.

5.45. Solid 2.4m high plywood hoarding will be erected to all boundaries to secure the site and incorporate site access gates, and a site security system will be established. The location of the site hoardings will be illustrated in the CMP for the relevant phase.

5.46. External security lighting will be incorporated into the site hoarding to maintain safe levels of illumination for pedestrians and other road users. This will operate between dusk and dawn.

5.47. Site entrances will be controlled by biometric scanner through a secure metal turnstile. This will monitor operatives and prevent unauthorised public access to the site.

5.48. The main gates will be locked at all times with the exception of when deliveries are being made.

5.49. The main gates will be manned by a qualified banksman who will co-ordinate traffic and bank deliveries and ensure the road and pavement areas are kept clean.

5.50. All construction materials will be stored within the site boundaries.

5.51. The site will be locked outside of working hours to ensure that all materials and equipment are stored securely.

5.52. A site security system will be established during the mobilisation phase and include CCTV and includes security guards out of hours.

Environmental Legislation

5.53. Environmental consents and licenses that may be required to enable the construction will be identified in a register.

5.54. The timetable for obtaining them will be developed by the Contractor.

5.55. An Ecology and Biodiversity Assessment was produced by Buro Happold in December 2024.

5.56. The receptors during construction are:

- River Medlock
- Priority deciduous woodland habitat and open mosaic habitat
- Semi-natural habitats identified within Mayfield Park
- Scattered young trees on Site
- Other neutral grassland on Site
- Bats
- Breeding birds

5.57. The Buro Happold report starts no bat roots were identified within the EIA site. The Buro Happold report identified the bird assemblage associated with the EIA Site is considered to be of local ecological importance.

5.58. The means to mitigate the impact so the post mitigation impact is negligible is a Construction Environmental Management Plan to be secured through planning condition and implemented by contractor.

5.59. Mitigation proposals in respect of the River Medlock are identified in pollution control below.

Pollution

5.60. A detailed survey of existing surface water drainage will be commissioned and undertaken during the mobilisation phase. This will identify any drainage that provides a pathway for pollution or sediment to discharge into the River Medlock.

5.61. Existing redundant drainage will be capped off before the start of demolition works.

5.62. These measures will prevent pathways for pollution and sediment to enter the River Medlock during the construction & demolition phases from existing surface water drainage

5.63. The Contractor shall adopt best construction management practices that will reduce the risks of accidental discharge of pollutants or contamination of groundwater.

5.64. A pollution control and contingency plan will be developed by the Contractor and included within the Detailed CMP to provide details of the measures to be implemented to prevent pollution of the River Medlock and the actions to be taken in the event of an environmental incident or emergency.

5.65. All operatives will be briefed on the dust and River Medlock mitigation measures as part of the compulsory Site Induction Training that all operatives must attend before starting work on site.

5.66. Suitable training, including the location and use of spill kits will be provided for construction staff and operatives.

Noise and Vibration

5.67. A Noise & Vibration Assessment was produced by Buro Happold in December 2024 as part of an Environmental Statement (see also Chapter 16 of this ES) which sets out further details of likely noise & vibration impacts during construction. The conclusion is no significant or otherwise adverse effects are expected from construction with the Proposed Development at any receptor and therefore is no need for mitigation.

5.68. The construction methods and selection of plant will at all times comply with the guidelines set out in BS5228 (2009) "Code of Practice for Noise & Vibration Control on Construction and Open Sites".

5.69. All on road mobile machinery (NRMM) with power between 37kW and 560 kW should meet Stage IV of EU directive 97/68/EC, and Stage IIIA of EU directive 97/68/EC as a minimum.

5.70. Noise and vibration will be controlled and limited so far as reasonably practicable so that sensitive receptors are protected from excessive noise and vibration arising from construction.

5.71. The Contractor shall prepare a Management Plan for the control and monitoring of noise and vibration.

5.72. During the construction phase and in particular during foundation works further sound level readings will be taken on site to ensure noise levels remain within acceptable guideline levels. In the event that noise levels exceed guidelines, the contractor will implement mitigation measures to limit any noise disturbance to local residents and business premises.

5.73. Where practicable the contractor will explore methods of construction that minimise noise levels from site activities.

5.74. With regard to operative training and induction, the site induction and training process that all operatives must attend prior to commencing work on site and in order to comply with the requirements of the Health

and Safety at Work Act, will include a specific section on the importance on the minimization of noise and vibration nuisance to the adjoining receptor sites.

5.75. Measures to be investigated and adopted as appropriate will include a selection of silenced plant, the pre-cutting of materials off site, prefabrication of plant or service containment and prefabrication and pre-cutting of 1st and 2nd fix materials and elements.

5.76. Certain activities may extend outside normal working hours to enable safe working or as a result of unforeseen events (e.g. large concrete pours). In the unlikely event these occur Manchester City Council Environmental Health Team will be contacted.

Dust

5.77. A detailed Air Quality and Dusk Risk Assessment was produced by Buro Happold in December 2024 as part of an Environmental Statement (see also Chapter 15 of this ES). Appendix 15.2 sets out the mitigation measures recommended.

5.78. The site is assessed as 'Medium Risk' in respect of dust soiling, 'Low' in respect of human health. Ecological impacts were screened out by Buro Happold.

5.79. Buro Happold report (Appendix 15.2) identifies the daily maximum number of outward HGV movements will be 26, this was asked as part of the scoping response.

5.80. The Contractor shall prepare a Management Plan for the control and monitoring of dust, smoke and any other airborne pollutants (see also Chapter 15 of this ES).

5.81. Manchester City Council guidance on air pollution is to adopt best practicable means (Air Quality & Planning Technical Guidance August 2022).

5.82. The site will adopt current best practices principles as recommended by the Institute of Air Quality Management (IAQM).

5.83. With respect to communications:

i. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.

ii. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary.

iii. Display the head or regional office contact information.

iv. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, realtime PM10 continuous monitoring and/or visual inspections.

5.84. With regard to Site Management:

i. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.

ii. Make the complaints log available to the local authority when asked.

iii. Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.

iv. Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised.

5.85. With respect to monitoring:

i. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.

ii. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

iii. Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences

5.86. With respect to prepping and maintaining the site:

i. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.

ii. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.

iii. Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.

iv. Avoid site runoff of water or mud.

v. Keep site fencing, barriers and scaffolding clean using wet methods.

vi. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site.

vii. Cover, seed or fence stockpiles to prevent wind whipping.

5.87. With regard to operating vehicles/machinery and sustainable travel:

i. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.

ii. Ensure all vehicles switch off engines when stationary - no idling vehicles.

iii. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

5.88. With respect to operations and waste management

i. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.

ii. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.

iii. Use enclosed chutes and conveyors and covered skips.

iv. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

v. Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

vi. Avoid bonfires and burning of waste materials.

5.89. With regard to earthwork and construction:

i. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

ii. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.

iii. Avoid dry sweeping of large areas.

iv. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.

v. Record all inspections of haul routes and any subsequent action in a site log book.

vi. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

vii. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

viii. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.

ix. Access gates to be located at least 10 m from receptors where possible.

5.90. The Site Manager will be responsible for the control and management of noise at the site. Site management will ensure that all personnel on site are adequately trained to implement dust mitigation measures.

5.91. All operatives will be briefed on the dust and noise mitigation measure as part of the compulsory Site Induction Training that all operatives must attend before starting work on site.

Public Relations

5.92. The Contractor will define procedures for internal and external communication. The Client may require that any communication with external parties such as Environmental Regulators or the Public is undertaken through a nominated client representative.

5.93. Various Public Exhibitions have been carried out as part of the pre-application planning process.

5.94. A public consultation process will be undertaken as part of the planning determination.

5.95. Feedback from the public consultation will be reviewed and incorporated into the Detailed Construction Management (CMP) where appropriate.

5.96. A consultation letter will be delivered to all the adjoining properties giving outline details of the scheme and programme before works commence.

5.97. The Principal Contractor will hold a pre-start workshop/meeting with local business and residents before the works commence.

5.98. The development will be registered with the Considerate Contractors Scheme.

5.99. The works will be audited on a regular basis by the scheme inspectors and the site notice board will include details of the site registration, the scheme administrator contact details as well as those of the Contractors site management team.

5.100. A site information board will be displayed which will include:-

- The name of the Principal Contractor, address and person to whom correspondence should be addressed.
- Name of the site manager
- Direct dial number of the site manager
- Emergency contact number(s)/out of hours number

5.101. The Contractor's Project Manager will keep in regular contact with local residents, affected parties and the Council.

5.102. All complaints or information requests will be made aware to the Client Project Manager and will be logged promptly.

Operational Waste Removal

5.103. Site Waste Management Plans (SWMP) are no longer a statutory requirement; however, the Project will develop and implement a SWMP to facilitate good industry practice and record the Duty of Care information.

5.104. The SWMP will:

- Estimate material resources use and waste arisings and identify opportunities to reduce waste arisings and cost;
- Provide an initial indication as to if material resources and waste arisings have the potential to be reused, recycled, recovered or disposed; and,
- Propose end destinations for waste arising.

5.105. In general, the following measures would be implemented during the design and construction phases of the Scheme, where technically, economically and environmentally practicable:

- Manage waste in accordance with the waste hierarchy.
- Design-out and prevent waste arising.
- Recycle demolition materials arising from development within the construction of the development.
- Divert waste from landfill through offsite recycling and recovery.
- Use recycled and secondary aggregates in the construction of the Scheme.

5.106. The Contractor shall, in order to reduce the need for waste disposal, minimise the generation and environmental impacts of wastes arising during the works and shall maximise opportunities for the re-use and recovery of wastes.

5.107. The Contractor shall include within the Detailed CMP proposals for the identification, segregation, handling and storage of waste. These are summarised below:

- The internal finishes for the building will use a high proportion of pre-finished materials.
- The internal partition walls will generally be formed from dry construction to minimise the volumes of material import and limit waste generation.
- Waste materials will be segregated into separate skips and re-cycled where possible to minimise the amount of waste going into landfill. It will be monitored via 'smart waste'.
- Initiatives to reduce waste streams will be incorporated where possible and recycling of off-cut the back to the supplier e.g. plasterboard.

5.108. The Contractor shall make any necessary applications to the Local Authority and/or the Environment Agency, under the terms of the Environmental Permitting Regulations 2007, and the Town and Country Planning Act (1990) for the storage, treatment, or disposal of wastes.

Summary

5.109. Mayfield Plot 1b scheme represents an inclusive and open approach to the site and the manner which it is developed, the materials selected, and the techniques used.

5.110. After the Contractor is appointed, they will commence the preparation of detailed plans to prepare a Detailed Construction Management Plan, Construction Phase Health and Safety Plan, Site Waste Management, Traffic Management and Logistic Management.

5.111. 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.

5.112. The Principal Contractor will be responsible for the health and safety standards on the project. This will be implemented via the site management team with regular inspections, risk assessments, toolbox talks and independent safety inspections.

6. GHG Emissions

Introduction

Introduction

6.1. This Chapter of the ES has been prepared by Buro Happold and assesses Greenhouse Gas emissions and Climate Change.

6.2. This Chapter is accompanied by the following appendices:

- Appendix 6.1 - Greenhouse Gas Calculation Inputs
- Appendix 6.2 - Climate Change Resilience Risk Assessment

6.3. The authors of this Chapter have the following qualifications/experience:

Technical Competence in Buro Happold		
	Lead Author	Reviewer
Name	Charlotte Ainsworth	Patrick Little
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	BSc Geography MSc Climate Change	BSc Environmental Geoscience MSc Water Resources Management
Does the practitioner hold any IEMA qualification?	Graduate IEMA Membership	Practitioner IEMA Membership
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	3	EIA practitioner: 14 years Climate change assessment in EIA: 7 years
Number of EIA's delivered to date	Climate change assessment in EIA: 20+	Climate change assessment in EIA: 20+

Assumptions and Limitations

6.4. In undertaking this assessment, there are a number of assumptions and limitations affecting the outputs. The assessment reported in this chapter is based on scheme information provided in the following documents:

- The assessment reported in this chapter is based on scheme information provided in the following documents:

- Stage 2 Pack (WSP, October 2024);
- Maximum area schedule for Plot J (ShedKM, December 2024);
- Maximum area schedule for Plot K (Studio Egret West, December 2024);
- Mayfield Phase 1b – Project Overview Crib Sheet + Doc Schedule (Deloitte, December 2024); and
- Traffic data to BH v1.2 (Civic Engineers, November 2024).

- In line with the principles set out in BS EN 15978, a Reference Study Period (RSP) of 60 years after opening (the fully operational opening year) has been used. The assessment reported in this chapter is also based on various assumptions, set out in the Methodology section of this chapter;

- The detailed scheme information required to undertake a full embodied carbon assessment of the Proposed Development, such as construction material quantities, is not yet available. Conservative embodied carbon benchmarks have been agreed with the project MEP engineers, WSP, and used to inform the assessment. Whilst the project is targeting more ambitious embodied carbon benchmarks than the benchmarks used in this assessment, as it cannot be guaranteed that they will be achieved, the use of more conservative benchmarks is considered a more robust and conservative approach;

- It is assumed that embodied carbon from maintenance and replacement (lifecycle stage B1-B5) will occur from 15 years after the beginning of operation, to the end of the lifecycle of the development. This is because replacement and maintenance are not expected to be required in the first 15 years of operation;

- Operational energy and embodied carbon benchmarks have been used in the calculation of GHG emissions for some areas of the Proposed Development based on expected floor areas and building uses. Whilst these benchmarks have given an estimate of the scale of GHG emissions associated with the Proposed Development, they will not be completely accurate due to variations between buildings, including geography, construction processes and construction materials used. However, these are considered the best methods for estimating GHG emissions available to us at the time the chapter was prepared. Additionally, where there is uncertainty, a worst-case scenario approach has been taken. A stand-alone Whole Life Carbon (WLC) Report has been prepared separately by WSP based on more detailed scheme information. However, due to programme constraints, it has not been possible to use the WLC report results to inform this ES chapter.

- There is some inherent uncertainty in the Department for Energy Security and Net Zero (DESNZ) emissions factors. The emissions factors are in line with the UKs decarbonisation trajectory towards net zero in 2050, however this is an assumption, and the actual emissions trajectory is unknown.

Relevant Legislation, Policy and Guidance

6.5. The following legislation and planning policies are of relevance to the assessment of the effects of the Proposed Development in relation to greenhouse gas emissions and climate change resilience and adaptation.

Legislation

Paris Agreement 2015

6.6. Negotiations at the Conference of the Parties (COP) 21 led to the 2015 Paris Agreement, the aim of which is to maintain the increase in global average temperature at 'well below' 2°C and 'pursue efforts' to limit the temperature increase even further to 1.5°C.

6.7. A total of 160 parties, including the UK, made voluntary pledges to reduce emissions by 2030, however the cumulative effect of these would still lead to an estimated 3°C of warming or greater.

The Special Report on Global Warming of 1.5oC, International Panel on Climate Change (IPPC) 2018

6.8. The IPCC published a special report in response to the Paris Agreement, to present the impacts of the targeted 1.5°C temperature rise. The report highlighted that to achieve this, global emissions must decrease by 45% by 2030 (against a 1990 baseline), and that net zero global emissions (where emissions and removals from the atmosphere are balanced) must be achieved by 2050. This is noted to require rapid and far-reaching transitions of every sector on an unprecedented scale.

The Climate Change Act (2008) & The Climate Change Act 2008 (2050 Target Amendment) Order 2019

6.9. To support international efforts, the UK Climate Change Act set a legal GHG target for the year of 2050 for the reduction of GHG emissions. The target set by this Act is 'at least 80% lower than the 1990 baseline' by 2050.

6.10. The Act introduced a series of carbon 'budgets' to be implemented for succeeding five-year periods to gradually result in an overall reduction in GHGs.

6.11. In June 2019 the Climate Change Act was amended to set the overall reduction target by 2050 to ensure that the net UK carbon account is lower than the 1990 baseline.

6.12. According to the Progress in reducing emissions 2024 Report to Parliament, 'The UK has a successful track record of emissions reductions, having met all its targets so far' for its first, second, and third carbon budget, however 'the previous Government signalled a slowing of pace and reversed or delayed key policies. The new Government will have to act fast to hit the country's commitments.' Furthermore, with regards to the UK's 2030 target to reduce emissions by 68% compared to 1990, the report states that 'the country is not on track to hit this target despite a significant reduction in emissions in 2023'.

6.13. Section 56 of the Climate Change Act requires the UK Government to undertake a Climate Change Risk Assessment (CCRA) on a five-yearly cycle, with the subsequent development of an adaptation programme to deliver resilience against these risks. This act stipulates that the Government must assess 'the risks for the United Kingdom from the current and predicted impacts of climate change'.

Carbon Budgets Order (2021)

6.14. A series of Orders set the carbon budget for these five-year budgetary periods. These carbon budgets set a cap on the maximum level of the net UK carbon 'account' for each five-year budgetary period. The net UK carbon account is defined in section 27 of the Climate Change Act 2008.

6.15. There are budgets currently set up to 2037. The UK is currently in the fourth carbon budgetary period (2023 - 2027), the budget for which is 1,950 MtCO2e. The UK cannot legally emit more GHGs than this within this budgetary period. The future carbon budgets set are:

- 2023–2027: 1,950 MtCO2e;
- 2028-2032: 1,725 MtCO2e; and
- 2033-2037: 965 MtCO2e.

6.16. Whilst budgets are not set beyond this, there is a legal requirement for the UK to reach 0 MtCO2e by 2050.

Policy

National Planning Policy

National Planning Policy Framework (NPPF) Ministry of Housing Communities & Local Government (MHCLG, formerly DLUHC), 2024)

> *'In determining planning applications, local planning authorities should expect new development to:*
>
> *Comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*
>
> *Take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.'*

6.17. Section 14 of the NPPF focuses on meeting the challenge of climate change, flooding and coastal change. Paragraph 164 states that new developments should be planned in ways that:

> *''avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through incorporating green infrastructure and sustainable drainage systems.'; and*
>
> *'help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings in plans should reflect the Government's policy for national technical standards..'*

National Planning Practice Guidance (NPPG) (MHCLG, formerly DLUHC), 2023)

6.18. The Climate Change Guidance states the importance of planning to consider climate change:

> *'Effective spatial planning is an important part of a successful response to climate change as it can influence the emission of greenhouse gases. In doing so, local planning authorities should ensure that protecting the local environment is properly considered alongside the broader issues of protecting the global environment. Planning can also help increase resilience to climate change impact through the location, mix and design of development.'*

The Building Regulations Part L 2021 Edition

6.19. Building regulations Part L1A and Part L2A set out minimum legal requirements for energy efficiency in residential (Part L1A) and non-residential (Part L2A) building construction. These regulations are typically updated every 3 years with new minimum performance benchmarks set. The Proposed Development will have to comply with the relevant version of Part L.

6.20. An additional update was issued in February 2023; however, the modifications made within this update are not relevant to the assessment reported in this ES chapter.

The Carbon Plan: Delivering our Low Carbon Future (DESNZ, formerly DECC, 2011)

6.21. The Carbon Plan 'sets out how the UK will achieve decarbonisation within the framework of our energy policy: to make the transition to a low carbon economy while maintaining energy security'.

6.22. To outline the methods available to achieve this, the Carbon Plan lists a series of "sectoral plans", which are provided below with highlights:

- Low carbon buildings:
    - ‘Buildings will need to become better insulated, use more energy-efficient products and obtain their heating from low carbon sources.’;
- Energy efficiency:
    - Over the next decade, ‘all cavity walls and lofts, where practical, will be insulated. Alongside this, the Government will support up to 1.5 million solid wall insulations and other energy efficiency measures such as double glazing.’; and
    - ‘During the 2020s, deployment of solid wall insulation will increase and installation costs will fall’;
- Low carbon heating:
    - ‘During the 2020s, we need to begin the mass deployment of low carbon heat. Technologies such as heat pumps will begin to expand at scale into residential areas, overcoming current barriers such as cost and unfamiliarity’;
- Low carbon transport:
    - ‘During the 2020s, we will move towards the mass market roll-out of ultra-low emission vehicles, although further improvements in the efficiency of conventional vehicles and sustainable biofuels are also anticipated to play a key role’; and
    - ‘To support people to make lower carbon travel choices, such as walking, cycling or public transport, the Government is providing a £560 million Local Sustainable Transport Fund over the lifetime of this Parliament.’
- Low carbon electricity:
    - ‘Over the next decade, we need to continue reducing emissions from electricity generation through increasing the use of gas instead of coal, and more generation from renewable sources.’

British energy security strategy (DESNZ, 2022)

6.23. The British energy security strategy, published in light of rising global energy prices, sets out the UK Government’s plans to reduce the UK’s dependence on fossil fuels, and increase the UK’s own energy production, particularly in renewables. It states that ‘The first step is to improve energy efficiency, reducing the amount of energy that households and businesses need’, ‘But the long-term solution is to address our underlying vulnerability to international oil and gas prices by reducing our dependence on imported oil and gas’.

6.24. The plans outlined include ‘Investing in the North Sea, expanding our renewable capacity, and leading in nuclear power’, which ‘will also enable the UK to produce more hydrogen’.

6.25. The energy security strategy uses six objectives with key measures, which are as follows:

- Oil & Gas, with key measures such as ‘Planned new oil & gas licensing, mindful of delivered Climate Checkpoint & energy security’ and ‘Clean electricity for offshore platforms’;
- Nuclear, with key measures such as ‘Up to 8 reactors progressed across the next series of projects’ and ‘Reaching up to 24GW by 2050 (up to 25% of demand)’;

- Solar, with key measures such as 'Consult on amending planning rules to strengthen policy in favour of solar development' and 'Design performance standards to further encourage renewables, including solar PV, in new homes and buildings';

- Wind, with key measures such as 'Halving planning and regulation time for new offshore wind projects' and 'Consult on developing partnerships for a number of onshore wind projects for supportive communities, with associated benefits for local population';

- Hydrogen, with key measures such as 'Double our ambition to up to 10GW hydrogen production capacity, at least 50% from electrolytic projects' and 'Aim to run annual allocation rounds for the hydrogen business model, moving to price-competitive allocation by 2025 as soon as legislation and market conditions allow'; and

- Demand, with key measures such as 'VAT cut for insulation & heat pumps' and 'Setting clear energy performance standards varying by building type'.

Net Zero Strategy: Build Back Greener

6.26. On 20th April 2021, the UK Government announced that it 'will set the world's most ambitious climate change target' to reduce emissions by 78% by 2035 compared to 1990 levels as part of its sixth carbon budget.

6.27. The Net Zero Strategy identifies the following commitments:

- Delivering a decarbonised power system by 2035;

- An ambition for 5 GW UK low carbon hydrogen production capacity by 2030;

- Ambition to deliver 6 MtCO2 per year of industrial Carbon Capture, Utilisation and Storage (CCUS) by 2030, and 9 MtCO2 per year by 2035;

    - Making the transition to low carbon buildings affordable and achievable for all by:

    - Aiming to phase out the installation of new and replacement natural gas boilers by 2035;

    - Making heat pumps as cheap to buy and run as a gas boiler by growing the heat pump market to support 600,000 installations per year by 2028 and expanding UK manufacturing;

    - Consulting on phasing out the dirtiest and most expensive fossil fuels first – new oil, coal and liquefied petroleum gas heating - and replace with low carbon alternatives in non-domestic buildings from 2024 and homes from 2026, following natural appliance replacement cycles; and

    - Ensure the UK's charging infrastructure network is reliable, accessible, and meets the demands of all motorists.

Sub-Regional Planning Policy

Places for Everyone (PfE) Joint Development Plan for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan (2024)

6.28. The following policies in the joint development plan are of relevance to GHG emissions:

Policy JP-S 1 Sustainable development

'*To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives.*

In preparing plans, authorities should make as much use as possible of suitable previously-developed (brownfield) land and vacant buildings to meet development needs.'

Policy JP-S 2 Carbon and Energy

'The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

- *Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling;*
- *Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;*
- *Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;*
- *Increasing the range of nature-based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, tree planting and natural flood management techniques;*
- *An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable;'*
- *'Be net zero carbon;'*
- *'Incorporate adequate electric vehicle charging points;'*
- *'Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date;' and,*
- *'In residential developments, achieve energy demand reductions in terms of space heat demand; hot water energy demand and the delivery of on-site renewable energy generation.'*

Policy JP-S6: Resource Efficiency

'The achievement of a circular economy and a zero-waste economy will play a key role in meeting Greater Manchester's ambition of becoming a leading green city region by 2038. The following measures will help achieve this:

- *Development and implementation of the Zero Waste Strategy for Greater Manchester which promotes overall reduction in the level of waste produced and supports resource efficiency within the Plan area in order to gain the maximum value from the things we produce;*
- *Recognition of the role of existing infrastructure in managing our waste and protecting such facilities to ensure adequate waste management capacity is maintained; and*
- *Using sustainable design and construction techniques to reduce carbon emissions, adapt and future proof to the impact of climate change, reduce and recycle waste and minimise water use.'*

Local Policy

Manchester's Local Development Framework. Core Strategy Development Plan Document (MCC, 2012)

6.29. The Core Strategy was adopted in July 2012, and includes the following spatial objectives relating to the reduction of GHG emissions:

- SO1. Spatial Principles: Provide a framework within which the sustainable development of the city can contribute to halting climate change; and
- SO6. Environment: Protect and enhance both the natural and built environment of the city and ensure the sustainable use of natural resources, in order to mitigate and adapt to climate change, support biodiversity and wildlife, improve air, water and land quality, recreational opportunities and provide networks of high-quality green infrastructure, ensuring that the city is inclusive and attractive to residents, workers, investors and visitors.

6.30. Policies relevant to GHG emissions are set out below:

6.31. Policy EC 1 Employment and Economic Growth in Manchester states the following:

'Development proposals should have regard to:

> *Climate change resilience demonstrating how CO2¬ emissions will be minimised with an aim of zero carbon emissions, through energy efficiency, renewable energy and contributing to low and zero carbon decentralised energy infrastructure.'*

6.32. Policy C2 District centres states the following:

'New development should deliver improvements to the quality and accessibility of the centre environment. Opportunities should be taken to adopt sustainable building design and practices to assist in adapting to climate change.'

6.33. Policy EN 4 Reducing CO2 Emissions by Enabling Low and Zero Carbon Development states the following:

'The Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO2 emissions, and rising fossil fuel prices, through the following actions:

- *All development must follow the principle of the Energy Hierarchy, being designed;*
- *to reduce the need for energy through design features that provide passive heating, natural lighting and cooling;*
- *to reduce the need for energy through energy efficient features such as improved insulation and glazing; and*
- *to meet residual energy requirements through the use of low or zero carbon energy generating technologies.*
- *Wherever possible new development and retrofit projects, including energy generation plant, must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies;*
- *Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings;*
- *Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing/potential decentralised energy schemes; and*
- *The use of building materials with low embodied carbon in new development and refurbishment schemes.'*

6.34. Policy EN 6: Target Framework for CO2 reductions from low or zero carbon energy supplies states the following:

'Applications for residential development of 10 or more units and all other development over 1,000 sq. m will be expected as a minimum to meet the target shown in Tables 12.1 and 12.2, unless this can be shown not to be viable. This should be demonstrated through an energy statement, submitted as part of the Design and

Access Statement. Such a statement will be expected to set out the projected regulated energy demand and associated CO2 emissions for all phases of the development.'

6.35. Following the adoption of the PfE Joint Development Plan document in 2024, 'Tables 12.1' and '12.2' have been replaced by the strategies outlined in PfE Policy JP-S2 (see section 1.29) and have not been included within this report.

6.36. Policy EN 6 also states: 'The energy statement will be required to be submitted at the outset of any Proposed Development (outline application or before). Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO2 mitigation, subject to the energy statement incorporating evidence such as modelling to demonstrate compliance.'

6.37. Policy EN 8 Adaptation to Climate Change states the following:

'Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO2 mitigation under Policy EN 6, subject to sufficient evidence to quantify their contribution to compliance.'

Manchester City Council Climate Change Action Plan 2020-2025

6.38. The Manchester City Council (MCC) Climate Change Action Plan sets out MCC's commitments to tackling climate change from 2020-2025 and builds on previous plans over the last decade.

6.39. It summarises the specific actions which are required to ensure that MCC reduces its direct emissions by at least 50% by 2025 (compared to 2019/20) whilst also playing its full part in supporting and influencing the city to do the same. The purpose of the plan is as follows:

"The document sets out MCC's commitments to tackling climate change over the next 5 years and builds on previous action plans over the last decade; and

It covers MCC's plans for adapting to the expected impacts of climate change and supporting and influencing others, including through the implementation of the Manchester Green and Blue Infrastructure Strategy 2015-2025."

6.40. Specific commitments that MCC are making are:

- *'Deliver at least a 50% reduction in carbon emissions from our buildings, energy and transport by 2025 (from circa 30-32,000 tonnes in 2019/20 to circa 15-16,000 tonnes in 2024/25) via a 13% year on year reduction;*
- *Report quarterly on progress against the actions in the plan and provide quantitative reports on data in tonnes of CO2; and*
- *Become zero carbon by 2038 at the latest (based on the Tyndall Centre for Climate Research definition of zero which is at least a 95% reduction i.e., a reduction of 35,547 tonnes CO2 from the 2018/19 total which would mean that the Council's direct emissions in 2037/38 would be less than 1,871 tonnes CO2).'*

6.41. The plan states the following in relation to citywide emissions:

'The Council also recognises the importance of supporting and influencing our residents and organisations to take action to reduce their direct and indirect CO2 emissions and to adapt to the changing climate.'

In 2022, the Action Plan was refreshed to 'show progress made to date, set out new milestones and include new actions, to ensure the Council is remaining on track in reducing its own carbon emissions and

importantly, leading by example, giving renewed focus on the City-wide actions, the Council's leadership role, and helping others to take action'.

6.42. Commitments stated in this revised version of the action plan include:

- *'Support building retrofit and energy generation across the city's buildings and ensure all future development across the city is as close to zero carbon as possible;'*
- *'To support external stakeholders to adopt more sustainable practices, including food and reducing the use of Single Use Plastics on Council land;'*
- *'Ensure that the city's infrastructure is resilient to climate change and that nature-based solutions are used to combat issues such as flooding. Develop an intelligence led approach to tree and hedge planting, and the implementation of Nature Based Solutions to support the delivery of the Green and Blue Infrastructure Strategy;' and*
- *'Ensure that everyone across the city understands the scale of the challenge, they are positively engaged, empowered and supported in taking action to reduce emissions and increase resilience across the city.'*

Manchester Climate Change Framework 2020-2025

6.43. Produced by the Manchester Climate Change Partnership, the Manchester Climate Change Framework 2020-2025 is the city's high-level strategy for tackling climate change. It sets out how Manchester will 'play its full part in limiting the impacts of climate change.'

6.44. The objectives and targets include:

- *'Staying within our carbon budgets';*
- *'Climate adaptation and resilience'; and*
- *'Inclusive, zero carbon and climate resilient economy.'*
- *Areas for action to meet the objectives and targets include:*
- *'Buildings (existing and new);*
- *Renewable energy; and*
- *Green infrastructure and nature-based solutions'*

In 2022, the Manchester Climate Change Framework was updated as 'Manchester has not been reducing its direct emissions by the targeted 13% per year and so we are not currently on track to stay within our carbon budget and are at risk of missing our first milestone: to reduce the city's direct emissions by 50% by 2025.'

6.45. The updated framework summarises the actions MCC is committing to in response to this, including:

- *'We need to construct new buildings to high and rising standards of low carbon performance, covering operational and embodied energy';*
- *'We need to see a rapid shift away from fossil fuels to electricity for heating, transport, and industry. To support this, we need to increase renewable energy generation, both locally and at national level.';*
- *'This needs to be coupled with a step change in energy efficiency across all sectors, and increase adoption of smart grid technologies and local storage to balance energy supply and demand for maximum efficiency';*
- *'We need to reduce waste, including unnecessary food waste, and manage unavoidable waste as sustainably as possible, maximising reusing and recycling';*
- *'We need to understand our exposure to climate change risk and make detailed plans that support all our residents, and all parts of our city, its economy and natural environment to adapt'; and*

- *'We need to ensure all the investments we make are low carbon and resilient to climate change and we need to develop innovative models to unlock private investment into both climate mitigation and adaptation.'*

Guidance

IEMA EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance 2nd Edition (Institute of Environmental Management and Assessment (IEMA), 2022)

6.46. This is the second edition of the IEMA EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance, published in 2022, which replaces the previous edition, published in 2017. The guidance sets out a best practice methodology for assessing the GHG emissions from a Proposed Development, across its lifecycle, including the assessment of effect significance.

6.47. The guidance document advises that 'GHG emissions should be assessed and reported as part of a good practice approach to EIA.' It provides the following justification for this position:

- *'All projects create GHG emissions that contribute to climate change';*
- *'climate change has the potential to lead to significant environmental effects'; and*
- *'there is a GHG emission budget that defines a level of dangerous climate change whereby any GHG emissions within that budget can be considered as significant'.*
- *The document states that the following factors should be considered when determining a proportionate approach to the assessment of GHG emissions in EIA:*
- *'The type, size, location and temporal scale of the proposed project;*
- *Whether other assessment work has already considered life cycle GHG emissions;*
- *Whether mitigation has already been agreed with the design team, particularly if this is beyond minimum policy requirements;*
- *Whether the proposed project has specific goals or aspirations (e.g. achieving BREEAM certification)'*

6.48. One of the major updates in this version of the guidance is that the recommended methodology now gives greater prominence to the consideration of mitigation in the assessment. It is no longer an element to be considered in the later stages of the EIA process but should rather be considered at the outset and throughout the project's lifetime. The approach to the assessment of effect significance now also includes a consideration of mitigation at its core.

RIBA 2030 Climate Challenge (Royal Institute of British Architects (RIBA), 2021)

6.49. This guidance provides 'voluntary performance targets for operational energy use, water use and embodied carbon' aligning with the UK's 2050 Net Zero aspirations. It 'has set RIBA Chartered Practices a challenge of achieving the following reductions as soon as possible but as a minimum for projects in operation in 2030':

- 'Reduce operational energy demand by at least 60% from current business as usual baseline figures, before offsetting';
- 'Reduce embodied carbon by at least 40% from current business as usual baseline figures, before offsetting';
- 'Reduce potable water use by at least 40% from CIRIA benchmark/ Building Regulation figures'; and
- 'Achieve all core health and wellbeing metrics'.

6.50. The RIBA 2030 Climate Challenge target metrics relevant for the Proposed Development are as follows:

Table 6.1 – RIBA 2030 Climate Challenge Metrics

Build Type	RIBA Sustainable Outcome Metric	Business as Usual	2025 Target	2030 Target
Domestic/Residential	Operational Energy (kWh/m^2/y)	120	<60	<35
	Embodied Carbon (kgCO_2e/m^2)	1200	<800	<625
	Potable Water Use (Litres/person/day)	125	<95	<75

IEMA EIA Guide to: Climate Change Resilience and Adaptation (IEMA, 2020)

6.51. This version of the IEMA EIA Guide to: Climate Change Resilience and Adaptation was published in 2020. It provides a framework for the effective consideration of climate change resilience and adaptation in the EIA process. This version replaces the previous version from 2015, with multiple updates made to reflect lessons learnt from emerging practice.

BS EN 15978 Sustainability of Construction Works – Assessment of Environmental Performance and Buildings – Calculation Method (British Standards Institution (BSI), 2011)

6.52. The purpose of this standard is to provide a consistent framework for the assessment of lifecycle GHG emissions from new and existing buildings. This follows a modular approach, breaking down the lifecycle of the development into the product stage, the construction stage, the in-use stage, the end-of-life stage, and elements beyond the building lifecycle.

Royal Institution of Chartered Surveyors (RICS) Whole Life Carbon Assessment for the Built Environment 2nd edition (RICS, 2023)

6.53. This guidance document aims to harmonise whole life carbon assessment by applying consistency to the interpretation and implementation of the methodology BS EN 15978 to achieve coherent and comparable results that can be used to benchmark whole lifecycle carbon performance of built assets across the industry.

UK Green Building Council (UKGBC) Embodied Carbon: Developing a Carbon Brief (UKGBC, 2017)

6.54. This document provides guidance on writing effective briefs for commissioning embodied carbon measurements and provides extensive information on the latest applications, standards and tools.

Waste and Resource Action Programme (WRAP) Cutting Embodied Carbon in Construction Projects (WRAP, 2011a)

6.55. This guidance document helps designers identify basic cost-effective actions to reduce the carbon impact of the materials used in construction projects.

WRAP Procurement Requirements for Carbon Efficiency (WRAP, 2011b)

6.56. This guidance document helps to set requirements for 'carbon efficiency' for low-carbon building projects and estates management when procuring design, construction, refurbishment and facilities management services for existing and new buildings.

Greater London Authority Construction Scope 3 (Embodied) Guidance on Greenhouse Gas Accounting and Reporting (GLA, 2013)

6.57. Although the Proposed Development is not located in London, this accounting and reporting guidance written for the Greater London Authority provides information on best practice that is relevant across the UK. The guidance contains a series of recommendations to improve the understanding and consistency of the accounting and reporting of embodied emissions within the construction sector from cradle-to-grave. The document provides guidance on how to carry out calculations to measure the embodied carbon impact of buildings.

Mayor of London Whole Life-Cycle Carbon Assessments Guidance (GLA, 2022)

6.58. Draft London Plan Policy SI 2 sets out a requirement for developments in London to calculate and reduce whole lifecycle carbon emissions. The guidance explains how the assessment of these carbon emissions should be approached and presented. Although the Proposed Development is not located in London, the best practice approach set out in the guidance is relevant across the UK.

Low Energy Transformation Initiative (LETI) Embodied Carbon Primer (LETI, 2020).

6.59. The Embodied Carbon Primer offers supplementary guidance to that already set out in the Climate Emergency Design Guide, for those exploring embodied carbon in more detail. There is a current lack of knowledge in the built environment industry surrounding embodied carbon reduction strategies and calculations. Therefore, the London Energy Transformation Initiative has produced this document to help project teams design buildings that deliver ambitious embodied carbon reductions. Although the Proposed Development is not located in London, the best practice approach set out in the guidance is relevant across the UK.

LETI Climate Emergency Design Guide (2020)

6.60. The Climate Emergency Design Guide provides developers, designers, and policy makers with a methodology to ensure that new developments meet the requirement of climate targets. It covers five key areas: operational energy, embodied carbon, the future of heat, demand response and data disclosure.

Assessment Methodology and Significance Criteria

6.61. A request for a Scoping opinion was submitted by the Applicant to MCC. An EIA Scoping report (the 'scoping Report') accompanied the request (Appendix 2.1). A Scoping Opinion was issued by MCC (Appendix 2.2) which included comments from statutory consultees. Table 6.2 summarises the key comments raised by consultees of relevance to this assessment and how the assessment has responded to them.

Consultee and Comment	Response
Natural England	
The ES should identify how the development affects the ability of the natural environment (including habitats, species, and natural processes) to adapt to climate change, including its ability to provide adaptation for people. This should include impacts on the vulnerability or resilience of a natural feature (i.e. what's already there and affected) as well as impacts on how the environment can accommodate change for both nature and people, for example whether the development affects species ability to move and adapt. Nature-based solutions, such as providing green infrastructure on-site and in the surrounding	The Climate Change Resilience Risk Assessment (Appendix 6.2) sets out the proposed climate resilience and adaptation measures that will be implemented to reduce the impacts of climate change on the development. These include the incorporation of landscaping and biodiversity enhancement measures on site to maintain and enhance local ecosystems and to reduce their vulnerability to the impacts of climate change. As set out in section 6.85, GHG emissions associated with carbon sequestration from proposed green infrastructure would be low relative to the total GHG emissions over the life of the Proposed Development. They would also

Consultee and Comment	Response
area (e.g. to adapt to flooding, drought and heatwave events), habitat creation and peatland restoration, should be considered. The ES should set out the measures that will be adopted to address impacts. Further information is available from the Committee on Climate Change's (CCC) Independent Assessment of UK Climate Risk, the National Adaptation Programme (NAP), the Climate Change Impacts Report Cards (biodiversity, infrastructure, water etc.) and the UKCP18 climate projections. The Natural England and RSPB Climate Change Adaptation Manual (2020) provides extensive information on climate change impacts and adaptation for the natural environment and adaptation focused nature-based solutions for people. It includes the Landscape Scale Climate Change Assessment Method that can help assess impacts and vulnerabilities on natural environment features and identify adaptation actions. Natural England's Nature Networks Evidence Handbook (2020) also provides extensive information on planning and delivering nature networks for people and biodiversity. The ES should also identify how the development impacts the natural environment's ability to store and sequester greenhouse gases, in relation to climate change mitigation and the natural environment's contribution to achieving net zero by 2050. Natural England's Carbon Storage and Sequestration by Habitat report (2021) and the British Ecological Society's nature-based solutions report (2021) provide further information.	ultimately reduce the total emissions from the Proposed Development, rather than increase them. On the basis that the emissions would be small and would lead to an overall reduction in emissions, excluding them from the assessment is considered conservative and robust. This approach accords with the IEMA GHG Guidance, which states that '*certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance.*' The Proposed Development has been assessed on its contribution to meeting Net Zero in the UK by 2050.
Manchester City Council	
The comments within your scoping report are noted and on this basis are acceptable in terms of their consideration in the ES subject to consideration of including a broad approach and methodology for assessing the impact on climate change. Impacts and potential mitigation from the other technical chapters should feed into this assessment particularly around management of surface water, waste management, green and blue infrastructure, biodiversity and ecology, travel planning and efficiency of the building fabric, an assessment of the lifecycle of the building (including management of embodied carbon) and use of renewable energy as part of promoting a	Impacts and potential mitigation from other technical chapters around surface water, waste management, green and blue infrastructure, biodiversity and ecology are considered in the Climate Change Resilience Risk Assessment (Appendix 6.2). Travel planning and efficiency of the building fabric, an assessment of the lifecycle of the building (including management of embodied carbon) and use of renewable energy as part of promoting a low carbon development and reducing emissions are considered and assessed within this chapter. As set out in paragraph 6.83, the impacts and effects of GHG emissions are global, with the global atmosphere serving as the sensitive receptor. Adjacent schools and

Consultee and Comment	Response
low carbon development and reducing emissions and the likely environmental impacts of this. It should be noted that sensitive receptors should include any adjacent schools and nurseries.	nurseries are therefore not assessed specifically as sensitive receptors within this chapter. This approach is in line with the IEMA Guidance.

Assessment Methodology

6.62. The metric for assessing the climate change impacts of GHG emissions in this assessment is Global Warming Potential (GWP). This is expressed in units of CO_2 equivalent (CO_2e) over 100 years. This allows for the emissions of the seven key GHGs: carbon dioxide (CO2), methane (CH_4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3) and sulphur hexafluoride (SF6) expressed in terms of their equivalent global warming potential in mass of CO2e.

6.63. There is currently no standard methodology for quantifying GHG emissions within the EIA process. The IEMA GHG Guidance instead advocates for flexibility and proportionality to suit the specific development being assessed.

6.64. A GHG emissions assessment typically covers the whole life of a development. This can be broken down into 'lifecycle stages' or 'modules' of the Proposed Development, as set out in BS EN 15978 Sustainability of Construction Works - Assessment of Environmental Performance of Buildings - Calculation Method, as shown in Figure 6.1.

6.65. With some minor exceptions, all activities within lifecycle stages A, B and C have been included in this assessment. Any activities that have been excluded are explained and justified in the 'Sources of GHG emissions excluded from the assessment' section, included later in the methodology section of the chapter. The assessment has taken into account the design detail currently available.

6.66. GHG emissions caused by an activity are often categorised into 'scope 1'. 'scope 2' or 'scope 3', following the guidance of the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol suite of guidance documents (WRI and WBSCD, 2014).

6.67. The ES chapter does not refer to scope 1, 2 and 3 emissions throughout, instead referring to emissions by lifecycle stage. However, the following section provides an overview of which scope the assessed emissions fall within.

6.68. Scope 1 emissions include direct emissions from owner or controlled sources. With respect to the Proposed Development, this may include:

- Emissions from fleet vehicles e.g. heavy goods vehicles (HGV's) during the construction phase.

- Scope 2 emissions include indirect emissions from purchased energy. With respect to the Proposed Development this may include:

- Electricity, steam, heat or cooling generated offsite, purchased and consumed by the Proposed Development.

- Scope 3 emissions include indirect value chain emissions, resulting from the activities of assets not controlled or owned by the Proposed Development occurring before or after they have control of an asset. With respect to the Proposed Development this may include:

- Upstream emissions related to the purchase of required goods and services.

6.69. For the purpose of this assessment, in line with the principles set out in BS EN 15978, a Reference Study Period (RSP) of 60 years after opening (the fully operational opening year) has been used. For the purpose of the assessment, decommissioning has been assumed to take place in the final year of the RSP. However, it should be noted that the Applicant does not necessarily propose to decommission the development at the end of this 60 year period.

Scenarios Tested

6.70. This assessment has considered a number of scenarios. These are:

- Scenario 1: Baseline Conditions. Unlike other topic assessments within this ES, the current baseline for the purposes of this assessment does not include all identified developments currently under construction. As set out in paragraph 1.125, Cumulative Effects, the atmospheric concentration of GHGs and the resulting effects on climate change are affected by all sources (anything emitting GHG) and sinks (anything absorbing GHG) globally, anthropogenic or otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to this baseline assessment differs from that of many EIA topics where only projects within a geographically bounded study area would be included. As such, as stated in the IEMA Guidance, effects of GHG emissions from specific cumulative schemes should not be individually assessed, as there is no basis for selecting any particular cumulative project that has GHG emissions for assessment over any other. Therefore, an assessment of the baseline conditions at the EIA Site alone has been undertaken, including consideration of the future baseline conditions over the 60 year RSP;

- Scenario 3: Baseline with Proposed Development Phase 1 and Phase 2 construction (including product stage and construction stage GHG emission); and

- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operation (including in use and end-of-life stage GHG emissions).

6.71. The following scenarios have not been assessed:

- Scenario 2: Existing site(baseline) with Proposed Development phase 1 construction. The build out of the Proposed Development in entirety (Phase 1 and Phase 2) represents the worst-case scenario for GHG emissions; therefore, an assessment of intermediate year construction effects has not been carried out.

- Scenario 5: Existing site (baseline) with Proposed Development Phase 1 and Phase 2 operational (as above) and cumulative developments. As set out in paragraph 6.120, Cumulative Effects, the atmospheric concentration of GHGs and the resulting effects on climate change are affected by all sources (anything emitting GHG) and sinks (anything absorbing GHG) globally, anthropogenic or otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to this baseline assessment differs from that of many EIA topics where only projects within a geographically bounded study area would be included. As such, as stated in the IEMA Guidance, effects of GHG emissions from specific cumulative schemes should not be individually assessed, as there is no basis for selecting any particular cumulative project that has GHG emissions for assessment over any other. Therefore, an assessment of the Proposed Development with cumulative developments has not been undertaken.

The Study Area

6.72. GHG emissions impacts and resulting effects are global. As such, the spatial scope of the assessment is global.

6.73. In line with the advice provided in the IEMA GHG Guidance, the Proposed Development's GHG emissions have been considered in the context of both the UK national carbon budgets and Tyndall Centre recommended energy-only carbon budgets for Manchester.

Source of Effect

Construction Stage GHG Emissions

6.74. Based on the criteria set out in Figure 6.1, the assessment of the construction stage takes into account the following sources of GHG emissions:

- A1 – A3 Product Stage: GHG emissions associated with the material extraction transportation and manufacturing of construction products; and
- A4-A5 Construction process stage: GHG emissions associated with product delivery to the site and the installation process.

6.75. GHG emissions from the construction stage of the Proposed Development have been estimated by applying conservative benchmarks agreed with the project MEP engineers, WSP. Each benchmark covers all GHG sources listed in the bullet points above and is based on the current project progress. They are as follows:

- Plot J: 625 kgCO2e/m2 GIA; and
- Plot K: 800 kgCO2e/m2 GIA.

Operational Stage GHG Emissions

6.76. Based on the criteria set out in Figure 6.1, the assessment of the operational stage takes into account the following sources of GHG emissions:

- B1-B5 In-use stage: This stage captures GHG emissions associated with the operation of the built asset over its period of use, from practical completion to end of its service life, including use, maintenance, repair, refurbishment, and replacement. Embodied carbon associated with these activities has been estimated by applying appropriate embodied carbon benchmarks from RICS (2012), based on proposed floor areas and building typologies. It is assumed that embodied carbon from maintenance and replacement (lifecycle stage B1-B5) will occur from 15 years after the beginning of operation, to the end of the lifecycle of the development. This is because replacement and maintenance are not expected to be required in the first 15 years of operation;
- B6 Operational energy: GHG emissions associated with the estimated total operational energy. These fall within scope 2 emissions. Energy use intensity per square metre of floor area, as provided by the project MEP engineers, WSP, has been applied to the maximum floor area of the Proposed Development. The Department for Energy Security and Net Zero (DESNZ) Greenhouse Gas Reporting: Conversion Factors 2024 for grid electricity have then been applied to provide an estimate of annual operational energy GHG emissions associated with the Proposed Development;
- B7 Operational water: GHG emissions associated with operation water consumption and foul water. This falls within scope 2 emissions. Estimated water consumption for the Proposed Development has been established, based on information provided by the project MEP engineers, WSP, for the residential areas, and the Building Services Research and Information Association (BSRIA) Rules of Thumb Guidance for Building Services (BSRIA, 2011) and SD5078: BREEAM UK New Construction 2018 3.0 Technical Manual, for the non-residential areas. Estimated foul water has been assumed to be equal to water consumption, in line with project experience. The DESNZ Greenhouse Gas Reporting Conversion Factors 2024 have been used to calculate GHG emissions from the operational water use; and
- Operational transport emissions, which are not included in Figure 6.1, have also been included in the assessment, due to the substantial role they play in the UK's total GHG emissions. Surface transport is the largest source of GHG emissions in the UK, accounting for 24% of 2019 emissions, according to the Committee on Climate Change (2020). The GHG emissions associated with vehicles travelling to and from the Proposed Development during the operational stage have been estimated by applying a

Department for Energy Security and Net Zero (DESNZ) emissions factor for average vehicle use, to trip numbers provided by the project transport consultant, Civic Engineers, and an indicative trip distance figure, estimated by the Department for Transport. These emissions factors include wheel to tank emissions, as well as tail pipe emissions. Additional information on the assumptions that have been made is provided in Appendix 6.1.

Decommissioning Phase GHG Emissions

6.77. Based on the criteria set out in Figure 6.1, the assessment of the decommissioning stage takes into account the following sources of GHG emissions:

- C1-C4 End of Life stage: GHG emissions associated with the demolition and disassembly of the Proposed Development at the end of its life. These mainly fall within scope 1 emissions. GHG emissions associated with this stage have been estimated by applying appropriate benchmarks from various industry sources, based on the proposed floor areas and building typologies.

Sources of GHG emissions excluded from the assessment

6.78. The IEMA guidance states that 'certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance.' In line with this guidance, the following sources of GHG emissions have been excluded from the scope of the assessment:

- Operational Waste: The opportunities for design and construction decisions to significantly influence the reduction of GHG emissions associated with operational waste are low, as it is highly dependent on occupant behaviour and waste processing at the city scale by the Local Authority. The emissions associated with operational waste are also not expected to be material in scale, such that they could influence the overall significance of effects, and have therefore been scoped out.

- Carbon sequestration from green infrastructure: GHG emissions associated with carbon sequestration from proposed green infrastructure would be low relative to the total GHG emissions over the life of the Proposed Development. They would also ultimately reduce the emissions from the Proposed Development, rather than increase them. On the basis that the emissions would be small and would lead to an overall reduction in emissions, excluding them from the assessment is considered conservative and robust; and

- Module D – Beyond Assets Life Cycle Stage: the 'Beyond Asset Life Cycle' stage, encompasses emissions associated with activities beyond the site boundary and life cycle of the Proposed Development. This module relates to the repurposing of discarded building elements, or any energy recovered from beyond a project's lifecycle. Reliable information about how the components of the scheme could potentially be repurposed following its demolition at the end of its life is not currently available. Given that Module D lies outside the Proposed Development's lifecycle and only covers GHG emissions that could potentially be avoided as a result of repurposing of discarded materials, it is considered that the proposed assessment of Modules A to C (only) comprises a conservative assessment. On this basis, consideration of Module D has not been included in the scope of the assessment.

Consideration of Scope 3 emissions

Background

6.79. As previously stated, this Climate Change ES Addendum chapter has been undertaken in line with the IEMA Guidance and other best practice industry guidance. With some minor exceptions set out in the section above, the assessment has included a consideration of all scope 1, 2 and 3 GHG emissions from all activities within lifecycle stages A, B, and C of relevance to the Proposed Development, as set out in the Whole Life Carbon Assessment for the Built Environment (RICS, 2023) (the "RICS 2023 Guidance") and BS EN 15978

Sustainability of Construction Works - Assessment of Environmental Performance of Buildings - Calculation Method ("BS EN 15978") guidance. This includes the following scope 3 emissions:

- Operational transport emissions associated with residents during the operational phase (e.g. private car use, and deliveries organised by residents).

6.80. The IEMA Guidance advocates for flexibility and proportionality to suit the specific development being assessed. The guidance states that 'certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance.' The sources of GHG emissions excluded from the assessment have been excluded on this basis.

6.81. The recent Supreme Court judgement on the application of R (on the application of Finch on behalf of the Weald Action Group) v Surrey County Council and others [2024] UKSC 20 (judgement given on 20 June 2024) ("Finch") has raised implications for the assessment of scope 3 emissions from development projects in the EIA process, potentially requiring the consideration of additional indirect emissions that do not, to date, require consideration under the relevant industry good practice guidance, including the IEMA GHG Guidance, the RICS 2023 Guidance and BS EN 15978.

Finch Supreme Court judgement

6.82. In the case, the Supreme Court considered whether, under the EIA Directive and the EIA Regulations 2017, it was lawful for Surrey County Council to grant planning permission for the expansion of an oil drilling facility in the Surrey Hills where the EIA for the project had only considered emissions from sources within the control of the developer (scope 1 emissions). The EIA had not considered emissions arising as a consequence of the activities at the site – specifically from future combustion by downstream users of the fuel into which the extracted oil would be refined (scope 3 emissions).

6.83. In its decision, the Supreme Court unanimously rejected the approach taken by the Court of Appeal – that it was for a local authority to determine whether there was a 'sufficient causal connection' between the project and the scope 3 emissions. The majority of the Court considered that scope 3 emissions were effects of the project (because it was an agreed fact that the oil would be refined; burnt as fuel and release greenhouse gases). The Council's failure to take this into account meant that the planning permission granted was unlawful. The appeal was therefore allowed.

6.84. Some of the core considerations that led to this judgement included:

- The EIA Directive and EIA Regulations 2017 require an assessment of "likely" effects. In this case, it was not only likely, but "inevitable", that the extraction of oil would lead to combustion and the emission of greenhouse gases into the atmosphere;

- Although the terms "direct" and "indirect" are not defined in the legislation itself, the European Commission's Guidance for use by EIA practitioners states that an "indirect effect" was one which occurred 'away from the immediate location or timing of the proposed action'. The judge therefore concluded that scope 3 emissions are indirect effects of the operation of the scheme; and

- The Directive does not impose a geographical limit on the scope of the environmental effects of a project. The majority therefore considered that there was "no justification" for limiting the EIA in this case to emissions which only occurred at the site. Further, it would not have been in keeping with the challenge posed by climate change to have approached the matter in this way.

6.85. In the judgment, Lord Leggatt confirmed that these requirements should apply to projects such as this, where the fossil fuel commodity being extracted will not be used in the creation of a different type of object. There should be an 'inevitable pathway from extraction to combustion', with no 'element of conjecture or speculation' about what will ultimately happen to the commodity. 'It is agreed that it will inevitably be burnt as fuel. And a reasonable estimate can readily be made of the quantity of GHGs which will be released when that happens.' As advised by the judge, this would therefore apply to projects such as oil extraction and coal

mining projects but would not apply to projects such as facilities to manufacture iron or steel or to manufacture motor vehicle or aircraft components.

6.86. In the case of steel, the judge advised that it has 'many possible uses and can be incorporated into many different types of end product used for all sorts of different purposes. In the case of a facility to manufacture steel, it could reasonably be said that environmental effects of the use of products which the steel will be used to make are not effects of manufacturing the steel. That is because the manufacture of the steel is far from being sufficient to bring about those effects. Such effects will depend on innumerable decisions made "downstream" about how the steel is used and how products made from the steel are used. This indeterminacy regarding future use would also make it impossible to identify any such effects as "likely" or to make any meaningful assessment of them at the time of the decision whether to grant development consent for the construction and operation of the steel factory.'

6.87. In the case of manufacturing components for use in the construction of motor vehicles or aircraft, the judge advised that 'where a component is manufactured which forms a small part of a much larger object, such as a motor vehicle or aircraft, the view might reasonably be taken that the contribution of the component is not material enough to justify attributing the impact on the environment of the end product to the activity of manufacturing the component part. In any event, the number of motor vehicles or aircraft in which such parts will be incorporated and the use which will subsequently be made of them may be so conjectural that no realistic estimate could be made of GHG emissions arising from such use on which a reasoned conclusion could be based. I have discussed above that the EIA process does not require that attempts be made to measure or assess putative effects which are incapable of such assessment.'

Implications for GHG Emissions Impact Assessments in EIA

6.88. Based on this judgement, we consider that any additional assessment of upstream and downstream scope 3 GHG emissions in EIA, beyond those already recommended in current industry guidance, should be limited to situations where:

- The likely use of any products from the Proposed Development or likely nature/type and scale of any other upstream or downstream activities related to the Proposed Development can reasonably be determined, such that realistic estimates can be made of the GHG emissions arising from them; and
- In line with good EIA practice, where it is considered proportionate to scope them in (e.g. when they are expected to make a material contribution to a likely significant environmental effect).

6.89. Upstream scope 3 GHG emissions that did not require consideration in EIA, as set out in the industry guidance documents previously referenced, but which could now potentially require consideration, in line with the recent supreme court judgement, could include:

- GHG emissions associated with the manufacture of the plant and machinery used to construct the Proposed Development; and
- GHG emissions associated with the Proposed Development's design and consenting process.

6.90. Any plant and machinery used in the demolition and construction of the Proposed Development would not be manufactured and used solely for the Proposed Development. Each item of construction plant or machinery would typically be used in the construction of numerous other development projects over a number of years. The proportion of any embedded GHG emissions associated with the manufacture of such plant and machinery that could be attributed to the Proposed Development is therefore likely to be small. Given the uncertainty regarding the type, quantity, and design life of the various items of plant and equipment that would be used in the demolition and construction process, it would also be extremely difficult to realistically estimate their embedded GHG emissions and what proportion could be attributed to the Proposed Development. On this basis and given that GHG emissions from this source are not expected to be material in scale such that they could influence the overall significance of effects of the Proposed Development, this source has been scoped out.

6.91. Similarly, given the complexities of the Proposed Development design and consenting process and the number of parties that contribute to it, it would be extremely difficult to realistically estimate the GHG emissions associated with this process. It is also considered unlikely that the GHG emissions from this process would be material in scale such that they could influence the overall significance of effects of the Proposed Development. On this basis, this source has also been scoped out.

6.92. As the Proposed Development, once complete and operational, is not expected to produce any "products", no additional downstream scope 3 GHG emissions that have not already been scoped into the assessment, in line with the industry good practice guidance documents previously referenced, have been identified. As such, no additional downstream scope 3 GHG emissions have been considered in the assessment.

6.93. On this basis, the assessment methodology employed in this ES chapter is considered to align with the recent Finch Supreme Court judgement.

Significance Criteria

6.94. Specific criteria for assessing the significance of GHG emissions effects are provided in the IEMA GHG Guidance. The guidance also recommends that the context of the project's carbon footprint is determined in order to establish whether the project supports or undermines a trajectory towards net zero. This can help decision makers in their evaluation of the effects of the proposals. The IEMA GHG Guidance has been adapted and applied to this assessment, which is outlined below.

Assessment of Effect Significance

6.95. Three overarching principles are set out in the IEMA GHG Guidance, which IEMA advise should be considered when looking to establish the effect significance of GHG emissions. These comprise:

- The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect;
- The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality); and
- GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit; as such any GHG emissions or reductions from a project might be considered to be significant.

6.96. IEMA has further built on these principles in the guidance, as follows:

- *'When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible;*
- *Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and*
- *Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.'*

6.97. The goal of the Paris Agreement is to limit global temperature rise to well below 2°C, aiming for 1.5°C, compared with pre-industrial levels, in order to stand a greater chance of avoiding severe adverse effects from climate change. The UK has set a legally binding GHG reduction target for 2050 through the Climate Change Act, including interim five-yearly carbon budgets, which define a trajectory towards net zero. The Climate Change Committee (CCC) has confirmed that the 2050 target and interim budgets are compatible with the required magnitude and rate of GHG emissions reductions required in the UK to meet the goals of the Paris Agreement, thereby limiting severe adverse effects.

6.98. To meet the 2050 target and interim budgets, action is required to reduce GHG emissions from all sectors, including urban development projects. As stated in the IEMA GHG Guidance, 'EIA for any proposed project must therefore give proportionate consideration to whether and how that project will contribute to or jeopardise the achievement of these targets...the crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050'.

6.99. Building on this, the IEMA GHG Guidance sets out an approach to the assessment of effect significance that comprises judgements on the Proposed Development's consistency with policy requirements (as these have been implemented to ensure the economy decarbonises in line with the UK's net zero target); and the extent to which the Proposed Development's GHG emissions have been mitigated.

6.100. Table 6.4 sets out the significance of effect criteria provided in the IEMA Guidance. The significance of effect scale is also shown in Figure 6.2 to illustrate how this relate to the 1.5°C compliance trajectory.

Table 6.4 – Significance of effect criteria for GHG emissions.

Significance of Effect	Criteria for assessing effect significance
Major	The Proposed Development's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate	The Proposed Development's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor	The Proposed Development's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with neutral effects is fully in line with or exceeds measures necessary to achieve the UK's trajectory towards net zero.
Negligible	The Proposed Development's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well '*ahead of the curve'* for the trajectory towards net zero and has minimal residual emissions.
Beneficial	The Proposed Development's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with major beneficial effects substantially exceeds net zero requirements with a positive climate impact.

6.101. In line with the IEMA GHG Guidance, major and moderate adverse and beneficial effects are considered significant. Effects can be described as:

- Beneficial or adverse;
- Permanent or temporary;
- Reversible or irreversible; and
- Short, medium or long term.

6.102. The IEMA GHG Guidance advises that the approach should be modified for the very largest-scale developments, which can in themselves have magnitudes of GHG emissions that materially affect the UK's or

a devolved administration's total carbon budget. In the case of such developments, irrespective of the level of mitigation proposed, if net GHG emissions exceed 5% of the relevant UK or devolved administration carbon budget, the effects of the development are likely to be significant.

6.103. The guidance also advises that 'Practitioners should note that existing policy and regulation may in some cases lag behind the necessary levels of GHG emission reductions (or types of actions to achieve those) that are compatible with the UK's or devolved administrations' targets and with a science based 1.5°C compatible trajectory towards net zero. Meeting the minimum standards set through existing policy or regulation cannot necessarily be taken as evidence of avoiding a significant adverse effect, and it is recommended that practitioners consider and have reference also to emerging policy/standards and the guidance of expert bodies such as the CCC on necessary policy developments, particularly for multi-phased projects with long timescales. This must be evaluated by the practitioner as part of the evidence base used in the assessment of effects. References to 'existing' and 'emerging' policy in the principles of significance and example criteria above must be interpreted with this in mind.'

Contextualisation of GHG emissions

6.104. The IEMA Guidance also recommends that the context of the project's carbon footprint is determined in order to establish whether the project supports or undermines the trajectory towards net zero. This can help decision makers in their evaluation of the effects of the proposals.

6.105. As noted in the previous section, the UK has a defined national carbon budget and budgets have also been set by devolved administrations, which the CCC has confirmed are compatible with net zero and international climate commitments. The IEMA GHG Guidance advised that the starting point for contextualising the project's GHG emissions should be the percentage contribution of the project to the relevant national or devolved administration carbon budget. However, it goes on to advise that the contribution of most individual projects to national-level budgets will be small and so this context will have limited value. In response, the guidance presents a good practice approach for contextualising a project's GHG emissions against pre-determined carbon budgets or against emerging policy and performance standards, where a budget is not available. This is shown in Figure 6.3.

6.106. Good practice approaches for contextualising a project's GHG emissions. Source: IEMA guide to "Assessing Greenhouse Gas Emissions and Evaluating their Significance" Second edition.

6.107. Whilst Manchester City Council has not yet formally adopted carbon budgets, the Tyndall Centre for Climate Change Research has produced carbon budget reports (the "Tyndall Carbon Budget Reports") that provide recommended climate change commitments for UK Local Authority areas that are aligned with the commitments in the Paris Agreement, informed by the latest science on climate change and defined by science-based carbon budget setting. The Tyndall Carbon Budget Report for Manchester provides MCC with recommended budgets for CO2 emissions from the energy system for 2018-2100.

6.108. The net GHG emissions arising from the Proposed Development have been considered in the context of the UK national carbon budgets and the Tyndall Centre recommended energy-only carbon budgets.

6.109. The UK national carbon budgets for the period over which the Proposed Development will be under construction and operational are presented in Table 6.2.

Table 6.5 UK National Carbon Budgets

Carbon Budget Period	UK Carbon Budget ($MtCO_2e$)
Third: 2018-2022	2,544
Fourth: 2023-2027	1,950
Fifth: 2028-2032	1,725

Carbon Budget Period	UK Carbon Budget ($MtCO_2e$)
Sixth: 2033-2037	965

6.110. The construction period for the Proposed Development is expected to fall within the fourth and fifth carbon budget periods, from 2025-2030. The operational stage is expected to commence after the construction period in 2030 and continue during the fifth and sixth budget periods.

6.111. The Tyndall Centre energy-only carbon budgets for Manchester City Council for the same period (2023 to 2037) are presented in Table 6.6.

Table 6.6 - Tyndall Centre Energy-Only Carbon Budgets for Manchester

Carbon budget period	Million tonnes of CO_2e
2023-2027	4.6
2028-2032	2.4
2033-2037	1.2

Table 6.7 - Manchester City Council (MCC) Climate Change Action Plan 2020-2025

Carbon budget period	MCCs carbon budget
2022-23	0.023538 $MtCO_2e$
2023-24	0.020478 $MtCO_2e$
2024-25	0.017815 $MtCO_2e$
2025-26	0.015470 $MtCO_2e$
2026-27	0.013437 $MtCO_2e$

6.112. For the purpose of this assessment, the results of the emissions calculations have been presented in terms of their percentage contribution to the relevant carbon budget period, as set out above. Given that the Tyndall Centre carbon budgets are "energy-only", the comparison of the Proposed Development's GHG emissions with these local budgets has been limited to the scheme's GHG emissions arising from operational energy use to ensure consistency.

Baseline Conditions

6.113. The baseline is a reference point against which the effects of the Proposed Development can be compared. The IEMA GHG Guidance states that "the ultimate goal of establishing a baseline is being able to assess and report the net GHG impact of the proposed project." As set out in paragraph 6.70, an assessment of the baseline conditions at the EIA Site alone has been undertaken. Surrounding developments currently under construction have not been considered.

6.114. The EIA Site is not currently in use and therefore it is assumed that there are currently no GHG emissions from the EIA Site.

6.115. The future baseline scenario considers how the GHG emissions associated with the EIA Site are likely to change in the future, should the Proposed Development not come forward, based on a time period comparable to the design life of the Proposed Development (i.e., 60 years). Should the Proposed Development not come forward, for the purposes of this assessment, it has been assumed that the EIA Site would remain in its current state. As such, the future baseline GHG emissions from the EIA Site are also considered to be zero.

Identification and Evaluation of Significant Effects

6.116. The impacts and effects of GHG emissions are global, with the global atmosphere serving as the sensitive receptor. The IEMA GHG Guidance advises that 'the receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.' The quantity of GHG emissions produced would inform the impact magnitude. However, in line with the methodology set out in the IEMA GHG Guidance, it is not considered necessary to explicitly determine the sensitivity of the receptor or the magnitude of the impact in order to assess the significance of GHG emissions effects. As such, this ES Chapter makes no further reference to receptor sensitivity or impact magnitude.

6.117. As stated in paragraph 6.99, the assessment of significance for GHG emissions is determined on whether the project supports or undermines a trajectory towards net zero and is in line with national and local policy requirements. Therefore, the assessment of significance is made in section 6.135.

Construction Phase and Operational Phase

6.118. As stated in paragraph 6.74 to 6.77, various benchmarks have been used in the calculation of GHG emissions. These are outlined in Appendix 6.1 and summarised below.

6.119. Table 6.8 sets out the GHG emissions (tCO_2e) produced by the Proposed Development across the 60-year RSP.

Table 6.8 – Estimated total GHG Emissions (tCO_2e)

Lifecycle Stage/Module	Total GHG emissions (tCO_2e)
Construction stage (A1-A5)	61,237
In use stage embodied carbon (B1-B5) and End of life stage (C1-C4)	29,986.10
Use stage operational energy use (B6)	3,676
Use stage operational water use (B7)	2,851
Use stage operational transport	112,179
Total	209,929

Cumulative Effects

6.120. The atmospheric concentration of GHGs and the resulting effects on climate change are affected by all sources (anything emitting GHG) and sinks (anything absorbing GHG) globally, anthropogenic and otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area would be included.

6.121. As such, as stated in the IEMA Guidance, effects of GHG emissions from specific cumulative schemes should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other. The Guidance goes on to advise that the contextualisation of GHG emissions should incorporate by its nature the cumulative contributions of other GHG sources which make up that context.

6.122. As part of this assessment, an inter-development cumulative effects assessment has not been undertaken on a specific cumulative scheme basis; however, the Proposed Development's GHG emissions have been considered in the context of both the UK national carbon budgets and Tyndall Centre recommended energy-only carbon budgets for Manchester. As such, the cumulative contributions of other GHG sources that make up the national and local contexts have been considered within the assessment.

Mitigation Measures

6.123. This section describes the mitigation measures "embedded" into the Proposed Development (or 'primary mitigation') (i.e where commitments have been made), as well as additional supplementary mitigation measures (or 'secondary mitigation') that have been proposed, which are relevant to this Chapter.

6.124. For the purposes of this assessment, due to a lack of available detailed scheme information at the time the assessments were completed (such as construction material quantities), the benchmarks set out in paragraphs 6.74 and 6.77 have been used, constituting a conservative assessment. However, it should be noted that, with the incorporation of the embedded and supplementary mitigation measures below, the Proposed Development is expected to emit a smaller quantity of GHG emissions, in closer accordance with the RIBA 2025 targets, which are in line with the UK's Net Zero targets and the 2015 Paris Agreement.

Embedded Mitigation

Construction Phase Embedded Mitigation

6.125. The planning submission documents below set out mitigation measures embedded within the construction stage of the Proposed Development.

Sustainability Strategy

6.126. The sustainability strategy states the following:

- The project's Sustainability Strategy is designed to align with the Landsec Sustainable Development Toolkit, which is stated to take 'a holistic approach to sustainability'.
- Mayfield 1B is 'pursuing certifications to enhance sustainability', including HQM with a target of 40.6% (3.5 star) and Wired with a target of 96 (Platinum). These standards will guide sustainable building practices, from resource efficiency to waste reduction.

6.127. The Sustainability Strategy sets out embedded mitigation measures relevant to lifecycle stages A1-A3 (Product Stage). Circular economy and materials efficiency and waste: Design will emphasise responsible material selection and sourcing, resource efficiency and long-term building resilience to reduce waste.

Whole Life Carbon

6.128. The Whole Life Carbon report provides embedded mitigation measures that cover the following construction stages:

- A1-A5 Product Stage & Construction Stage:
    - Workshops have been held with various project engineers to identify, coordinate, and influence design actions to reduce embodied carbon where possible;
    - Studies of the Proposed Development's expected embodied carbon performance, and subsequent WLC assessments, will guide design actions to reduce upfront and in-use carbon;
- A1-A3 Product Stage:

- Low carbon and recycled materials will be prioritised; and
- Structural elements will be efficient and highly utilized.

Daisy Report

6.129. Provided in WSP's Stage 2 Pack, the Daisy report presents the findings of Daisy, a 'data-driven computational tool developed by WSP' for the purposes of 'façade optimisation'. The report provides embedded mitigation measures related to lifecycle stages A1-A3 Product Stage:

- The Daisy report indicates that the heating energy demand and embodied carbon of the Pro-posed Development's façade can be reduced and provides two candidate simulated solutions to facilitate this. The two outcomes and design requirements of the two solutions are as follows:
- 'Reductions in façade embodied carbon and heating energy demand whilst maintaining the current levels of daylight autonomy within the apartment', which would require the following design changes:
  - 'Maximise the transparency of the louvre to reduce the facade embodied carbon, whilst improving spatial daylight autonomy'; and
  - 'Lower the [window to wall ratio] WWR whilst providing a small amount of frame shading to reduce the heating energy demand and reduce the overheating risk'.
  - 'Increases in the spatial daylight autonomy whilst marginally reducing the façade embodied carbon and heating energy demand', which would require the following design change:
    - 'Maintain the same WWR but increase the louvre transparency and frame shading to balance the design. This increases the spatial daylight autonomy whilst offsetting any increase in the risk of overheating or heating demand'.

Operational Phase Embedded Mitigation

6.130. The documents below set out operational stage mitigation measures embedded within Proposed Development.

Sustainability Strategy

6.131. The Sustainability Strategy sets out embedded mitigation measures related to the following lifecycle stages:

- B6 Operational Energy:
  - Operational energy and carbon: The Proposed Development 'targets a low Energy Use Intensity (EUI)' and 'heating demand' through the use of 'clean energy, renewables, and monitoring', and will employ 'Nature-based solutions like green roofs and rain gardens to enhance energy efficiency and resilience'.
- B7 Operational Water:
  - Water consumption and surface water run-off: Sustainable drainage systems and 'efficient water management' will be employed to reduce water use and 'ensure long-term efficacy';
- Operational Transport:
  - Mobility: By promoting 'walking and cycling with secure cycle parking and safe pathways', providing 'electrical vehicle charging', and providing 'access to public transport', the Proposed Development aims to reduce greenhouse gas emissions associated with transport.

Energy Strategy

6.132. The Energy Strategy sets out embedded mitigation measures related to lifecycle stage B6 Operational Energy:

- 'Each apartment will be provided with a Mechanical Ventilation Heat Recovery (MVHR) unit';
- 'Domestic hot water shall be generated within each residential apartment via dedicated L-calised ASHP hot water heaters';
- 'Any common residential areas shall be provided with local electric hot water heaters';
- 'The feasibility of providing PV panels has been assessed' 'to meet compliance requirements and Landsec targets' These would be 'expected to provide in the region of 120kWh/m2/year in Manchester';
- 'The building fabric of the Proposed Development is optimised to reduce heat loss in winter months and minimise heat gains in summer months. This will reduce the energy re-quired to heat and cool the Proposed Development'; and
- 'An overheating analysis has been undertaken', guiding building design to 'reduce potential overheating and reliance on air conditioning systems'.

Daisy Report

6.133. The Daisy report sets out embedded mitigation measures related to lifecycle stage B6 Operational Energy:

- The Daisy report indicates that the heating energy demand and embodied carbon of the Proposed Development's façade can be reduced and provides two candidate solutions to facilitate this. The exact measures chosen will be determined in future design stages:
    - *'Reductions in façade embodied carbon and heating energy demand whilst maintaining the current levels of daylight autonomy within the apartment'; and*
    - *'Increases in the spatial daylight autonomy whilst marginally reducing the façade embodied carbon and heating energy demand'.*

Supplementary Mitigation

6.134. This section describes any additional measures proposed to mitigate GHG emissions. Table 6.9 and Table 6.10 below set out the Construction and Operation additional mitigation that could be implemented as part of the Proposed Development post-planning submission but prior to commencement.

Table 6.9 – Summary of Construction Phase Supplementary Mitigation Measures

Adverse effect	Mitigation Measure	Responsibility/mechanism for implementation	Timing
GHG emissions arising from the construction stage (A1-A5)	Reduce the demand for materials with a high carbon footprint (such as concrete), especially in the production and transport stages of the lifecycle of the Proposed Development (e.g. using cement replacement)	Developer/contractor A circularity statement will be submitted prior to commencement, which will be secured by planning condition.	Prior to the commencement of site enabling works

Adverse effect	Mitigation Measure	Responsibility/mechanism for implementation	Timing
	Review opportunities to reduce energy association with construction installation processes, and implement reviewed opportunities considered practical to undertake.	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works
	Review opportunities to reduce the number and distance of construction transport trips, and implement reviewed opportunities considered practical to undertake.	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works
	Explore the use of off-site modular construction to consolidate delivery requirements, and for energy efficient assembly and minimising site installation process. Implement any explored methods considered practical to undertake.	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works
	Preference for materials and components that are locally sourced to minimise transportation distances.	Developer/contractor A circularity statement will be submitted prior to commencement, which will be secured by planning condition.	Prior to the commencement of site enabling works
	Review opportunities to minimise internal finishes such as dry lining, ceilings and decorative floor screeds / covering where not technically required (e.g. for acoustics or fire protection), opting for fair faced finishes instead. Implement reviewed opportunities considered practical.	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works
	Implement a travel plan for site staff	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works

Adverse effect	Mitigation Measure	Responsibility/mechanism for implementation	Timing
	Temporary electrical supply connection to minimise the use of on-site diesel generators.	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works
	Site energy monitoring and improvement programme	Developer/contractor To be included in the CEMP, which will be secured by planning condition.	Prior to the commencement of site enabling works

Table 6.10 - Summary of operational phase supplementary mitigation measures

Adverse effect	Mitigation Measure	Responsibility/mechanism for implementation	Timing
GHG emissions arising from the in use stage (B1-B5)	Extend the longevity of the materials (e.g., specifying appliances with extended warranty and lifespan).	Developer/contractor A circularity statement will be submitted prior to commencement, which will be secured by planning condition.	Prior to the commencement of site enabling works
GHG emissions arising from operational energy (lifecycle stage B6)	Explore the use of passive design measures in order to reduce the need for heating. Implement any explored methods considered practical to undertake.	Developer/contractor Post-construction review certificates relating to sustainability will be secured by planning condition	Prior to the commencement of site enabling works
GHG emissions arising from operational energy (lifecycle stage B6)	Where any electrical equipment (e.g., oven, white goods etc.) is being installed by the house builder, identify unregulated energy loads and demonstrate reduction through specifying energy efficient equipment.	Developer/contractor Post-construction review certificates relating to sustainability will be secured by planning condition	Prior to the commencement of site enabling works
GHG emissions arising from operational water use (Lifecycle stage B7)	Specify water saving devices, such as low flush toilets and showers to reduce water consumption associated with the Proposed Development.	Developer/contractor A circularity statement will be submitted prior to commencement, which will be secured by planning condition.	Prior to the commencement of site enabling works
GHG emissions arising from operational water use (Lifecycle stage B7)	Specify the use of water meters to measure water consumption.	Developer/contractor Post-construction review certificates relating to sustainability will be secured by planning condition	Prior to the commencement of site enabling works

Residual Effects

Comparison with UK and Manchester Carbon Budgets

Significance of effects assessment

6.135. Table 6.11 and Table 6.12 set out the net GHG emissions arising from the Proposed Development's construction and operational phases in the context of the UK national carbon budgets and the Tyndall Centre Energy Only Carbon Budgets for Manchester, considering both the embedded and additional mitigation.

6.136. While it is likely that the proposed mitigation measures would reduce the Proposed Development's GHG emissions, given that the assessment has been based on benchmarks rather than full detailed scheme information (as explained in paragraph 6.4 in the assumptions and limitations section), it has not been possible to quantify these reductions at this stage. This is considered a conservative approach.

Table 6.11 Post mitigation comparison of the GHG emissions arising from the Proposed Development with UK Carbon Budgets

UK Carbon Budgets		Baseline	Impact		
UK Carbon Budget Period	UK Carbon Budget ($MtCO_2e$)	Total Baseline emissions (tCO_2e)	GHG emissions from the Proposed Development	Baseline% of UK Carbon Budget	Proposed Development% of UK Carbon Budget
Fourth (2023-2027)	1,950	0	36,742	0	0.0019
During the fourth budget period, the Proposed Development would generate GHG emissions from the construction process (lifecycle stage A1-A5) between 2025 and 2027. This equates to 0.0019% of the total carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. The Proposed Development is unlikely to have a material impact on the UK's ability to meet this carbon budget.					
Fifth (2028-2032)	1,725	0	31,557	0	0.0018
During the fifth budget period, the Proposed Development would generate GHG emissions from the construction process (lifecycle stages A1-A5) in 2028 and 2030. It would then generate GHG emissions from operational energy (lifecycle stage B6), operational water consumption (lifecycle stage B7), and operational transport between 2030 and 2032. This equates to 0.00184% of the total carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. The Proposed Development is unlikely to have a material impact on the UK's ability to meet this carbon budget.					
Sixth (2033-2037)	965	0	10,178	0	0.00105%
Throughout the sixth budget period, the Proposed Development would generate GHG emissions from operational energy (lifecycle stage B6), operational water consumption (lifecycle stage B7), and operational transport. This equates to 0.00105% of the total carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. The Proposed Development is unlikely to have a material impact on the UK's ability to meet this carbon budget.					

Table 6.12 - Post-mitigation comparison of the GHG emissions arising from the Proposed Development with the Tyndall Centre Energy-Only Carbon Budgets for Manchester City Council

Tyndall Energy Only Carbon Budgets		Baseline	Impact		
Carbon Budget Period	Tyndall Carbon Budget for Manchester ($MtCO_2e$)	Total Baseline emissions (tCO_2e)	GHG emissions from the Proposed Development (tCO_2e)	Baseline% of Tyndall Centre Carbon Budget	Proposed Development% of Tyndall Centre Carbon Budget
Fourth (2023-2027)	4.6	0	0	0	0
During this budget period, the Proposed Development is under construction and would not generate GHG emissions associated with operational energy (lifecycle stage B6). It is not considered that the Proposed Development would have a material impact on Manchester's ability to meet this energy-only carbon budget.					
Fifth (2028-2032)	2.4	0	1311	0	0.0546
During this budget period, the Proposed Development would generate operational energy GHG emissions (lifecycle stage B6) between 2030 and 2032, equating to 0.0546% of the total energy only carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would further reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. It is not considered that the Proposed Development would have a material impact on Manchester's ability to meet this energy-only carbon budget.					
Sixth (2033-2037)	1.2	0	593	0	0.0494
Throughout this budget period, the Proposed Development would generate operational energy GHG emissions (lifecycle stage B6), equating to 0.0494% of the total energy only carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would further reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. It is not considered that the Proposed Development would have a material impact on Manchester's ability to meet this energy-only carbon budget.					

6.137. Table 6.10 and Table 6.11 set out the assessment of residual effect significance for the construction and operational stages respectively in accordance with the IEMA GHG Guidance.

Table 6.10 - Assessment of residual effect significance during the construction stage

Receptor	Compliance with existing and emerging policy	Residual effect significance
Global atmosphere	The Proposed Development has been considered in relation to local, regional, and national policy. The key construction phase mitigation measures which are relevant to this GHG emissions assessment include: • The implementation of circular economy principles; • WLC workshops and assessments guiding the design process; • The use of low carbon and recycled materials; • The use of structural elements that are efficient and highly utilised; and • Façade elements will be chosen to reduce both embodied carbon and the heating	Minor adverse, direct, long term and permanent

Receptor	Compliance with existing and emerging policy	Residual effect significance
	energy demand of the Proposed Development. It is considered that the Proposed Development is consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore, in line with the IEMA GHG Guidance, this is considered to be a minor adverse effect. In line with the guidance, this effect is considered to be not significant.	

Table 6.11 - Assessment of residual effect significance during the operational stage

Receptor	Compliance with existing and emerging policy	Residual effect significance
Global atmosphere	The Proposed Development has been considered in relation to local, regional, and national policy. The key operational phase mitigation measures which are relevant to this GHG emissions assessment include: • The use of clean energy renewables, monitoring and nature-based solutions; • The use of SuDS to reduce water use and ensure long-term efficacy; • The promotion of active travel; • Generation of hot water with ASHPs; • The use of building materials that are optimised to reduce heat loss in winter months, and minimise heat gains in the summer; and • The undertaking of an overheating analysis to reduce the reliance on air conditioning. It is considered that the Proposed Development is compliant with the applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore, in line with the IEMA GHG Guidance, this is considered to be a minor adverse effect, which is considered to be not significant.	Minor adverse, direct, long term and permanent

Monitoring

6.138. In line with the Sustainability Strategy, energy monitoring and associated modelling and assessments are recommended to take place during the operational phase of the development to enable subsequent adjustment of mitigation measures where necessary. It is also recommended that an energy monitoring and improvement programme is undertaken during construction and prior to the commencement of site enabling works. These measures will be included in the CEMP, which will be secured by planning condition.

Reference List

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

- British Standards Institute (2019). ISO 14090:2019 Adaptation to Climate Change – Principles, Requirements and Guidelines;
- British Standards Institution (BSI). (2011). BS EN 15978:2011 Sustainability of Construction Works – Assessment of Environmental Performance of Buildings – Calculation Method;
- Building Services Research and Information Association (BSRIA) (2011). Rules of Thumb Guidance for Building Services;
- C40 Cities (2017) Climate Change Risk Assessment Guidance;
- Chartered Institution of Building Service Engineers (CIBSE) (2018) SD5078: UK New Construction 3.0 Technical Manual
- Chartered Institution of Building Services Engineers (CIBSE) TM46 for Office (CIBSE, 2008);
- Department for Levelling Up, Housing, and Communities (DLUHC) (formerly Ministry for Housing, Community and Local Government (MHCLG)). (2023). National Planning Policy Framework;
- DLUHC (formerly MHCLG). (2021). National Planning Practice Guidance;
- Greater London Authority (2013) Scope 3 (Embodied) Guidance on Greenhouse Gas Accounting and Reporting
- Greater Manchester Combined Authority (GCMA) (2024) Places for Everyone, Joint Development Plan – Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, Wigan.
- HM Government (2021). Net Zero Strategy: Build Back Greener;
- HM Government (2021). The Building Regulations, Part L, Conservation of fuel and power;
- HM Government (2022) UK Climate Change Risk Assessment;
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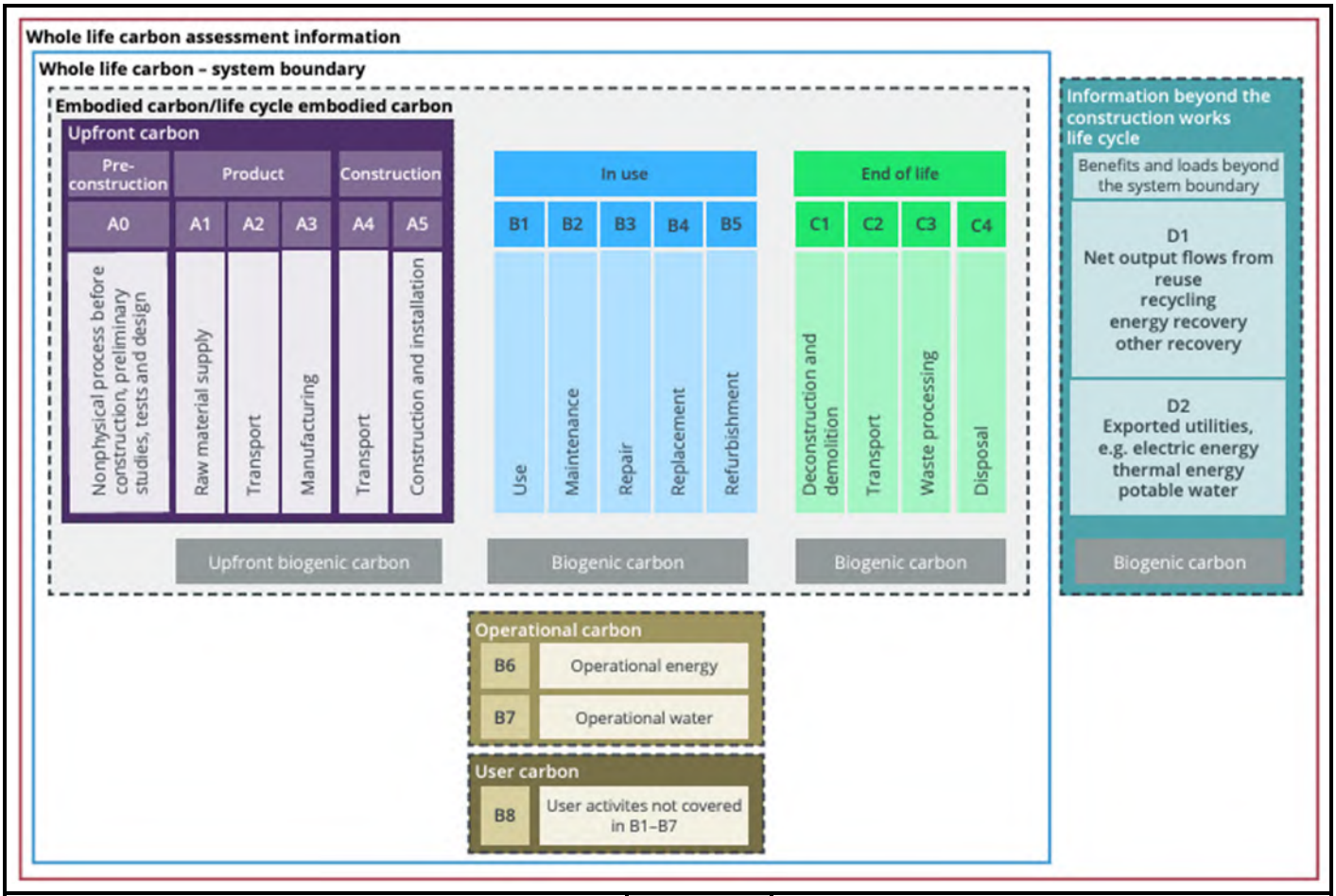


	Figure:	6.1		
	Title:	Diagram showing the stages of a lifecycle GHG emissions assessment, taken from the Whole Life Carbon Assessment for the Built Environment (RICS,2023), based on lifecycle stages set out in the EN 15643:2021, EN 15978 and more.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	Scale /NTS

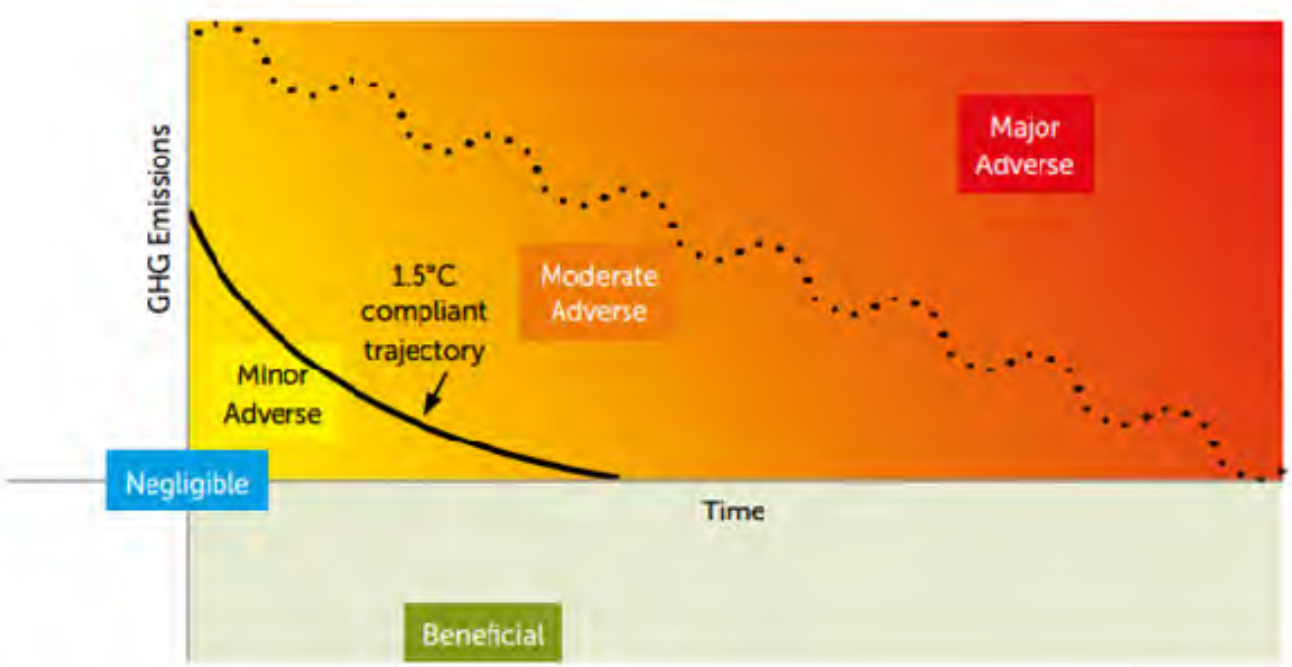


	Figure:	6.2		
	Title:	Different levels of significance plotted against the UK's net zero compatible trajectory. *Source: IEMA guide to 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' Second edition*		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	Scale /NTS

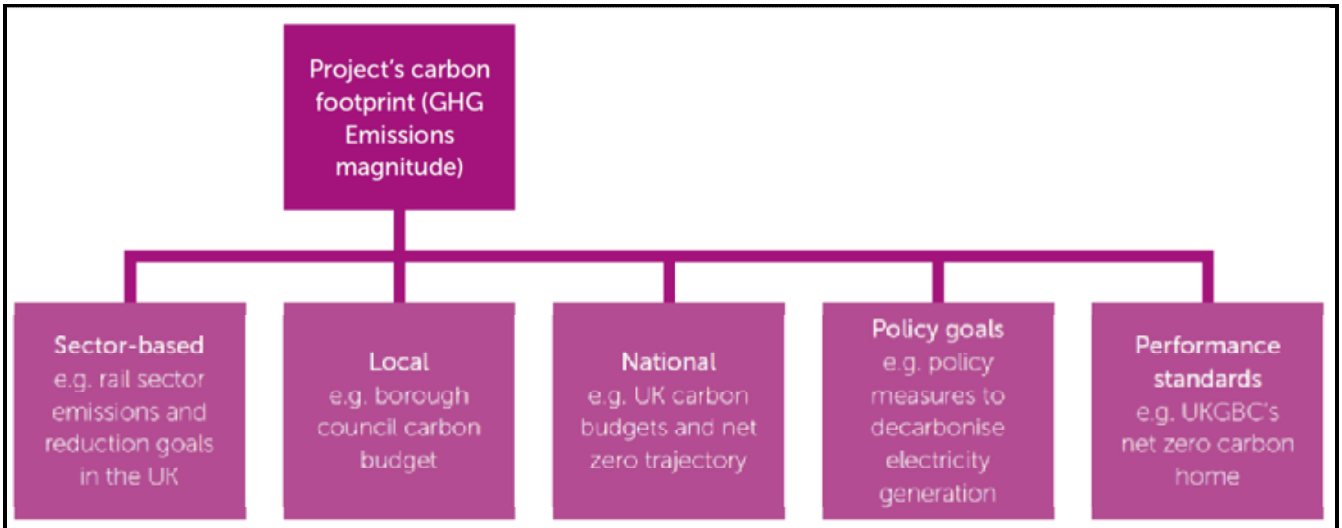


	Figure:	6.3		
	Title:	Project's carbon GHG emissions and levels of effects associated		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	Scale /NTS

7. Daylight, Sunlight and Overshadowing

Introduction

7.1. This Chapter of the ES has been prepared by GIA and assesses the likely significant effects of the Proposed Development with respect to daylight, sunlight and overshadowing. This chapter also describes the methods used to assess the effects; the baseline conditions against which the assessments have been undertaken; the mitigation measures required to prevent, reduce or offset any significant negative effects; and the likely residual effects after these measures have been adopted.

7.2. This Chapter is accompanied by the following appendices:

- Appendix 7.1 – Drawings of the Baseline and Proposed Assessment Scenarios;
- Appendix 7.2 – Daylight and Sunlight Results for Baseline v Proposed;
- Appendix 7.3 - Overshadowing Results for Baseline v Proposed;
- Appendix 7.4 – Drawings of the Baseline and Proposed + Cumulative Assessment Scenarios;
- Appendix 7.5 – Daylight and Sunlight Results for Baseline v Proposed + Cumulative;
- Appendix 7.6 - Overshadowing Results for Baseline v Proposed + Cumulative; and
- Appendix 7.7 - Daylight and Sunlight Results for the Baseline v Proposed (No balconies or Overhangs) Assessment Scenario.

7.3. The authors of this Chapter have the following qualifications and experience:

	Lead Author	Reviewer
Name	Ellis Smith	Nicola Hensey
Company	GIA	GIA
Qualifications/Accreditations relevant to technical area	BSc (Hons)	LLB (Hons)
Does the practitioner hold any IEMA qualification?	No	No
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	6	17
Number of EIA's delivered to date	5+	30+

Assumptions and Limitations

7.4. Where actual room layouts were available on the planning portal, these have been considered in regard to the modelling of the internal layouts within the existing surrounding properties. Obtaining room layouts enables precise evaluation of the diffuse levels of daylight within each of the rooms via the No Sky Line (NSL) Method.

7.5. 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 windows observed. 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.

7.6. Floor levels within the adjoining properties assessed, have been assumed based on external inspection as access has not been obtained. This dictates the level of the working plane which is relevant for the NSL assessments.

Legislative and Policy Context

Legislation

7.7. There is no legislation that governs daylight and sunlight, with the criteria for assessment relating to daylight and sunlight covered by national and local policy in addition to Building Research Establishment (BRE) guidance as set out below.

National Planning Policy

National Planning Policy Framework (2024)

7.8. The National Planning Policy Framework states in paragraph 130 (c) that: "Local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)".

Planning Practice Guidance (2019)

7.9. The Planning Practice Guidance (PPG) – Effective Use of Land, published on 22 July 2019, Paragraph: 006 Reference ID: 66-006-20190722 states that:

"Where a planning application is submitted, local planning authorities will need to consider whether the Proposed Development would have an unreasonable impact on the daylight and sunlight levels enjoyed by neighbouring occupiers, as well as assessing whether daylight and sunlight within the development itself will provide satisfactory living conditions for future occupants."

7.10. Paragraph 007 Reference ID: 66-007-20190722 also states:

"All developments should maintain acceptable living standards. What this means in practice, in relation to assessing appropriate levels of sunlight and daylight, will depend to some extent on the context for the development as well as its detailed design. For example in areas of high-density historic buildings, or city centre locations where tall modern buildings predominate, lower daylight and sunlight levels at some windows may be unavoidable if new developments are to be in keeping with the general form of their surroundings."

Local Planning Policy

Manchester Core Strategy (2012 – 2027)

7.11. 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.

7.12. 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)

7.13. 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', Third Edition, 2022

7.14. The Building Research Establishment (BRE) Guidelines 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice 2022, 3rd edition' provides advice on site layout planning to achieve good sun lighting 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 2011 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."

7.15. 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)

7.16. In addition, the BRE Guidelines state (para. 1.3) that:

"it is intended to be read in conjunction with the interior daylighting recommendations in BS EN 17037 Daylighting in Buildings, and in the CIBSE publication LG 10 Daylighting – a guide for designers".

Assessment Methodology and Significance Criteria

Scenarios Tested

7.17. The following scenarios have been assessed and are reported within this Chapter:

- Scenario 1: Existing Baseline (Site as it is today);
- Scenario 4: Existing Baseline with Proposed Development; and
- Scenario 5: Existing Baseline with Proposed Development + Cumulatives

7.18. Scenarios 2 and 3 have not been assessed due to the interim stage of construction and the worst case scenario is in relation to both phases of development (Plot J and Plot K) being built out.

Methodology for Determining Baseline Conditions and Sensitive Receptors

7.19. 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."

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

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

- 25-41 Paddock Street and 21 Thirsk Street
- 80, 84 & 85 Brydon Avenue and 86-92 & 96 Cotter Street
- 94 Cotter Street
- 82 Brydon Avenue
- 86 Brydon Avenue
- 79 Brydon Avenue
- 37-49 Brydon Avenue
- 11-35 Brydon Avenue
- 81 Brydon Avenue
- 83 Brydon Avenue
- 10-42 Fairfield Street
- Bulls Head Hotel, 84 London Road
- Star & Garter, Fairfield Street
- Piccadilly Point
- Unite Students Mill Point

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

7.23. 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.

Source of Effect

7.24. The assessment of daylight, sunlight and overshadowing effects is based principally on the amount of visible sky before and after the construction of a new development. The Building Research Establishment (BRE) recommends the following assessment methodologies:

- Daylight
    - Vertical Sky Component (VSC); and
    - No Sky Line (NSL) Method.
- Sunlight
    - Annual Probable Sunlight Hours (APSH).
- Overshadowing
    - Transient Overshadowing (TOS); and
    - Sun Hours on Ground (SHOG).

7.25. The technical analyses carried out to inform the daylight, sunlight and overshadowing assessments have been undertaken by creating a digital three-dimensional (3D) model of the existing Site and Proposed Development.

7.26. The 3D model uses Waldram Diagrams (see paragraph 7.30) to establish the VSC and 3D geometric calculations for daylight distribution (NSL).

Daylight

Vertical Sky Component (VSC) Method

7.27. 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".

7.28. 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.

7.29. 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'.

7.30. 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.

7.31. 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 the following:

Paragraph 2.2.7:

"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

7.32. 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.

7.33. 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.

7.34. 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.

7.35. Therefore, it is implied that an NSL of at least 80% would be considered satisfactory.

7.36. 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."

Diffuse Daylight

7.37. Paragraph 2.2.23 of the BRE Guidelines states:-

"…the diffuse daylighting of the existing building may be adversely affected…if either:

- *the VSC measured at the centre of an existing main window is less than 27%, and less than 0.80 times its former value; and or*
- *the area of the working plane in a room which can receive direct skylight is reduced to less than 0.80 times its former value."*

7.38. This assessment process is summarised in Figure 20 of the BRE Guidelines, Decision Chart: diffuse daylight in existing buildings, which can be seen in Figure 7.1

Sunlight

Annual Probable Sunlight Hours

7.39. Sunlight is measured using a sun indicator which contains 100 spots, each representing 1% of APSH.

7.40. Where no obstruction exists the total annual probable sunlight for Manchester would amount to 1392 hours, and each spot equates to 13.92 hours of the total annual probable sunlight.

7.41. 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.

7.42. Paragraph 3.2.3. of 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".

7.43. Regarding 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%.

7.44. 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 room's 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.

Overshadowing

Transient Overshadowing (TOS)

7.45. Paragraph 3.3.13 of the BRE Guidelines states:-

"Where a large building is proposed that may affect a number of gardens or open spaces it is often illustrative to plot a shadow plan showing the location of shadows at different times of day and year…"

7.46. The BRE guidelines provide that a detailed study of sunlighting potential be carried out on public open spaces by shadow plotting using a sunpath indicator or computer software.

7.47. The extent of overshadowing on surrounding amenity areas was mapped for the following three key dates in the year:

- 21st March (Spring Equinox);
- 21st June (Summer Solstice); and
- 21st December (Winter Solstice).

7.48. September 21st (Autumn Equinox) provides the same overshadowing images as March 21st (Spring Equinox) as the sun follows the same path at these corresponding times of year.

7.49. For each of these dates, the overshadowing has been initially calculated at hourly intervals throughout the day from 06:00 to 19:00 to establish the extent to which the shadow cast by the Proposed Development would affect the surrounding context. Some images are not included within in Appendix 7.3 because the sun would not be present during these times (e.g. from approximately 17:00 onwards on 21st March) and thus no shadow can be cast.

7.50. The indicators are calculated for different latitudes, Manchester being at 53.4° north. Southern orientation is critically important, as are the heights of the existing and proposed buildings.

7.51. Table 7.1 shows the sunset and sunrise times for 21st March, 21st June and 21st December. It also shows the maximum altitude of the sun and the time at which the sun reaches the altitude of 10° which is the altitude at which the BRE specifies overshadowing should be assessed. Receipt of sunlight can be disregarded when it is lower than this altitude.

Table 7.1 - Sun Altitude Dates and Times

Date	Sun Rise Time	Time at 10° Altitude Rising	Maximum (degrees)	Time at Setting 10° Altitude	Sunset Time
21st March	06.08	07.20	37°	17.14	18.24
21st June	04.39	06.06	60°	20.11	21.41
21st December	08.23	10.17	13°	13.42	15.51

7.52. Paragraph 3.3.13 of the BRE Guidelines states: -

"Where there are existing buildings as well as the proposed one, 'before' and 'after' shadow plots showing the difference that the proposed building makes may be helpful. In interpreting the impact of such differences, it must be borne in mind that nearly all structures will create areas of new shadow, and some degree of transient overshadowing of a space is to be expected."

7.53. Should potentially significant effects be identified through the TOS assessment, a SHOG assessment will be undertaken to confirm and quantify any effect on 21st March.

Sun Hours on Ground (SHOG)

7.54. The method for assessing SHOG is the 'sun-on-ground indicator'. The assessment applies to both to new and existing gardens/amenity areas, which are affected by new developments. The BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment. Using specialist software, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

7.55. The BRE Guidelines recommend that at least half of a garden or amenity area should receive at least 2 hours of sunlight on March 21st or the area which receives 2 hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e. there should be no more than a 20% reduction).

Summary of Criteria for Daylight and Sunlight

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

Table 7.2 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 is 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%.
TOS	The BRE do not provide any criteria for the magnitude of impact relating to transitory overshadowing, other than to suggest that by establishing the different times of day and year when shadow would be cast over adjacent areas, an indication is given as to the magnitude of impact of the Proposed Development. The assessment of transient overshadowing impact is, therefore, based on professional

Method	BRE Criteria
	judgement, taking into consideration the impact of any shadows emanating from the site as it currently stands and comparing it with the likely transient overshadowing effect of the Proposed Development.
SHOG	An area of outdoor amenity space may be adversely affected if less than 50% of its total area is unable to benefit from at least 2 hours of sunlight on 21st March and if the reduction in sunlight is greater than 20% of the baseline level.

Significance Criteria

Daylight and Sunlight

7.57. For daylight and sunlight, the BRE Guidelines outline the approach within the accompanying Appendix H. In terms of assigning significance criteria to assess the effects, Appendix H states the following:

"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;*
- *The affected building only has a low level of requirement for skylight or sunlight; and*
- *There are particular reasons why an alternative, less stringent, guideline should be applied.*

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.

7.58. The BRE Guidelines do not provide any guidance on what constitutes a moderate adverse impact. Professional judgment will be used to determine any impacts based on the guidance set out in Appendix H of the BRE Guidelines. Potential effects will be identified as beneficial, adverse, or negligible, and their magnitude of effects will be set out as Minor, Moderate and Major.

Overshadowing

Transient Overshadowing (TOS)

7.59. The BRE do not provide any criteria for the scale of an effect relating to transitory overshadowing, other than to suggest that by establishing the different times of day and year when shadow would be cast over adjacent areas, an indication is given as to the magnitude of impact and resultant scale of an effect and its significance as a result of a Proposed Development.

7.60. The assessment of transient overshadowing effects is, therefore, based on professional judgement, taking into consideration the impact of any shadows emanating from the site as it currently stands and comparing it with the likely transient overshadowing effect of the Proposed Development. The effects are defined as being of negligible, minor, moderate or major in scale and either beneficial or adverse in nature.

Sunlight Hours on Ground (SHOG)

7.61. The BRE Guidelines suggest that for an area to appear adequately sunlit throughout the year, at least half (50%) of any assessment area should see direct sunlight for at least two hours on the 21st March. If, as a result of new development, an existing assessment area will not meet BRE Guidelines criteria and the area which can receive two hours of direct sunlight on 21st March is reduced to less than 0.8 times its former area, then the loss of sunlight is likely to be noticeable.

7.62. Where the results show compliance with BRE Guidelines criteria, the occupants are unlikely to experience any noticeable change to their sunlight amenity levels. For the purposes of this assessment, such an effect would be considered negligible and not significant. Should the relevant criteria not be achieved, a judgement has to be made as to the scale and nature of effects and their resultant significance based on the level of loss, retained sunlight levels and the relevant baseline scenario.

7.63. The initial numerical criteria for determining the magnitude of change are based on percentage alterations, as follows:

Table 7.3 – Daylight & Sunlight and SHOG Magnitude of Change

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

7.64. Appendix F of the BRE guidelines provides an alternate baseline VSC value for city centre regions of 18% rather than the 27% referenced through the body of the document which is the level of VSC to be expected in an environment where the neighbouring construction angle is around 25 degrees i.e. a more suburban location.

7.65. 18% is 67% of 27%. 67% of the BRE target value for NSL (80%) is 53.6% Therefore, as the Proposed Development is in a more urban location, if the changes in VSC and/or NSL should breach the standard BRE guidelines beyond a minor extent, the magnitude of change is still considered to be of minor significance provided that the windows either experience no change or retain 18% VSC and the rooms retain at least 53.6% NSL.

Sensitivity of Identified Receptors

7.66. 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 PPG.

7.67. For these reasons, the surrounding receptors may have a lower sensitivity to change in an urban location than those located in suburban, 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 and areas of amenity space surrounding the Site are in a developing city centre location where there is an expectation for a higher density of development. The Site is currently undeveloped, as such, the surrounding receptors are therefore receiving higher levels of daylight and sunlight than would typically be expected in a city centre location.

7.68. All of the daylight, sunlight and overshadowing sensitive receptors are therefore considered to be of medium sensitivity.

Significance of Effects

7.69. 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 7.4 – Significance of Effect

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

7.70. When assigning significance criteria for daylight and sunlight effects, professional judgement has been used. Consideration has been given to the proportion of rooms/windows/area 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

7.71. 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.

7.72. In accordance with Table F1 of the BRE guidelines, it is clear that the published targets within the BRE Guide are based on low rise, suburban development. The PPG – Making Effective Use of Land - Paragraph 007 Reference ID: 66-007-20190722 states:

"All developments should maintain acceptable living standards. What this means in practice, in relation to assessing appropriate levels of sunlight and daylight, will depend to some extent on the context for the development as well as its detailed design. For example, in areas of high-density historic buildings, or city centre locations where tall modern buildings predominate, lower daylight and sunlight levels at some windows may be unavoidable if new developments are to be in keeping with the general form of their surroundings."

7.73. This is a key point to consider in respect of the Proposed Development and its impact on surrounding properties and areas of amenity space, particularly as it is situated in Manchester City Centre. The Manchester Core Strategy 2012-2027 sets out development principles for the city centre in Policy CC 6 (p60), which states the following:

"City Centre development will generally be high-density. It is a location where land should be used to its maximum efficiency. The appropriate scale, massing and height of development in the City Centre will significantly exceed what is appropriate elsewhere in the City."

7.74. This approach is also acknowledged in the BRE Guide, which states:

"…in special circumstances the developer or planning authority may wish to use different target values… in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings".

7.75. It would therefore be unrealistic for the surrounding residential properties and areas of amenity space to expect to maintain similar levels of daylight and sunlight as those currently experienced, as the Site is currently undeveloped.

Baseline Conditions

Daylight and Sunlight

7.76. The Site comprises previously developed land, which has been largely cleared following the demolition of a former logistics warehouse and vehicular compound in 2019.

7.77. Drawings of this assessment scenario can be found in Appendix 7.1.

7.78. A total of 1,095 windows facing the Site serving 684 rooms within 15 individual buildings or property terraces were assessed for VSC and NSL (daylight) and 465 rooms were assessed for APSH (sunlight) within the eight buildings which are material for consideration in sunlight terms i.e. their windows are orientated to within 90 degrees of due south.

7.79. The full Baseline daylight and sunlight results can be found in Appendix 7.2 and are summarised in Table 7.6 below.

Table 7.5 – 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	
	Total	Pass	Total	Pass	Total	Pass
25-41 Paddock Street & 21 Thirsk Street	72	69	48	48	6	6
80 84 85 Brydon Avenue 86-92 96 Cotter Street	50	25	44	44	3	3
94 Cotter Street	3	1	3	3	0	0
82 Brydon Avenue	3	1	3	3	0	0
86 Brydon Avenue	7	4	5	5	2	2
79 Brydon Avenue	3	1	3	3	0	0
37-49 Brydon Avenue	21	21	21	21	0	0
11-35 Brydon Avenue	33	31	33	33	0	0
81 Brydon Avenue	3	1	3	3	0	0
83 Brydon Avenue	3	1	3	3	0	0
10-42 Fairfield Street	24	13	9	3	6	6
Bulls Head Hotel 84 London Road	15	9	9	7	5	5
Star & Garter Fairfield Street	5	5	3	9	1	1
Piccadilly Point	426	301	274	194	255	211
Unite Students Mill Point	427	257	223	165	187	159
TOTALS	1095	740	684	544	465	393

7.80. Out of the 1095 windows assessed for VSC skylight, 740 (68%) meet or exceed the BRE recommended criteria. For NSL, 544 (80%) of the 684 rooms assessed meet the BRE recommended criteria. For sunlight, 393 (85%) of the 465 rooms assessed meet the BRE criteria for both Winter and Annual APSH.

Overshadowing

7.81. The full Baseline overshadowing results can be found in Appendix 7.3 and are summarised in Table 7.6 below.

Table 7.6 – Baseline levels of SHOG within the surrounding sensitive receptors

Area Name	Area benefitting from 2 hours of SHOG on 21st March	Meets SHOG Criteria?
Mayfield Park	100.00%	Yes

7.88. Overall, there is a good level of baseline daylight, sunlight and overshadowing compliance considering the city centre context of the Site and the height and density in the immediate locality.

7.89. If the Proposed Development was not constructed, the baseline daylight, sunlight and overshadowing levels would remain the same as there are no 'natural' factors that would influence baseline conditions, only human induced changes (i.e., development). The Site is, however, seen as a redevelopment opportunity and so, in reality, it would be unlikely for the baseline to remain as it is indefinitely. With respect to human induced changes, any development of the Site could influence the baseline conditions of varying degrees, as any drivers for change in baseline conditions would be linked to massing and layout of the surrounding context.

Identification and Evaluation of Likely Significant Effects

Construction Phase

7.90. Owing to the evolving and changing nature of construction activities, the assessment of potential effects during construction of the Proposed Development on daylight, sunlight and overshadowing to surrounding properties and areas of amenity space have not been modelled.

7.91. Since the potential daylight, sunlight and overshadowing effects relating to 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 will not be assessed quantitatively as it is considered that the completed Proposed Development represents the worst-case assessment in terms of likely daylight and sunlight.

7.92. During the construction phase, the daylight, sunlight and overshadowing effects will gradually change from negligible in the baseline position to that described below in the Operational Phase with the Proposed Development in place. For these reasons, the Construction Phase will not be discussed further in this report.

Operational Phase

Daylight & Sunlight

7.93. The outputs of the computer modelling for both daylight and sunlight is provided in full within Appendix 7.2, with the key metrics provided in Tables 7.7 to 7.10 below.

7.94. The breakdown of the Existing Baseline results compared to the Proposed Development for each of the individual buildings forming part of this assessment are discussed in more detail below.

Table 7.7 – Summary of VSC Results

Address	Total No. of windows	No. of windows that meet BRE Guidelines	Below BRE Guidelines - Magnitude of Change		
		Negligible	Minor	Moderate	Major
25-41 Paddock Street & 21 Thirsk Street	72	25	24	23	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	50	28	7	11	4
94 Cotter Street	3	0	1	0	2
82 Brydon Avenue	3	3	0	0	0
86 Brydon Avenue	7	7	0	0	0
79 Brydon Avenue	3	3	0	0	0
37-49 Brydon Avenue	21	21	0	0	0
11-35 Brydon Avenue	33	33	0	0	0
81 Brydon Avenue	3	3	0	0	0
83 Brydon Avenue	3	3	0	0	0
10-42 Fairfield Street	24	24	0	0	0
Bulls Head Hotel 84 London Road	15	15	0	0	0
Star & Garter Fairfield Street	5	5	0	0	0
Piccadilly Point	426	426	0	0	0
Unite Students Mill Point	427	427	0	0	0
TOTALS	1095	1023	32	34	6

Table 7.8 – Summary of NSL Results

Address	Total No. of Rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines - Magnitude of Change		
		Negligible	Minor	Moderate	Major
25-41 Paddock Street & 21 Thirsk Street	48	44	1	3	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	44	39	0	4	1
94 Cotter Street	3	2	0	0	1
82 Brydon Avenue	3	3	0	0	0
86 Brydon Avenue	5	5	0	0	0
79 Brydon Avenue	3	3	0	0	0
37-49 Brydon Avenue	21	21	0	0	0
11-35 Brydon Avenue	33	33	0	0	0
81 Brydon Avenue	3	3	0	0	0
83 Brydon Avenue	3	3	0	0	0
10-42 Fairfield Street	9	9	0	0	0
Bulls Head Hotel 84 London Road	9	9	0	0	0
Star & Garter Fairfield Street	3	3	0	0	0
Piccadilly Point	274	273	1	0	0
Unite Students Mill Point	223	223	0	0	0
TOTALS	684	673	2	7	2

Table 7.9 – Summary of Annual Sunlight Results

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines - Magnitude of Change		
		Negligible	Minor	Moderate	Major
25-41 Paddock Street & 21 Thirsk Street	6	6	0	0	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	3	3	0	0	0
86 Brydon Avenue	2	2	0	0	0
10-42 Fairfield Street	6	6	0	0	0
Bulls Head Hotel 84 London Road	5	5	0	0	0
Star & Garter Fairfield Street	1	1	0	0	0
Piccadilly Point	255	255	0	0	0
Unite Students Mill Point	187	187	0	0	0
TOTALS	465	465	0	0	0

Table 7.10 – Summary of Winter Sunlight Results

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines - Magnitude of Change		
		Negligible	Minor	Moderate	Major
25-41 Paddock Street & 21 Thirsk Street	6	6	0	0	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	3	3	0	0	0
86 Brydon Avenue	2	2	0	0	0

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines - Magnitude of Change		
		Negligible	Minor	Moderate	Major
10-42 Fairfield Street	6	6	0	0	0
Bulls Head Hotel 84 London Road	5	5	0	0	0
Star & Garter Fairfield Street	1	1	0	0	0
Piccadilly Point	255	255	0	0	0
Unite Students Mill Point	187	187	0	0	0
TOTALS	465	465	0	0	0

7.95. In situations where the construction of the Proposed Development would result in VSC, NSL and APSH alterations to the windows and rooms within a property which are all within the BRE guidelines, the effect of the Proposed Development upon the daylight and sunlight amenity to that property is considered to be negligible.

7.96. Of the 15 properties assessed, the effect of the Proposed Development upon the daylight and sunlight amenity within the 11 properties listed within Table 7.11 would be negligible (not significant).

Table 7.11 - Properties with a Negligible Daylight and Sunlight effect

Properties with a Negligible Daylight and Sunlight effect	
82 Brydon Avenue	83 Brydon Avenue
86 Brydon Avenue	10-42 Fairfield Street
79 Brydon Avenue	Bulls Head Hotel 84 London Road
37-49 Brydon Avenue	Star & Garter Fairfield Street
11-35 Brydon Avenue	Unite Students Mill Point
81 Brydon Avenue	

7.110. In accordance with the significance criteria described above, the effect upon the daylight amenity within the below properties is considered to be minor adverse (not significant):

- Piccadilly Point; and
- 25-41 Paddock Street & 21 Thirsk Street.

7.111. The remaining two properties are discussed in detail below.

80, 84, 85 Brydon Avenue 86-92 96 Cotter Street

7.112. A total of 50 windows serving 44 rooms were assessed for daylight within this building.

VSC

7.113. 28 (56%) of the 50 windows assessed would meet the BRE's criteria and so experience a negligible magnitude of VSC change.

7.114. Based on the initial numerical criteria for determining the magnitude of change detailed in Table 7.3, the magnitude of VSC change to seven (14%) of the 22 affected windows is minor. The magnitude of VSC change to 11 (22%) of the remaining 15 windows is moderate. The magnitude of VSC change to the remaining four (8%) windows is major.

NSL

7.115. 39 (89%) of the 44 rooms assessed would meet BRE's criteria and so experience a negligible magnitude of NSL change.

7.116. The magnitude of NSL change to four (9%) of the remaining five affected rooms is moderate. The magnitude of NSL change to the remaining room (2%) is major.

Diffuse Daylight

7.117. Any changes in diffuse daylight (VSC & NSL) to 22 (50%) of the 44 rooms assessed will be fully BRE compliant. The effect upon diffuse daylight within these 22 rooms is therefore considered to be negligible (not significant).

7.118. In accordance with the significance criteria described above, 7 (16%) of the remaining 22 rooms will experience changes in VSC and/or NSL which are minor. The effect upon the diffuse daylight within these 7 rooms is therefore considered to be minor adverse (not significant).

7.119. The windows serving the remaining 15 rooms (34%) will experience a moderate to major magnitude of VSC change. The magnitude of NSL changes to these rooms will range from negligible to major.

Alternate Guidelines

7.120. At paragraph 2.2.13, the BRE Guidelines state the following:

"Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC, and on the area receiving direct skylight. One way to demonstrate this would be to carry out an additional calculation of the VSC and area receiving direct skylight, for both the existing and proposed situations, without the balcony in place. For example, if the proposed VSC with the balcony was under 0.80 times the existing value with the balcony, but the same ratio for the values without the balcony was well over 0.8, this would show that the presence of the balcony, rather than the size of the new obstruction, was the main factor in the relative loss of light."

7.121. This applies to 80, 84, 85 Brydon Avenue 86-92 96 Cotter Street. The effect of the Proposed Development compared to the Baseline when removing the overhangs above the windows has, therefore, been assessed.

7.122. Full detailed analysis of the effect of the Proposed Development compared to the Baseline when removing the overhangs above the windows can be found in Appendix 7.7.

VSC

7.123. 50 (100%) of the 50 windows assessed would meet the BRE's criteria and so experience a negligible magnitude of VSC change.

NSL

7.124. 39 (89%) of the 44 rooms assessed would meet BRE's criteria and so experience a negligible magnitude of NSL change.

7.125. The magnitude of NSL change to four (9%) of the remaining five affected rooms is moderate. The magnitude of NSL change to the remaining room (2%) is major.

Diffuse Daylight

7.126. Any changes in diffuse daylight (VSC & NSL) to 39 (89%) of the 44 rooms assessed will be fully BRE compliant. The effect upon diffuse daylight within these 39 rooms is therefore considered to be negligible (not significant).

7.127. In accordance with the significance criteria described above, the remaining 5 (11%) rooms will experience changes in VSC and/or NSL which are minor. The effect upon the diffuse daylight within these 5 rooms is therefore considered to be minor adverse (not significant).

7.128. It is clear from the above-described assessment that it is the presence of the overhang, rather than the size of the Proposed Development that is "the main factor in the relative loss of light."

7.129. In accordance with paragraph H6 of the BRE guidelines, the overall effect of the Proposed Development upon the daylight within this property is minor adverse (not significant).

Sunlight

7.130. Any changes to the sunlight amenity within the three rooms material for assessment will be fully BRE compliant. The effect upon sunlight amenity within this property is therefore considered to be negligible (not significant).

94 Cotter Street

7.131. A total of three windows serving three rooms were assessed for daylight within this building.

VSC

7.132. Based on the initial numerical criteria for determining the magnitude of change detailed in Table 7.3, the magnitude of VSC change to one (33%) of the three affected windows is minor. The magnitude of VSC change to the two (67%) remaining affected windows is major.

NSL

7.133. Two (67%) of the three rooms assessed would meet BRE's criteria and so experience a negligible magnitude of NSL change.

7.134. The magnitude of NSL change to the remaining room is major.

Diffuse Daylight

7.135. In accordance with the significance criteria described above, one of the three rooms assessed will experience changes in VSC and/or NSL which are minor. The effect upon the diffuse daylight within this room is therefore considered to be minor adverse (not significant).

7.136. The remaining two rooms are each served by a single window with a magnitude of VSC changes that is major. The changes in NSL to one these rooms will be fully BRE compliant with the room retaining NSL to 88.5% of its area. The change in NSL to the remaining room will be major.

Alternate Guidelines

7.137. In accordance with the alternate guidelines described in paragraph 7.113, the effect of the Proposed Development compared to the Baseline when removing the overhangs above the windows has been assessed.

VSC

7.138. 3 (100%) of the 3 windows assessed would meet the BRE's criteria and so experience a negligible magnitude of VSC change.

NSL

7.139. 2 (67%) of the 3 rooms assessed would meet BRE's criteria and so experience a negligible magnitude of NSL change.

7.140. The magnitude of NSL change to the remaining room is moderate.

Diffuse Daylight

7.141. Any changes in diffuse daylight (VSC & NSL) to 2 (67%) of the 3 rooms assessed will be fully BRE compliant. The effect upon diffuse daylight within these rooms is therefore considered to be negligible (not significant).

7.142. In accordance with the significance criteria described above, the remaining room will experience changes in VSC and/or NSL which are minor overall. The effect upon the diffuse daylight within this room is therefore considered to be minor adverse (not significant).

7.143. It is clear from the above-described assessment that it is the presence of the overhang, rather than the size of the Proposed Development that is "the main factor in the relative loss of light."

7.144. In accordance with paragraph H6 of the BRE guidelines, the overall effect of the Proposed Development upon the daylight within this property is minor adverse (not significant).

Sunlight

7.145. This property is not material for consideration in sunlight terms as none of its windows are orientated to within 90 degrees of due south.

Overshadowing

7.146. The potential overshadowing effects of the Proposed Development on surrounding amenity areas have been assessed against the Baseline Scenario.

7.147. The outputs of the computer modelling for overshadowing is provided in full within Appendix 8.3 and is summarised below.

Transient Overshadowing

21st March

7.148. From 08:00 GMT the Proposed Development casts transient shadows across Mayfield Park until approximately 16:00 GMT.

21st June

7.149. From 09:00 BST to 15:00 BST the Proposed Development casts small strips of transient shadow onto Mayfield Park.

21st December

7.150. From 09:00 GMT the Proposed Development casts longer strips of shadow across Mayfield Park until 14.00 GMT.

7.151. It can be seen from the transient overshadowing plots that the Proposed Development has been designed to break up any resulting shadow to allow for areas of sun and shade to transit across Mayfield Park throughout the day.

SHOG

7.152. The breakdown of the Baseline results compared to the Proposed Development for Mayfield Park is shown in Table 7.12 below.

Table 7.12: Summary of SHOG Assessment Results

Area Name	Area benefitting from 2 hours of SHOG on 21st March (Baseline)	Area benefitting from 2 hours of SHOG on 21st March (Proposed)	Change in SHOG	Meets SHOG Criteria?
Mayfield Park	100.00%	95.32%	4.62%	Yes

7.167. Any changes to the level of shadow falling upon Mayfield Park will be fully BRE compliant.

7.168. The overall effect of the Proposed Development in overshadowing terms is considered to be negligible (not significant).

Cumulative Effects

7.169. This section reports upon the effects of the Proposed Development in combination with the following consented neighbouring developments:

- Mayfield multi-storey car park (Ref: 124972/FO/2019 as amended by 132255/JO/2021,134743/NMC/2022, 137219/NMC/2023, 137350/JO/2023);
- Republic (Ref: 125248/FO/2019 as amended by 137349/JO/2023, 135956/NMC/2023 and 137349/JO/2023); and

- Poulton (Ref:137263/FO/2023)

7.170. Drawings of the assessment scenario can be found within Appendix 7.4.

Operational Phase

Daylight & Sunlight

7.171. The outputs of the computer modelling for both daylight and sunlight is provided in full within Appendix 7.5, with the key metrics for the effects upon the non-cumulative developments being assessed provided in Tables 7.13 to 7.16 below.

7.172. The same 1,095 windows facing the Site serving 684 rooms within 15 buildings were assessed for VSC and NSL (daylight) and 465 rooms were assessed for APSH (sunlight) within the eight buildings which are material for consideration in sunlight terms i.e. their windows are orientated to within 90 degrees of due south.

Table 7.13 – Summary of VSC & NSL Daylight Results – Proposed Development Only

	VERTICAL SKY COMPONENT					NO SKY LINE				
	WINDOW					ROOM				
			LOSS (%)					LOSS (%)		
ADDRESS	TOTAL	PASS	20-30	30-40	40+	TOTAL	PASS	20-30	30-40	40+
25-41 Paddock Street & 21 Thirsk Street	72	25	24	23	0	48	44	1	3	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	50	28	7	11	4	44	39	0	4	1
94 Cotter Street	3	0	1	0	2	3	2	0	0	1
82 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
86 Brydon Avenue	7	7	0	0	0	5	5	0	0	0
79 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
37-49 Brydon Avenue	21	21	0	0	0	21	21	0	0	0
11-35 Brydon Avenue	33	33	0	0	0	33	33	0	0	0
81 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
83 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
10-42 Fairfield Street	24	24	0	0	0	9	9	0	0	0
Bulls Head Hotel 84 London Road	15	15	0	0	0	9	9	0	0	0
Star & Garter Fairfield Street	5	5	0	0	0	3	3	0	0	0
Piccadilly Point	426	426	0	0	0	274	273	1	0	0

ADDRESS	VERTICAL SKY COMPONENT WINDOW TOTAL	PASS	LOSS (%) 20-30	30-40	40+	NO SKY LINE ROOM TOTAL	PASS	LOSS (%) 20-30	30-40	40+
Unite Students Mill Point	427	427	0	0	0	223	223	0	0	0
TOTALS	1095	1023	32	34	6	684	673	2	7	2

Table 7.14 – Summary of VSC & NSL Daylight Results – Proposed Development & Cumulative Schemes

ADDRESS	VERTICAL SKY COMPONENT WINDOW TOTAL	PASS	LOSS (%) 20-30	30-40	40+	NO SKY LINE ROOM TOTAL	PASS	LOSS (%) 20-30	30-40	40+
25-41 Paddock Street & 21 Thirsk Street	72	23	22	27	0	48	42	3	3	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	50	28	6	10	6	44	39	0	4	1
94 Cotter Street	3	0	1	0	2	3	2	0	0	1
82 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
86 Brydon Avenue	7	7	0	0	0	5	5	0	0	0
79 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
37-49 Brydon Avenue	21	21	0	0	0	21	21	0	0	0
11-35 Brydon Avenue	33	33	0	0	0	33	33	0	0	0
81 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
83 Brydon Avenue	3	3	0	0	0	3	3	0	0	0
10-42 Fairfield Street	24	24	0	0	0	9	9	0	0	0
Bulls Head Hotel 84 London Road	15	15	0	0	0	9	9	0	0	0
Star & Garter Fairfield Street	5	5	0	0	0	3	3	0	0	0

	VERTICAL SKY COMPONENT WINDOW					NO SKY LINE ROOM				
			LOSS (%)					LOSS (%)		
ADDRESS	TOTAL	PASS	20-30	30-40	40+	TOTAL	PASS	20-30	30-40	40+
Piccadilly Point	426	426	0	0	0	274	273	1	0	0
Unite Students Mill Point	427	421	6	0	0	223	219	4	0	0
TOTALS	**1095**	**1015**	**35**	**37**	**8**	**684**	**667**	**8**	**7**	**2**

7.173. The reason for the small decrease in daylight compliance levels is due to the additional effect of the cumulative schemes listed at paragraph 7.162.

Table 7.15 – Summary of APSH Sunlight Results – Proposed Development Only

	ANNUAL PROBABLE SUNLIGHT HOURS ROOM							
			ANNUAL (%)			WINTER (%)		
ADDRESS	TOTAL	PASS	20-30	30-40	40+	20-30	30-40	40+
25-41 Paddock Street & 21 Thirsk Street	6	6	0	0	0	0	0	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	3	3	0	0	0	0	0	0
86 Brydon Avenue	2	2	0	0	0	0	0	0
10-42 Fairfield Street	6	6	0	0	0	0	0	0
Bulls Head Hotel 84 London Road	5	5	0	0	0	0	0	0
Star & Garter Fairfield Street	1	1	0	0	0	0	0	0
Piccadilly Point	255	255	0	0	0	0	0	0
Unite Students Mill Point	187	187	0	0	0	0	0	0
TOTALS	465	465	0	0	0	0	0	0

Table 7.16 – Summary of APSH Sunlight Results – Proposed Development & Cumulative Schemes

	ANNUAL PROBABLE SUNLIGHT HOURS							
	ROOM							
			ANNUAL (%)			WINTER (%)		
ADDRESS	TOTAL	PASS	20-30	30-40	40+	20-30	30-40	40+
25-41 Paddock Street & 21 Thirsk Street	6	6	0	0	0	0	0	0
80 84 85 Brydon Avenue 86-92 96 Cotter Street	3	3	0	0	0	0	0	0
86 Brydon Avenue	2	2	0	0	0	0	0	0
10-42 Fairfield Street	6	6	0	0	0	0	0	0
Bulls Head Hotel 84 London Road	5	5	0	0	0	0	0	0
Star & Garter Fairfield Street	1	1	0	0	0	0	0	0
Piccadilly Point	255	255	0	0	0	0	0	0
Unite Students Mill Point	187	186	0	0	0	0	0	1
TOTALS	465	464	0	0	0	0	0	1

7.269. There is no additional in combination sunlight effects as a result of the cumulative schemes listed at paragraph 7.162.

Overshadowing

7.270. The outputs of the computer modelling for overshadowing is provided in full within Appendix 7.3 and 7.6.

Transient Overshadowing

21st March

7.271. From 08:00 GMT the Proposed Development and cumulative schemes cast shadows across Mayfield Park. The Proposed Development shadows clear the vast majority of the park by 16:00 GMT, however the cumulative schemes shadows remains for the rest of the day.

21st June

7.272. From 09:00 BST to 15:00 BST the Proposed Development casts a small strip of additional shadow onto Mayfield Park. The cumulative schemes shadow will remain until 18:00 BST.

21st December

7.273. From 09:00 GMT the Proposed Development casts longer strips of shadow across Mayfield Park until 14:00 GMT. The cumulative schemes shadow remains on the park for the rest of the day.

Table 7.17 - Summary of SHOG Assessment Results - Proposed Development Only

Area Name	Area benefitting from 2 hours of SHOG on 21st March (Baseline)	Area benefitting from 2 hours of SHOG on 21st March (Proposed)	Change in SHOG	Meets SHOG Criteria?
Mayfield Park	100.00%	95.32%	4.62%	Yes

Table 7.18 - Summary of SHOG Assessment Results - Proposed Development & Cumulative Schemes

Area Name	Area benefitting from 2 hours of SHOG on 21st March (Baseline)	Area benefitting from 2 hours of SHOG on 21st March (Proposed)	Change in SHOG	Meets SHOG Criteria?
Mayfield Park	100.00%	62.53%	37.47%	Yes

7.274. The reason for the decrease in compliance level is due to the additional effect of the cumulative schemes listed at paragraph 7.162. and the overall effect is minor.

Mitigation Measures

Daylight & Sunlight

7.275. Daylight impacts to the surrounding properties are negligible to minor adverse for the reasons set out. Sunlight impacts to the surrounding properties are negligible. 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.

Overshadowing

7.276. Overshadowing impacts to Mayfield Park space are negligible and so considered to result in non-significant effects. Given the context of the Site and nature of effects, no further mitigation is considered necessary.

Residual Effects

Operational Phase

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation - Overall Magnitude of Change and Duration (Temporary/Permanent)	Is the Effect Significant?
Adverse reduction in daylight amenity	25-41 Paddock Street & 21 Thirsk Street	None	n/a	Minor Adverse (Permanent)	No
	80 84 85 Brydon Avenue 86-92 96 Cotter Street	None	n/a	Minor Adverse (Permanent)	No
	94 Cotter Street	None	n/a	Minor Adverse (Permanent)	No
	82 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	86 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	79 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	37-49 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	11-35 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	81 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	83 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	10-42 Fairfield Street	None	n/a	Negligible (Permanent)	No
	Bulls Head Hotel 84 London Road	None	n/a	Negligible (Permanent)	No
	Star & Garter Fairfield Street	None	n/a	Negligible (Permanent)	No
	Piccadilly Point	None	n/a	Minor Adverse (Permanent)	No
	Unite Students Mill Point	None	n/a	Negligible (Permanent)	No
Adverse reduction	25-41 Paddock Street & 21 Thirsk Street	None	n/a	Negligible (Permanent)	No

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation - Overall Magnitude of Change and Duration (Temporary/Permanent)	Is the Effect Significant?
in sunlight amenity	80 84 85 Brydon Avenue 86-92 96 Cotter Street	None	n/a	Negligible (Permanent)	No
	94 Cotter Street	None	n/a	Negligible (Permanent)	No
	82 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	86 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	79 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	37-49 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	11-35 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	81 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	83 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	10-42 Fairfield Street	None	n/a	Negligible (Permanent)	No
	Bulls Head Hotel 84 London Road	None	n/a	Negligible (Permanent)	No
	Star & Garter Fairfield Street	None	n/a	Negligible (Permanent)	No
	Piccadilly Point	None	n/a	Negligible (Permanent)	No
	Unite Students Mill Point	None	n/a	Negligible (Permanent)	No
Adverse increase in shadow	Mayfield Park	None	n/a	Negligible (Permanent)	No

Monitoring

7.277. None required.

References

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

- Ministry of Housing, Communities & Local Government (2024). National Planning Policy Framework.

- Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance
- Manchester City Council (2012). Manchester Core Strategy (2012 – 2027).
- Manchester City Council (2007). Guide to Development in Manchester Supplementary Planning Document and Planning Guidance Adopted April 2007.
- Building Research Establishment (BRE) (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice, Third Edition.
- Commission Internationale De L'Eclairage (CIE), CIE 146:2002 & CIE 147:2002 - Collection on Glare, CIE, 2002

8. Townscape and Visual Impact

Introduction

8.1. This Chapter of the ES has been prepared by Chris Burnett Associates and assesses the likely significant effects of the Proposed Development with respect to Townscape and Visual amenity. 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 adverse effects; cumulative effects and the likely residual effects. Technical appendices also support this assessment and consist of the following:

- Appendix 8.1: Maps, Viewpoint and townscape photographs including AVR images.
- Appendix 8.2: Visualisation methodology.
- Appendix 8.3: AVR Methodology.
- Appendix 8.4: Kinetic Views.

8.2. Chris Burnett BSC BLD CMLI, is principal partner of Chris Burnett Associates, a registered practice of landscape architects, who specialises in tall building Townscape and Visual Impact Assessments, as part of Environmental Statements, for many tall building developments throughout the UK since 2002. This includes over 20 tall buildings all of which have received planning consent, in Manchester and Salford including Beetham Hilton, Deansgate Square, New Wakefield Street, Great Northern and others.

Legislative and Policy Context

Legislation

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

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

National Planning Policy

8.5. The National Planning Policy Framework[2] sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

8.6. Key aspects of the NPPF, revised in 2024, which apply to the Townscape and Heritage Assessment are the paragraphs 131 and 135 below:

(Para.131) The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement between applicants, communities, local planning authorities and other interests throughout the process.

(Para.135) Planning policies and decisions should ensure that developments:

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

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

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

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

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

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

Local planning policy

8.7. The following relevant policies are set out below as extracts from Manchester City Council's Core Strategy[3]*:*

"The Core Strategy was adopted by Manchester City Council on 11th July 2012. It is the key document in Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027. It describes Manchester today and outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision[4].

Policy EN 1 - Design Principles and Strategic Character Areas

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

Policy CC6 High Density Development

8.9. *City Centre High Density Development 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.

Policy CC 9 Design and Heritage

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.

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

Policy EN2 - Tall Buildings

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.

Elsewhere within Manchester tall building development will only be supported where, in addition to the requirements listed above, it can be shown to play a positive role in a coordinated place-making approach to a wider area. Suitable locations are likely to relate to existing district centres. The height of tall buildings in such locations should relate more to the local, rather than the City Centre, urban context.

By their very size tall buildings can have a significant impact on the local environment and its micro-climate. It is therefore expected that this impact be modelled and that submissions for tall buildings also include appropriate measures to create an attractive, pedestrian friendly local environment.

It will be necessary for the applicant/developer to demonstrate that proposals for tall buildings are viable and deliverable"

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

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

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

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

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

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

Policy EN3 - Heritage

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."

Assessment Methodology and Significance Criteria

8.12. This assessment has been undertaken alongside an assessment of the Historic Built Environment which assesses the impact of the Proposed Development on the heritage assets and the surrounding built

environment. This chapter assesses the impact of the Proposed Development over a wider area and assesses it against townscape character and visual amenity.

Scenarios Tested

8.13. In addition to a description of the baseline for the Site in townscape terms, for the purposes of this assessment the worst-case scenarios are the subject of this assessment, which are considered to be Scenarios 4 and 5.

Study Area

8.14. The study area for this assessment comprises an area of approximately 1km in radius focussed on the Proposed Development Site. This area is judged to be appropriate given the height of the Proposed Development, the prevailing topography of surrounding area and its location. Outside this zone townscape and visual effects are unlikely to be significant due to distance, the effects of urban grain and street pattern and also the proximity of a number of intervening tall buildings.

Baseline Surveys

Desk Based Research

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

Field Surveys

8.16. Field surveys were undertaken to explore the current baseline of Manchester City Centre. The survey was based on zones using the template set out in Manchester Residential Quality Guidance[5]. Broad Townscape Character Zones were also defined which lie outside the City Centre. During the field survey the ZTV was confirmed and a series of Representative Viewpoints established for assessment, all subsequently subject to Accurate Visual Representation (AVR).

Consultations

8.17. Manchester City Council were consulted on the proposed location of all viewpoints as part of the EIA Scoping Report. MCC also requested a viewpoint from Platform 14 of Manchester Piccadilly station but due to the difficulty of obtaining this it was agreed that a series of non-verified kinetic views from the railway line into and out of Manchester Piccadilly would be provided instead (Appendix 8.4).

Method of Assessing Significance

8.18. The Townscape and Visual Impact Assessment (TVIA) was undertaken in accordance with the methodology and approach set out in the 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA) Third Edition' (2013) – produced by the Landscape Institute (LI) and IEMA.[6]

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

- *Townscape effects relate to the degree of change to characteristics or physical components of an urban area, which together form the character of that townscape, e.g. topography, buildings and vegetation.*

- *Visual effects relate to the degree of change to an individual receptor's or a receptor group's view of that townscape, e.g. local residents, users of public footpaths or motorists passing through the area."*

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

- *Effects on Townscape character. For the purposes of this study the area immediately around the Proposed Development is examined on a character area basis based on the zonal template used by Manchester City Council. Character areas are shown on City Centre Character Areas and Viewpoint Locations, which is located at Appendix 6.1.*

- *Effects on visual receptors. This is examined through the Representative Viewpoint Approach in which the effects of the Proposed Development are assessed in short, medium and long distance views from variety of key locations.*

8.19. In addition, the following guidance documents have also been consulted:

- Guidance on tall buildings published by Historic England: Advice Note 4[7] March 2022

- History in the View prepared for English Heritage by LUC in 2011

- Manchester Residential Quality Guidance [8]

8.20. The guidance contained in Historic England's advice note on Tall Buildings is particularly relevant:

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

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

Townscape Character effects

8.21. The assessment of the Proposed Development on Townscape Character has been based on Manchester City Centre Zones, revised in Manchester Residential Quality Guidance as Neighbourhood Zones, and supplemented by those which lie outside the City Centre. It includes an assessment of the elements which comprise it such as built form and styles, urban grain and street pattern, soft elements such as green spaces and trees and a sense of place and effect that the Proposed Development is judged to have on them. The following zones are potentially affected:

Manchester City Centre Neighbourhood and Townscape Character Zones

- Mayfield

- Piccadilly

- North Campus

- Ardwick and Longsight

- Medlock Valley
- New Islington

8.22. Their extent is defined on the map of City Centre Character Areas and Viewpoint Locations (Appendix 8.1) and they are described in more detail in the corresponding baseline condition section.

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

- Direct effects on specific townscape elements ;
- Effects that are more subtle in nature which affect the character of the townscape; and,
- Effects on a designated asset such as a World Heritage Site, Listed Building or Conservation Area or tourist landmark.

Visual Effects

8.24. The Zone of Theoretical Visibility (ZTV), in the context of the surrounding topography and the height of the Proposed Development, has been established initially through 3D modelling using current Lidar DSM data combined with 10K base mapping to produce a Zone of Theoretical Visibility (ZTV) map, Viewshed Analysis and Viewshed Locations in Appendix 8.1, and then confirmed as part of the field work exercise. Taking into account the scale and height of the Proposed Development, it covers a limited only of the city centre and provides a quick guide as to the Proposed Development's visibility in the immediate vicinity. The Proposed Development consists of Block J1, part 13, part 28 storey building with a height of 128.2m AOD and Block J2 is part 10 and part 25 storeys with a height of 119.2m AOD.

8.25. As with other Townscape and Visual Impact Assessments, and in accordance with guidance issued in GLVIA, the accepted practice of selecting and assessing of a range of "Representative Viewpoints", all publicly accessible, has been adopted. This is the most appropriate and practical method of assessing and understanding the visual impact of the Proposed Development. The viewpoint locations are marked in Appendix 8.1 on the ZTV map and also City Centre Character Areas and Viewpoint Locations map and are illustrated by way of photographs taken from these viewpoints, also represented in Appendix 8.1.

8.26. Representative Viewpoints are, by their very nature, representative and not necessarily site specific, unless a townscape or visual effect from an important regional landmark i.e. Albert Square, is predicted. In each a case a view was sought where the Proposed Development was visible, guided by the results of the ZTV. Viewpoints were selected to cover a number of different locations and varying distances, to reflect the experience of different types of visual receptor and viewing distance. Accordingly, viewpoints ranged from immediate proximity to the Proposed Development site and included residential streets, pedestrianised precincts, public squares footpaths and main approach and ring roads.

8.27. During the main field assessment process which occurred in April 2024, baseline viewpoint photographs were initially taken using a Canon EOS DSLR camera, for consultation purposes, but then subsequently retaken by Our Studio using a Canon 5DMkII FFS with a Canon 24 TS-E Mk II 24mm lens. Full justification for the use of this camera and lens, together with recommendations on presentation and viewing distance are contained in Appendix 8.2 Visualisation Methodology and Appendix 8.3 AVR Methodology.

8.28. The effect of the Proposed Development is then assessed from each of the viewpoints using the information on the height of the building provided by the architects Shed KM and Studio Egret West and the accurate interpretation of this information by Our Studio in the form of a series of Accurate Visual Representation (AVR) Type 4 fully rendered or white block mass images of the Proposed Development superimposed onto photographs taken from each viewpoint.

Defining Significance of Effect

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

Townscape: Sensitivity of Receptor

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

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

Table 8.1 – Susceptibility of Townscape Receptor

Susceptibility	Criteria
High	Little ability to accommodate the Proposed Development without undue harm.
Medium	Some ability to accommodate the Proposed Development without undue harm.
Low	Substantial ability to accommodate the Proposed Development without undue harm.

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

Table 8.2 – Townscape Value

Value	Description
High	Sites, features or areas of national or international importance with settings of high quality such as World Heritage Site, AONB, National Parks, Grade I and Grade II* Listed buildings or Registered Parks and Gardens.
Medium	Sites, features or areas of local or regional importance with intact character such as Grade II* and Grade II Listed Buildings or Registered Parks and Gardens, Conservation Areas, Scheduled Monuments, local nature site, long distance recreational routes. Tree Preservation Orders (TPO) and local designations that exhibit wider geographic, cultural or townscape significance.
Low	Areas or features of local importance such as Tree Preservation Orders (TPO), Public Right of Way (PROW) and locally listed buildings.

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

Townscape: Magnitude of Effect

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

Table 8.3 Magnitude of Townscape Effect

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

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

- the extent/proportion of townscape elements lost or added;

- the contribution of that element to townscape character and the degree to which aesthetic/perceptual aspects are altered; and

- whether the effect is likely to change the key characteristics of the townscape, which are critical to its distinctive character.

8.36. The geographical extent of effects relates to:

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

- the area over which visual effects are likely to be visible; and duration.

Visual receptors: Sensitivity of Receptor

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

- Glimpsed (i.e. in passing) / Filtered / Oblique / Framed / Open Views; and Few / Moderate / Many Viewers

8.38. The value attached to views has regard to a number of factors, including:

- recognition through planning designations or heritage assets; and

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

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

- The occupation or activity of people experiencing the view at a particular location; and

- The extent to which their attention or interest may therefore be focused on the views and visual amenity they experience at particular locations.

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

Table 8.4 – Visual Receptor Susceptibility

Susceptibility	Type of Receptor
High	• Users of public space, including users of public rights of way, whose attention is likely to be focused on the townscape and on particular views; • Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience; • Communities where views contribute to the townscape setting enjoyed by residents; and • Travellers on scenic routes.
Medium	• Travellers on road, rail or other transport routes, where the view is moderately important to the quality of the journey; and

Susceptibility	Type of Receptor
	• Users of public space, where the view is part of the wider experience of the place.
Low	• People at their place of work, where the setting is not important to the quality of working life; • Travellers on road, rail or other transport routes, where the view is fleeting and incidental to the journey; and • People engaged in outdoor sport or recreation, or users of a public space, which does not involve appreciation of views.

Table 8.5 – Visual Receptor Value

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

Visual: Magnitude of Effect

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

Table 8.6 – Magnitude of Visual Effect

Category	Criteria
Major adverse or beneficial visual effect	The proposals will cause a dominant or complete change or contrast to the view, resulting from the loss or addition of substantial features in the view and will substantially alter the appreciation of the view.
Moderate adverse or beneficial visual effect	The proposals will cause a clearly noticeable change or contrast to the view, which would have some effect on the composition, resulting from the loss or addition of features in the view and will noticeably alter the appreciation of the view.

Category	Criteria
Minor adverse or beneficial visual effect	The proposals will cause a perceptible change or contrast to the view, but which would not materially affect the composition or the appreciation of the view.
Negligible adverse or beneficial visual effect	The proposals will cause a barely perceptible change or contrast to the view, which would not affect the composition or the appreciation of the view.
No change	The proposals will cause no change to the view.

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

Duration of Effect

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

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

Significance of Effect

8.43. The objective of the assessment process is to identify and evaluate the likely significant effects arising from the Proposed Development for both Townscape and Visual Receptors. Significance indicates the importance or gravity of the effect. The table below, Table 12.7 is offered in support of professional judgement in determining the Significance of effect and is used as a guide to the narrative explanation of the nature and significance of both townscape and visual effects brought about by the Proposed Development.

Table 8.7 – Significance of Effect

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

8.44. The effects on both townscape and visual receptors is examined in each case. All viewpoints have been subjected to the insertion of an Accurate Visual Representation (AVR) into a baseline photograph so that the extent of both townscape and visual effects can be judged more accurately. In each case the effect of the Proposed Development is compared with the baseline condition or view and an assessment made in terms of receptor susceptibility, value of townscape setting or view, receptor sensitivity and magnitude of effect. A judgement is then made as to whether the effect is of major to negligible significance of effect using the Significance of Effect Matrix in **Table 8.7** and then a judgement made as to whether the effect is **significant** or **not significant** in EIA regulation terms. For the purposes of this Townscape and Visual Impact Assessment, effects of **Moderate Significance** and above are considered to be **Significant**. Those values of Minor and below are therefore deemed to be **Not Significant**. A professional judgement is then made as to whether the effect is of an adverse, beneficial or neutral in nature. The effects below are primarily concerned with the effects on townscape character and visual receptors.

8.45. This process has been applied to provide a robust assessment in similar townscape settings, including Mayfield Phase 1a and is considered to be the most suitable approach in this context.

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

Mitigation Methodology

8.47. In terms of mitigation this has been incorporated into the design of the Proposed Development by the architects Shed KM and Studio Egret West as the design of the building has developed, in consultation with interested parties. Mitigation for the Construction Phase Effects is described in the relevant section below.

Residual Impact Methodology

8.48. Residual Impacts are described based on the assumption that all mitigation measures have been fully deployed.

Baseline Conditions

Townscape Baseline

8.49. A summary set out below describes the main attributes and characteristics of each of the Townscape Zones and Representative Viewpoints that may be potentially affected by the Proposed Development as existing at the time of this assessment in July 2024. Each character area is referenced on Map 2 City Neighbourhood Areas and Viewpoint Locations (**Appendix 8.1**). Only those areas which have the potential to be significantly affected by the Proposed Development are included. In terms of townscape character and views the baseline, as described below, includes relevant schemes under construction, which are predicted to be complete when the Proposed Development is due to have been completed. The effects on the baseline together with the Proposed Development and any committed development is dealt with in the Cumulative Effects section.

Mayfield

8.50. This is the zone in which the Proposed Development is located and also lies within the Mayfield Strategic Regeneration Framework (SRF) which sets out a clear ambition to guide the redevelopment, remodelling and refurbishment of the site within the SRF boundary. A new park has been developed in the heart of the area which is accessible to the public and has now become a popular public open space. Mayfield Depot has also been reactivated by the existing tenant, Broadwick, who operate it as a mixed-use leisure, food, and drink destination. The north-east of the Mayfield area is bounded by Temperance Street, where the arches of former railway infrastructure are occupied by various workshops, storage spaces. The western end of the Mayfield SRF area is bordered by Baring Street, beyond which the area is characterised by more recent

residential-based development, including the Macdonald Hotel and purpose-built student accommodation. The A57 ring road or Mancunian Way forms the southern boundary of this zone.

Representative viewpoints 1,10, 11

Piccadilly

8.51. One of the principal railway stations for Manchester, Piccadilly lies within this zone which is situated in an elevated position above the Proposed Development site. As such this is one of the region's primary gateways and often forms the first impression of the city for visitors arriving by rail. In recent years it has seen improvements to Piccadilly railway station and Piccadilly Gardens and development has continued around the Piccadilly Canal Basin. The area in front of the railway station has been redeveloped to create a mixed use primarily office development with hotels and residential uses and a bridge link to the upper levels of Station Approach. The zone also contains a number of distinct sub character areas. The area to the west of Piccadilly is a mix of civic and commercial buildings and formal open spaces. The Metrolink connecting Piccadilly station and the main interchange in Piccadilly Gardens bisects the area. But to the north commercial warehouse type buildings and industrial premises prevail within which pockets of residential dwellings such as Piccadilly Village occur. The two canals Ashton canal and Rochdale canal run north from this zone.

Representative viewpoint 8,9.14

North Campus (ID Manchester)

8.52. This zone is occupied by substantial buildings owned and operated by the University of Manchester and include the Barnes Wallis building, the Ferranti Building, MSS tower and the Manchester Institute of Biotechnology. Small green spaces and squares fill the urban interstices and the M 57 Mancunian way raised to first floor level defines the southern limit of this zone.

Representative viewpoint 13

Ardwick and Longsight

8.53. This area lies to the south of Mancunian way and consists of a number of 19th century warehouses, residential terraces of housing and a rich collection of buildings ranging from the art deco Manchester Apollo to Georgian terraces around Ardwick Green. It is primarily a residential zone but has pockets of light industry and offices and many warehouses which are Victorian in origin. Most development, other than the occasional tower block is two storeys high.

Representative viewpoints 2, 3, 4, 5, 6, 12

Medlock valley

8.54. Townscape character is shaped by the river Medlock which flows in shallow valley through the centre of this zone. Much of it is heavily wooded or green open space. Development is largely restricted to semi-detached and terraced residential dwellings of recent post war origin arranged on the shallow valley slopes.

Representative viewpoints 7

New Islington

8.55. This is an area that has been the focus of a considerable amount of regeneration since funding was secured and construction activity commenced in 2002. It includes Will Allsop's Chips building, amongst other multi storey developments. Typically, the flat or apartment blocks are 8 storeys high and combine well with large open areas of green space and canal basins such as Cotton Field Park. Views of Manchester City Centre to the

south can be obtained from these more open areas. In comparison to the city centre it sits on relatively elevated ground. Two canals, the Rochdale canal and the Ashton canal flow through this zone

Representative viewpoint 15

Assessment of Effects

Limitations and Assumptions

8.56. The principal limitation as far as the field survey work was concerned has been that photography was undertaken in the summer and autumn months when the extent of foliage on trees is at its maximum and therefore reflects a best case scenario in terms of visibility but only a limited number of views are affected.

Embedded Mitigation

8.57. Mitigation in terms of visual and townscape effects has been incorporated into the Proposed Development as part of the design process by the scheme architects Shed KM and Studio Egret West and has evolved through consultation with the Local Planning Authority and others.

Sources of Effect

Demolition and construction phases

8.58. The construction of this building on a site on the centre of Manchester will clearly involve procedures and processes that are unsightly and intrusive consistent with operations on most large-scale construction sites. However, this process is comparatively short lived in nature when considered in the context of the lifespan of the Proposed Development concerned and will also be screened to some extent by existing structures to the north although it should be noted the site lies open to the south. The construction programme, which will include enabling earthworks will commence over two phases but the key physical activities will include:

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

Assessment of Construction Phase Effects

Townscape Character

8.59. The construction phase effects, for all phases, as with the Operational Phase effects, are assessed against the Baseline. The townscape character area most affected by the construction operations are the Townscape Character Zones in and around the Proposed Development Site namely: Mayfield, Piccadilly, Ardwick and Longsight. The significance of effect is therefore predicted to be **moderate adverse significance** of effect for the duration of the construction period due to site clearance works, stockpiling of demolition and construction materials, the use of construction equipment such as cranes and temporary fencing. The effects, however, should be relatively localised and temporary and will not affect other Townscape Character zones in any measurable way.

Views

8.60. The effects of demolition and clearance on the Representative Viewpoints will also be confined to a limited number of character areas, namely: Mayfield, Piccadilly, Ardwick and Longsight. Nonetheless, there is little doubt that the construction phase of any building of any scale, until it is fully clad, will involve processes that are visually unsightly and are likely, in visual effect terms, to be largely adverse in nature. This period, however, is only likely to be transitional and will be of short duration in relation to the lifespan of the Proposed Development itself. In view of the scale of the Proposed Development, the magnitude of effect, and significance of effect is therefore judged to be **moderate adverse** during the construction period. The following viewpoints will be affected: nos.1,2,4,5,6,7,9,10,11,14.

Operational phases

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

8.62. The townscape and visual effects of the Proposed Development are considered to be long term in terms of their duration.

Assessment of Operational Phase Effects

Effects of completed Development on Townscape Character and Views on Phase 1 and Phase 2

8.63. The visual and townscape effects of all the scenarios have been assessed. Scenario 1 is tested as this is effectively the baseline as it exists at the time of the assessment and is represented by the baseline photographs in Appendix 8.1. Scenarios 2 and 3 have not been tested although there are predicted to be adverse effects during the construction period as the Proposed Development is being delivered in a hoarded site with effects that are judged to be temporary in nature and therefore not significant. Scenarios 4 and 5 are tested with assessments recorded as part of the narrative assessment for each Representative Viewpoint and illustrated with reference to the verified views in Appendix 8.1.

8.64. These effects are now summarised with respect to the effects on townscape character and views through a narrative description of the nature of the effect on each of the Representative Viewpoints which lie within each character area.

Mayfield

Viewpoint 1 London Road

8.65. This viewpoint is located on a minor road which feeds into Baring Street below the A579(M). It is sandwiched between the elevated section of the A57 (M) Mancunian Way and the high rise blocks of student accommodation at Mill Point. Both townscape and visual receptor susceptibility and value are low here as a consequence inferring receptor sensitivity values for both categories are low also.

8.66. Both blocks J and K are visible although Block K is more prominent in this view. The stepped profile is evident here and the contrast between the different colours and textures of the Parkhouse and tower elements of the scheme can be readily appreciated. The warm reds are offset by cooler greys and anodized metal and the punched window fretwork adds satisfactory granularity to the principal façade of the taller blocks. The tall buildings which rise adjacent to Baring Street here are very much part of the baseline in this niche view.

8.67. Magnitude of effect in both townscape and visual terms is judged to be moderate beneficial as a consequence which translates to a significance of effect value of minor beneficial which is **Not Significant** in EIA regulation terms.

Viewpoint 10 Baring Street

8.68. Located at the entrance to Mayfield Park from Baring Street this viewpoint provides extensive views of the Proposed Development and the park itself. The transformation of a previously derelict site into a vibrant popular public park is evident in this view. It has raised both townscape and visual receptor sensitivity from low to medium as the users of public space focus on the view is part of the wider experience of the place in the context of a high townscape and visual receptor values but low visual and townscape susceptibility as this site is part of the Mayfield Strategic Regeneration Framework.

8.69. There is no doubt that the introduction of the Proposed Development at this point is a major change to the baseline which is dominated by distant low-rise buildings. Collectively, the visual diversity of the group as a whole combines well to form a cluster with variable forms and heights which contribute successfully to an overall reduction in perceived mass. The group steps up and then down to create a varied silhouette and the Parkhouse components facilitate the integration of lower park floor with the taller components of the scheme. The full colour palette is also on display in this view from the brilliant striking hues of the Parkhouse units to the more subtle whites and greys of the diamond shaped taller blocks of Plot J.

8.70. As a result, the magnitude of change is judged to be major beneficial which translates into a significance of effect value for both townscape and visual receptor categories of moderate beneficial which is **Significant** in EIA regulation terms.

Viewpoint 11 Mayfield Park

8.71. A similar situation arises for this viewpoint which is deep within the heart of the park itself and provides a close-up view of the Proposed Development. A townscape receptor susceptibility value of medium is recorded here in the context of the regeneration SRF for Mayfield which envisages tall building development on this site. Visual receptor sensitivity judgement of medium is recorded here with visual receptor susceptibility and visual receptor value both judged to be medium.

8.72. As in viewpoint 10 the baseline will be transformed here but in a beneficial way as the character of the park is reinforced by being enclosed by the new development which will act as a foil to the emerging and maturing park landscape. All principal components of the design will be fully appreciated here also from the two storey plinths which relates well to activity and setting at ground level, to the two individual diamond shaped towers of Plot J with their canted corners. Each tower has its own identity reflecting a defined palette of warm reds, offset by greys and anodized metal, that are bright and full and of energy without being distracting. The smaller Parkhouse blocks step down in front of each of the taller elements and help to relate the taller buildings to the park floor and the penthouse crowns form important focal accents. Importantly, no skyline features of heritage or townscape significance are concealed by the Proposed Development. As a result, the magnitude of change is judged to be major beneficial which translates into a significance of effect value, for both townscape and visual receptor categories, of moderate beneficial which is **Significant** in EIA regulation terms.

Piccadilly

Viewpoint 8 Chapel Town Street

8.73. Located to the north of Piccadilly railway station this viewpoint sits on elevated ground near a car park on the edge of an area populated by light industrial units. Both townscape and visual receptor sensitivity are low as a consequence as landscape character is typically mixed and largely incoherent in this area.

8.74. All component parts of Blocks J and K are visible in this view although much of it is softened or screened by foreground tree planting. The scale of the development is similar to that of the student accommodation towers to the right which are also an important feature of the horizon. At this distance the textural detail of the punched window elevations remains readily apparent but the different crowns to each of the taller blocks are much more prominent and add visual diversity to the horizon as result.

8.75. As a consequence, magnitude of effect for both townscape and visual receptors is judged to be minor beneficial which translates to values of negligible significance of effect which is **Not Significant** in EIA regulation terms.

Viewpoint 9 Piccadilly Station

8.76. This viewpoint is located in an access foyer to the southwest of Manchester Piccadilly railway station. The station is a listed building (Grade 2) so townscape value is high as a result. However, townscape character is mixed with car parking dominating the immediate proximity and recent tall buildings of student accommodation on the horizon. As such townscape susceptibility is low with a substantial ability to accommodate the Proposed Development without undue harm. Townscape sensitivity is recorded as medium overall. Visual receptor sensitivity is low as most receptors will be on transit or at their place of work.

8.77. The Proposed Development fits into the townscape character being of approximately the same scale, height and composition as the existing Unite Student development. The stepped profile in particular assists its integration into the skyline and is sympathetic in its relationship with the façade of Manchester Piccadilly railway station. Visual composition of the tall building cluster is improved as a consequence.

8.78. Magnitude of effect is judged to be minor beneficial, and this translates to minor beneficial significance of effect for townscape receptors and negligible beneficial effect for visual receptors both of which are **Not Significant** in EIA regulation terms.

Viewpoint 14 Great Street

8.79. This viewpoint is located in a small area of green space in an area primarily occupied by light industrial and commercial units. It is in an elevated location with open views across the main railway line to the Proposed Development site. Townscape susceptibility is low here as townscape value as the townscape character is weak and unremarkable. Townscape sensitivity is therefore low. Visual receptor sensitivity is similarly low as most receptors are at their place of work and there are no designations of value nearby.

8.80. The Proposed Development once again dramatically alters the baseline, introducing tall buildings to a townscape where they are largely absent. However, the fact that, collectively, they form a varied profile which is far from continuous and the changes in fenestration and cladding from the Parkhouse to the tower elements of the scheme is readily discernible from this perspective, implies that these changes do not detract from the view but rather add to it.

8.81. Magnitude of effect is judged to be moderate beneficial therefore, for both categories from this viewpoint which translates to values of minor beneficial significance which is **Not Significant** in EIA regulation terms.

North Campus

Viewpoint 13 Sackville Street

8.82. This is one of the main pedestrian routes through the University of Manchester campus. Although the Mancunian Way lies close to the viewpoint, and the slip road off, townscape character is influenced considerably by adjacent tree planting which combines to make this a niche view. It is not a particularly sensitive area however, and is judged to have low susceptibility but medium townscape value with a medium low townscape sensitivity as a result. Visual receptors are generally in transit and although this viewpoint offers a rare potential glimpse of the Proposed Development, receptor sensitivity is judged to be low overall.

8.83. Only the top corner of Block K is visible in this view concealed as it is by a row of young trees. As the trees mature this effect will become weaker so **No Change** is recorded for this viewpoint for both categories of receptor.

Ardwick and Longsight

Viewpoint 2 Mancunian Way

8.84. This viewpoint provides a panoramic view across the Mancunian Way with the elevated sections of the main railway viaduct into Piccadilly on the horizon. The urban grain is very open as Mayfield is now an open site. The susceptibility of the townscape receptor at this location is judged to be low as the area is judged to have the ability to accommodate the Proposed Development without undue harm reflecting a townscape character of low quality. Townscape value is judged to be low here as well as the viewpoint and surrounding area lie outside any conservation area, there are no listed buildings and the busy M57 lies immediately adjacent to the viewpoint. Townscape sensitivity is therefore low. Similarly, visual receptor sensitivity is low as most receptors are either car borne travellers in transit whose views are fleeting at best or at their place of work in the light industrial units which characterise this area.

8.85. The Proposed Development will radically alter the baseline in this viewpoint introducing forms which are not currently part of the townscape character at this point. However, this type of development is not an uncharacteristic part of the townscape setting of the Mancunian Way which dominates this viewpoint and tall buildings are very much part of that character to the west of this viewpoint. It could be argued therefore that this type of development is very much part of the character and makes a positive and consistent contribution to it and the journey along one of Manchester's principal transport corridors. The warm reds of the brickwork elevations of the taller blocks contrast with the vivid reds of the Parkhouse elements. Horizontal banding at both floor and upper levels of these buildings provide symmetry and creates rhythm. The punched window façades provide granularity to the principal elevation from this distance.

8.86. As a consequence, the magnitude of change is judged to be major beneficial for both categories of receptor which, in the context of low sensitivity, this is judged to be of moderate significance of effect which is Significant in EIA regulation terms.

Viewpoint 3 Manor Street

8.87. Located on the corner of Cakebread Street this viewpoint is orientated towards the Proposed Development. Townscape character is mixed with some post war commercial units and a terrace of housing which is listed Grade II. Townscape susceptibility and value and sensitivity are medium therefore. Visual receptor susceptibility is also mixed with receptors who are at their place of work mixed with residential receptors. Value provided by the listed building is local but influences the value of receptor sensitivity such that it is judged to be medium also for this viewpoint.

8.88. Only a glimpse of the top of Block J is visible in this view although the penthouse crown is a prominent feature. The net effect is that is judged to have a minimal effect on the townscape character or view. Accordingly, a magnitude of effect value of negligible beneficial is registered for this viewpoint which translates to a significance of effect value of negligible beneficial which is Not Significant in EIA regulation terms.

Viewpoint 4 Ardwick Green Park

8.89. This viewpoint is located at one of the principal entrances to Ardwick Green Park in the middle of a residential district. Townscape character is coherent and of reasonable quality and influenced by Grade II listed buildings which lie near this viewpoint. As a result, the area is judged to have medium susceptibility to change and be of medium townscape value. Townscape sensitivity is judged to be medium. Visual receptor sensitivity is judged to be high here in this primarily residential area with a local park adjacent of high community value, but the busy A6 has a major effect on the tranquillity of the surroundings so visual receptor sensitivity is judged to be medium as a result.

8.90. There is no doubt that the Proposed Development will have a major effect here and introduce elements not previously part of the baseline, but the existing view is not a distant one and much of the interest lies in the foreground derived from the listed buildings and the park which will remain unaffected. The colour palette

and textures of the individual elements of the design all bring visual diversity and enclosure to the view and the Proposed Development is clearly of recent origin which avoids conflict or confusion with the listed building in the foreground.

8.91. Magnitude of effect is judged to be major beneficial for both categories of receptor which translates into significance of effect of moderate beneficial significance which is **Significant** in EIA regulation terms.

Viewpoint 5 Cotter Street

8.92. Townscape character is once again mixed here with a mixture of housing, commercial property and vacant land although the rear face of a Grade II listed building is visible in this view. There is no recent development, and this street is directly focussed on the Proposed Development which is a short distance away.

8.93. Townscape character is incoherent and townscape susceptibility, value and sensitivity generally low as a result but raised to medium by the presence of the listed building. Visual receptor sensitivity is similarly mixed by the presence of residential dwelling raises sensitivity to medium. The four components of the Proposed Development are visible each with their own individual identity. Their collective character is, therefore, less successful in this view but their equal separation creates a rhythm that adds rather than detracts from the horizon which at present is currently free from obstruction.

8.94. As a consequence, the magnitude of change is judged to be moderate beneficial for both categories of receptor which in the context of medium sensitivity is judged to be of moderate significance of effect which is **Significant** in EIA regulation terms.

Viewpoint 6 Mancunian Way

8.95. This viewpoint is on footway to the A57 with clear views across to the fringes of North Campus zone and the student residential buildings that line Baring Street across the development site which is now vacant.

8.96. Once again, the susceptibility of the townscape receptor at this location is judged to be low as the area has an ability to accommodate the Proposed Development without undue harm reflecting a townscape character that is weak in common with most vacant sites. Townscape sensitivity is judged to be low as a result. Visual receptor sensitivity is mixed, high because residential receptors are in close proximity to this viewpoint and low where receptors are in transit on the A57 Mancunian Way, so medium overall.

8.97. The scale and form of the Proposed Development provide a striking and dramatic contribution to the view and the dynamic journey of receptors on the Mancunian Way. The canted corners of the 2 taller blocks of Plot J are particularly successful at softening the visual impact of the cluster of tall buildings and directing the view around the bend in the road. Although the varied roof lines are not such a feature in this view the different approaches to the crowns are and visual diversity is increased as a result.

8.98. Consequently, the magnitude of change is judged to be major beneficial for both categories of receptor which in the context of low sensitivity is judged to be of moderate significance of effect which is **Significant** in EIA regulation terms.

Viewpoint 12 Grosvenor Street

8.99. This street is a good representation of a typical street in Ardwick. It is primarily residential in character, mostly low rise 2 storey houses but with occasional mid-rise (8 to 10 storeys) blocks interspersed. Office and charitable organization buildings bring variety and a change of use to the townscape character which remains predominantly red brick and trees soften the view.

8.100. Although there are no protective designations such as Conservation Areas or Listed buildings in this view, the townscape character is judged to be of reasonable quality with a coherent and well-maintained street pattern. consistent urban grain and a medium susceptibility inferring medium townscape sensitivity. Visual receptor sensitivity is of a similar value as most receptors are residential or users of public space where the

view is part of the wider experience of the place. Visual receptor sensitivity is therefore judged to be medium also.

8.101. The Proposed Development forms a low cluster at the bottom of the street in this view and the varied heights colours and forms improves the composition and fits into the townscape character in a consistent way. The horizontal banding of the crown is especially successful in creating accents in this view. Magnitude of effect is judged to be minor beneficial which translates to minor beneficial significance of effect which is **Not Significant** in EA regulation terms.

Medlock Valley

Viewpoint 7 Fairfield Street

8.102. A similar situation in terms of townscape character is relevant to this viewpoint which represents a view on one of the major approach roads into Manchester from the east, the A635 Ashton Old Road. This is directed more toward the centre of Manchester but the open skyline to the south of the road, beyond the railway viaduct will be affected and consolidate long distance horizon now being increasingly populated by tall buildings which, in this view, include Beetham Tower and Deansgate square.

8.103. Once again, townscape susceptibility, value and, commensurately, sensitivity, are judged to be low at this location. Equally, visual receptor sensitivity is judged to be low as most receptors are in transit in a situation where the view does not make a valued contribution to townscape character.

8.104. The taller blocks combine in this viewpoint to form a cluster of variable height, colour and textural contrast. The Parkhouse elements are largely concealed from view. The cluster helps to frame the city centre tall building cluster represented by Deansgate Square, Viadux, First Street and Beetham and complements townscape character as a consequence. Magnitude of effect is judged to be moderate beneficial which translates to minor beneficial for both receptor categories which is **Not Significant** in EIA regulation terms.

New Islington

Viewpoint 15 Kitty Bridge over Rochdale Canal

8.105. This viewpoint is located over a significant heritage asset, the Rochdale Canal. Townscape sensitivity is judged to be medium here. Although the asset has a high heritage value and is a major, and accessible, feature of surrounding townscape character, townscape susceptibility is low in the context of recent and emerging developments and adjacent vacant land. Visual receptor sensitivity is medium as the view is not of high value and most receptors will be transit although residential apartments are located on Redhill Street which runs parallel to the canal.

8.106. In terms of magnitude of effect, the existing tall building cluster completely obscures the Proposed Development with the exception of a glimpse of Plot J. A value of **No Change** is recorded for both receptor categories for this viewpoint.

Kinetic Views

8.107. A series of views have been modelled from the railway into and out of Manchester Piccadilly using the model prepared by ShedKM and Studio Egret West for the Proposed Development. These non-verified views are presented in Appendix 8.4.

8.108. All views are taken as viewed from trains coming into and out of the station. The necessary rail infrastructure such as overhead gantries, brick walls, naturally regenerating trees and shrubs features in all of these views and, as the railway is raised on viaduct at this point only the upper levels of the Proposed Development will be visible. A notable feature of all views, however, is the array of tall buildings in the views from the student accommodation towers in the foreground to Beetham Hilton and Deansgate Square in the background.

8.109. Townscape susceptibility is judged to be low in this area influenced as it by the recent development in the view. Townscape value is similarly low on the approach to one of Manchester transport hubs. Townscape sensitivity is low, therefore. Visual receptor sensitivity is low also as all receptors will be travellers whose focus, so near to the entrance to the station is unlikely to be on the view. Visual receptor value is also low at this point and visual receptor sensitivity is commensurately low also.

8.110. The Proposed Development will feature strongly in most views and form a new focal point which fits, in a complementary way, with the suite of tall buildings already present in the view without obscuring anything of significant heritage interest. The detail and features of each of the building blocks will be easy to read at this distance and the composition and diversity of the view will be improved as a result. As a consequence, the magnitude of effect is judged to be moderate beneficial for all kinetic viewpoints.

8.111. Significance of effect. This translates to a minor beneficial significance of effect which is not significant in EA regulation terms.

Assessment of Cumulative Effects

8.112. The cumulative effect of the Proposed Development is now examined in relation to inter-project cumulative effects. Intra- project cumulative effects are assessed in Chapter 20.

Inter-project cumulative effects

8.113. In terms of inter- project cumulative effects, or effects arising from similar developments that are either consented or are coming forward in the planning process near the Proposed Development, there are developments that, cumulatively, are considered to affect the significance values for townscape and views. Table 8.9 summarizes these schemes. Details of the Cumulative schemes are outlined in the ES Appendices and appear as different coloured wirelines in the AVRs in Appendix 8.1.

Table 8.9 – Relevant Cumulative Schemes

Planning reference	Cumulative Scheme number (see map Appendix 8.2)	No of storeys / Ht
137350/JO/2023	Plot 1	9-11
137263/FO/2023	Plot 2	9
137349/JO/2023	Plot 3	13
137399/FO/2023	Plot 6	6-9
137401/FO/2023	Plot 7	12-29
136874/FO/2023	Plot 9	16-27
121099/FO/2018	Plot 20	23-29

8.114. The developments listed above will not have a universal effect on all of the selected viewpoints and the townscape character of the affected city centre zones of Manchester. The baseline schemes have already been assessed under the Operational Effects section earlier in this chapter. An assessment of cumulative schemes is necessary to understand the way the Proposed Development fits in with neighbouring developments in the future. **Table 8.10**, has been compiled to facilitate this process by first summarising the effect of the Proposed Development on its own, using the values resulting from the Operational Effects section, and then reassessed the effect in respect of the relevant committed cumulative scheme on a viewpoint-by-viewpoint basis. Where a cumulative scheme is predicted to have an effect on views or townscape character then the significance of effect values is reassessed and adjusted accordingly to take the scheme or schemes into account in each case.

8.115. The relevant cumulative schemes have been modelled and are represented as different coloured wirelines or block massed images in the Cumulative Views in Appendix 8.1 Maps, Viewpoint and townscape photographs including AVR images.

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

Table 8.10 Committed Cumulative Schemes and Residual Effects summary table

(Note. Where townscape (T) and visual receptor (VR) significance of effect values are the same, one shared value is provided. Where they are different, a value is provided for both categories. Abbreviations: Maj = Major; Mod = Moderate; Min = Minor; Neg = Negligible;)

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
1 London Road				
Sensitivity (VR)	Low		Plot 1	
Sensitivity (T)	Low		Plot 3	
Magnitude (VR)	Mod. beneficial			
Magnitude (T)	Mod. beneficial			
Significance of effect	Minor beneficial	Not Significant		Neg beneficial
2 Mancunian Way				
Sensitivity (VR)	Low		Plot 1	
Sensitivity (T)	Low		Plot 3	
Magnitude (VR)	Major beneficial			
Magnitude (T)	Major beneficial			
Significance of effect	Mod beneficial	Significant		Minor beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
3 Manor Street				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Medium			
Magnitude (VR)	Neg beneficial			
Magnitude (T)	Neg beneficial			
Significance of effect	Neg beneficial	Not Significant		Neg beneficial
4 Ardwick Green Park				
Sensitivity (VR)				
Sensitivity (T)	High		Plot 3	
Magnitude (VR)	Medium			
Magnitude (T)	Major beneficial			
Significance of effect	Major beneficial			
	Mod. beneficial	Significant		Minor beneficial
5 Cotter Street				
Sensitivity (VR)	Medium			
Sensitivity (T)	Medium		Plot 3	
Magnitude (VR)	Mod beneficial			
Magnitude (T)	Mod beneficial			
Significance of effect	Mod. beneficial	Significant		Mod beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
6 Mancunian Way				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Low			
Magnitude (VR)	Major beneficial			
Magnitude (T)	Major beneficial			
Significance of effect	Mod beneficial	Significant		Mod beneficial
7 Fairfield Street				
Sensitivity (VR)	Low		Plot 9	
Sensitivity (T)	Low			
Magnitude (VR)	Mod beneficial			
Magnitude (T)	Mod beneficial			
Significance of effect	Minor beneficial	Not Significant		Minor beneficial
8 Chapel Town Street				
Sensitivity (VR)	Low		Plot 2	
Sensitivity (T)	Low		Plot 3	
Magnitude (VR)	Minor beneficial		Plot 6	
Magnitude (T)	Minor beneficial			
Significance of effect	Neg beneficial	Not Significant		Neg beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
9 Piccadilly Station				
Sensitivity (VR)	Low			
Sensitivity (T)	Medium			
Magnitude (VR)	Minor beneficial			
Magnitude (T)	Minor beneficial			
Significance of effect (T)	Minor beneficial	Not Significant	None	Minor beneficial
Significance of effect (VR)	Neg beneficial	Not Significant		Neg beneficial
10 Baring Street				
Sensitivity (VR)	Medium		Plot 1	
Sensitivity (T)	Medium		Plot 2	
Magnitude (VR)	Mod. beneficial			
Magnitude (T)	Mod. beneficial			
Significance of effect	Mod. beneficial	Significant		Neg beneficial
11 Mayfield Park				
Sensitivity (VR)	Medium		Plot 2	
Sensitivity (T)	Medium		Plot 3	
Magnitude (VR)	Major beneficial			
Magnitude (T)	Major beneficial			
Significance of effect	Mod beneficial	Significant		Minor beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
12 Grosvenor Street				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Medium			
Magnitude (VR)	Minor beneficial			
Magnitude (T)	Minor beneficial			
Significance of effect	Minor beneficial	Not Significant		Neg beneficial
13 Sackville Street				
Sensitivity (VR)	Low		Plot 2	
Sensitivity (T)	Med/Low			
Magnitude (VR)	No change			
Magnitude (T)	No change			
Significance of effect	No change	Not Significant		No change
14 Great Street				
Sensitivity (VR)	Low		Plot 3	
Sensitivity (T)	Low			
Magnitude (VR)	Mod beneficial			
Magnitude (T)	Mod beneficial			
Significance of effect	Minor beneficial	Not Significant		Minor beneficial
15 Bridge over Rochdale Canal				

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
Sensitivity (VR)				
Sensitivity (T)	Medium		Plot 3	
Magnitude (VR)	Medium		Plot 7	
Magnitude (T)	No change		Plot 20	
Significance of effect	No change			
	No change	Not significant		No change

Mitigation Measures

Mitigation of effects during the construction phase.

8.117. Mitigating the effects of the construction phase will involve high quality hoardings that will be used to limit unsightly visual impacts during the construction phase at street level. These will secure and protect the Proposed Development Site and prevent views of an unsightly construction site.

Mitigation of effects during operational phase

8.118. Mitigation measures for the operational phase are focussed on embedded mitigation measures which are an integral part of the design of the building, as progressed by the architects ShedKM and Studio Egret West and fully described in the Design and Access Statement which accompanies the planning application. These mitigation measures deal with the Proposed Development's relationship to the site's heritage, especially in terms of the historical development of Mayfield itself, the contribution to a sense of place of Mayfield Park and the use of materials and features which sit comfortably with the surrounding neighbourhood.

Residual Effects

8.119. The visual impact assessment has been carried out based on the assumption that all the necessary mitigation measures have been accounted for in the design process. The images for selected viewpoints illustrated in Appendix 8.1 represent the accurate definition of the location and mass of the component parts of the Proposed Development. The predicted significance of effect values is therefore the same for each representative viewpoint and Townscape Character Area as the residual effect values and are illustrated in Table 8.10 above.

9. Wind Microclimate

Introduction

9.1. This Chapter of the ES has been prepared by Buro Happold and assesses the likely wind microclimate 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.

9.2. The authors of this Chapter have the following technical experience in this area:

Technical Competence in Wind Microclimate		
	Lead Author	Reviewer
Name	Aviva Opsomer	Bernardo Vazquez
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	MRes Fluid Dynamics (Environmental & Applied Fluid Dynamics); MSc Building Technology; BSc Civil Engineering	PhD, MSc, BSc
Does the practitioner hold any IEMA qualification?	No.	No.
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	5	20+
Number of EIA's delivered to date	~10	20+

Assumptions and Limitations

9.3. Future surrounding developments (cumulative schemes) are based on publicly available information for current planning permissions and commitments (refer to ES Volume 1, Chapter 2: EIA Methodology). If the proposals for these developments are amended in the future, the effects could alter for 'Scenario 5: Cumulative scenario'. However, any future changes to the committed developments would be subject to an updated wind assessment for each relevant scheme as part of any planning application for revised proposals, if considered necessary by the Local Planning Authority.

Legislative and Policy Context

9.4. 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.

9.5. The assessment will have due regard to the provisions of the following policy and guidance.

National Planning Policy

National Planning Policy Framework (2024)

9.6. There are no national codes of practice or legislative policies relating to the assessment of environmental wind flows in the built environment.

9.7. The UK wide National Planning Policy Framework (NPPF) came into force in March 2012, and was updated in December 2024. There are no national planning policies directly relating to wind microclimate issues; however, the benefits of a high-quality built environment are emphasised in the NPPF. An example of this is presented in paragraph 135: "…using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit…".

9.8. The impact of environmental wind on pedestrian spaces and the subsequent suitability of these spaces for planned usage are described by the Lawson Comfort Criteria (LCC), which are recognised by Local Planning Authorities (LPAs) as a suitable benchmark for wind assessments. LCC has been applied in the wind assessment of the Proposed Development.

Local Planning Policy

Manchester Core Strategy (2012 – 2027)

9.9. Several local authorities provide planning guidance for tall buildings, recommending that a microclimate assessment be performed. The definition of tall buildings within these documents varies, but typically includes any buildings which are significantly higher than their neighbours. Reference on how the Manchester City Council (MCC) aims to avoid potential adverse effects of tall buildings can be found in Manchester's Local Development Framework, Core Strategy Development Plan Document, July 2012.

9.10. Policy EN2 states that "Tall buildings are defined as buildings which are substantially taller than their neighbourhoods and/or which significantly change the skyline", and "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".

9.11. Furthermore, Objective 6 (Environment) states in paragraph 12.6 that development in Manchester will be expected to follow seven design principles, including "Quality of the public realm: a place with attractive, and successful outdoor areas".

9.12. This report considers the above as part of the assessments carried out, by considering the massing impact on the local conditions that may be experienced by users of the external areas around and within the site. Due to its size, location and nearby building heights the Proposed Development is not considered a tall building. The wind microclimate assessment has been undertaken to ensure that all areas of the proposed public realm are comfortable and safe for pedestrians to use, particularly given the Proposed Development's proximity to several tall buildings outside the red line.

9.13. Local Development Plan:

- Manchester Core Strategy (2012);
- Manchester Proposals Map (2012);
- Places for Everyone (PfE) Joint Development Plan (2024); and
- Saved Policies of the Manchester Unitary Development Plan (2005).

9.14. Other material considerations:

- National Planning Policy Framework ('NPPF') (2023);
- Mayfield Strategic Regeneration Framework (2018);
- Guide to Development in Manchester SPD (2007);
- Manchester Residential Quality Guide (2017);
- Manchester Housing Strategy 2022 – 2023 (2022);
- Our Manchester Strategy – Forward to 2025 (2022);
- Manchester Climate Change Framework 2020-25;
- Manchester City Centre Transport Strategy 2040 (2021);
- Biodiversity Strategy and Action Plan 2022-2030 – the City of Manchester's Nature Recovery; and
- Great Outdoors: A Green and Blue Infrastructure Strategy for Manchester 2015-2025.

Assessment Methodology and Significance Criteria

9.15. This assessment includes a direct comparison between the baseline conditions and those created by the Proposed Development for 12 wind directions based on the wind statistical data translated to the Site. This Chapter describes the quantitative assessment of the likely wind environment, and the qualitative judgements that are made in order to identify areas of potential concern. This analysis includes an assessment of the relative forms, layouts and massing of the existing Site and the Development, as well as surrounding landscaping and topography.

9.16. Impacts of the likely wind conditions are judged based on the Computational Fluid Dynamics (CFD) modelling results and Buro Happold's extensive experience of wind assessments, full-scale testing, CFD and wind tunnel modelling of similar developments.

9.17. The assessment is supported by CFD modelling of the full range of wind speeds and directions for the six configurations (which have been agreed with the Local Planning Authority through the EIA Scoping Process), as listed below.

9.18. Please note that throughout this assessment report reference is made to J1, J2, K1 and K2 (the respective blocks of Plot J and K which are both connected by a podium, as annotated in all the wind comfort and safety maps) in describing the locations of the observed wind effects around Plot J and K.

Scenarios Tested

9.19. It is understood that the Proposed Development will be phased as follows:

- Phase 1: Plot J plus public realm; and
- Phase 2: Plot K plus public realm and Estate Road.

9.20. Six scenarios (including one mitigated scenario that is additional to other technical chapters) have been tested within this assessment. These scenarios are as follows:

- Scenario 1: Baseline (existing Site) in existing surroundings;
- Scenario 2: Baseline (as identified in scenario 1) with Proposed Development Phase 1 construction in existing surroundings (qualitative assessment - no CFD);
- Scenario 3: Baseline (as identified in scenario 1) with Proposed Development Phase 1 operational (Plot J and public realm) and Phase 2 construction (Plot K) in existing surroundings;
- Scenario 4: Baseline (as identified in scenario 1) with Proposed Development Phase 1 and Phase 2 operational (Plot J, public realm and Plot K) in existing surroundings;

- Scenario 5: Baseline (as identified in scenario 1) with Proposed Development Phase 1 and Phase 2 operational (as above) in context of future surroundings (Phase 1a* and cumulative developments); and

- Scenario 6 (mitigation scenario): Baseline (as identified in scenario 1) with Proposed Development Phase 1 and Phase 2 operational (Plot J, public realm and Plot K as in Scenario 4) plus wind mitigation in existing surroundings.

*Phase 1a includes: Republic, Plot O (Poulton) and MSCP.

9.21. Wind microclimate comfort strongly depends on an individual's activity and so has, therefore, been defined separately for each activity in terms of an average (mean) wind speed exceeded for a certain percentage of the year. The pedestrian comfort criteria have been developed around the Beaufort scale (Lawson's Comfort Criteria (LCC), Lawson, 2001), extending its applicability to environments around buildings.

9.22. The assessment has been undertaken to investigate the likely pedestrian conditions in and around the Development when it is subject to wind from different directions. An assessment of the appropriateness of different parts of the Site for their intended use has also been made.

9.23. The temporary wind effects during construction have been assessed qualitatively.

The Study Area

9.24. For the EIA Study Area Boundary of the cases listed under 9.21, please refer to ES Volume 1, Chapter 4: Site and Development Description.

9.25. For the extent and details of the CFD model, please refer to the Computational Fluid Dynamics (CFD) Modelling Assumptions section.

Computational Fluid Dynamics (CFD) Modelling Assumptions

Approach

9.26. The physical layout of the Site was analysed using a 3D CFD model. CFD modelling involves the solution of the fundamental equations of fluid motion using numerical techniques. The region of interest is divided into numerous small volumes, or cells, and equations are solved within each cell. Values of the variables that are solved in the model are determined in each cell and so a comprehensive assessment of velocity variation within the calculation domain is obtained. To improve the resolution of the results, the computational cell size has been reduced in the areas of most interest. This ensures that large gradients of velocity at street level are modelled accurately.

Model Extents and Detail

9.27. For buildings outside the development boundary, a 3D context model was developed based on footprints and building heights obtained from aerial survey data. The proposed buildings and surroundings have been modelled according to the information provided by the Design Team. These buildings proposed as part of the Development have been merged with the context information and simplified for CFD modelling purposes. The surrounding topography (along with other urban infrastructure elements such as nearby bridges and railway platforms) has been included explicitly in the CFD geometry model to account for any significant wind effects.

9.28. Surrounding buildings and terrain were included in the model up to a radius of 530m from the centre of the domain. A total simulation domain of radius 810m was modelled. This distance is appropriate as it explicitly contains all buildings and structures surrounding the Development that are likely to affect the wind flows around it.

9.29. The typical edge length of the computational cells in this domain is approximately 1 to 3m, with greater cell sizes at points further from the buildings proposed within the Development. A refined layer of cells exists

adjacent to the ground, to allow for an accurate prediction of pedestrian level wind speeds. The total number of computational cells is approximately 8 million for this study. Roughness has been applied in the outer region beyond the modelled buildings, to account for the presence of buildings and terrain features.

Atmospheric Boundary Layer

9.30. The upwind boundaries of the CFD model were prescribed with an atmospheric velocity and turbulence profile corresponding to natural winds. The atmospheric velocity profile was modelled using a log-law, based on communications with ANSYS (i.e. the developers of the CFX CFD software used).

9.31. The downwind and upper boundaries were represented as pressure opening boundaries. These are representative of the atmosphere surrounding the Development. They allow air to be entrained into the model domain or air to flow out of the domain.

9.32. For each wind direction, a single, steady-state RANS (Reynolds Averaged Navier-Stokes) calculation was undertaken using the commercial ANSYS CFX software. Turbulence was modelled using an SST model, with a production limiter used to ensure realistic flow predictions close to stagnation points. This method allows for the assessment of mean wind speeds for the Development.

Wind Data Analysis

9.33. For analysis of wind behaviour, it is necessary to know the relevant wind data for the Site. Velocity fluctuation and directional variance are hard to measure accurately.

9.34. Both the wind speed frequency and its direction are required for this assessment. This data is commonly presented in the form of wind speed and wind frequency distribution diagrams (wind roses). Data is usually provided for average hourly wind speeds at 10m above ground level. This data is monitored and recorded from meteorological stations across England and reported by the Met Office.

9.35. Good quality, long-term weather data is available for Manchester Airport. The wind data for Manchester Airport was translated to meteorological standard terrain (open country) and then to the proposed site. The method used was the method set out in “The Designer's guide to wind loading of building structures, Part 1” (1985), N.J. Cook. This allows for the sheltering effect of neighbouring terrain but does not allow for channelling of wind, for instance due to rivers and valleys. This effect is not expected to dominate conditions here. The resultant wind rose is included in the figures supporting this report (Figure 16.1 for the annual wind rose, and Figure 16.2 for the seasonal wind rose).

Direction Frequency

9.36. Figure 9.1 and Figure 9.2 show the annual and seasonal directional velocity distribution for the Site, once the wind has been translated from Manchester Airport. This shows the direction the wind is blowing from, with long bars representing frequent winds and wider bars representing stronger winds.

9.37. The wind speed for the site can be established for both comfort and safety analysis based on frequency of occurrence, as indicated in Table 9.1.

9.38. As can be seen from Figure 9.1 and Figure 9.2, the prevailing wind across Manchester is from the south and southwest, with some lesser contribution from all other directions. During the spring and winter there are some contributions from the northeast.

9.39. Wind speeds are generally highest in the winter with the seasonal pattern showing a very similar range of wind directions for winter, spring and autumn. Summer has southerly and westerly prevailing winds with the highest speeds from the south and southwest.

Source of Effect

9.40. Identified receptors are potentially vulnerable to the construction and operation of the Proposed Development. A variety of potential wind effects, related to the massing and orientation of the buildings, are relevant to the wind environment and could cause:

9.41. Downwash: along the façade of a building which is considerably taller than the surroundings. High-level wind speeds can be redirected down to the ground with standing vortex and increase pedestrian-level wind speeds.

9.42. Funnelling / channelling: increase in wind speeds in opening through narrow streets or gaps between buildings (canyon width considerably smaller than canyon height).

9.43. Corner acceleration: flow separation with increased speeds and turbulence as wind wraps around sharp corners of buildings and other objects.

Significance Criteria

Lawson Comfort Assessment

9.44. The Lawson assessment has included a direct comparison between the baseline conditions (existing) and the Proposed Development. A quantitative assessment of the likely wind environment has been carried out, with any areas of potential concern identified.

9.45. A comfort map was created to illustrate the assessment results. This map includes a direct correlation between the calculated wind speeds by the CFD simulations and the wind frequency data near the Site for the last 10 years. It provides a complete picture of the likely wind conditions related to certain activities, indicating when suitable conditions can be achieved for carrying out such activities or if distress is likely to be experienced. The maps cover the whole Site on a plane 1.5 m above ground level, where wind speeds are measured.

9.46. The thresholds used to determine the effect for a given activity are specified for Unacceptable, Tolerable, and Acceptable. An example of the thresholds is given in Table 9.1 for "Perceived response to wind for a pedestrian" (as per the Lawson Criteria) which would be Unacceptable. The definitions for these thresholds are summarised below:

- Unacceptable, unpleasant conditions for the given activity, which should not normally be allowed to occur;
- Tolerable, conditions that would be described as 'windy' but which would be tolerated for the given activity; and
- Acceptable, conditions that will elicit no adverse comment about wind conditions.

9.47. It is considered that effects that breach the "Unacceptable" threshold could be significant, and it is these effects that are considered further within this assessment, in terms of the activity occurring in the area identified, and requirement for mitigation. The Lawson criteria (Lawson 2001) are used to assess the wind speeds for different activities. The criteria that have been used to assess the unacceptable threshold for different activities as well as the distress criteria are listed in Table 0—1.

Table 9.1: Lawson Comfort Criteria thresholds for unacceptable levels of wind speed

Lawson Comfort Criteria Classification	Use of Space	Maximum acceptable combination of wind speed and occurrence		
		Beaufort Scale	(m/s)	Allowable occurrence
Safety distress)	General public	B7	15	0.025%
Uncomfortable	General public	B6	14.1	0.01%
10	Pedestrian business walking	B5	10.95	6%
9	Pedestrian walking around Buildings	B5	10.95	2%
8, 7	Pedestrian walk through	B4	8.25	4%
6	Entrances/standing	B3	5.6	6%
5	Sitting	B3	5.6	3%

9.48. Uncomfortable conditions are experienced at wind speeds above Beaufort B6, as shown in Table 0—2. Additional mitigation for these areas will be of benefit and will improve comfort conditions. Wind speeds above Beaufort B7 indicate that conditions are not suitable for pedestrian activities to be carried out safely, and therefore mitigation will be required in these cases in order to bring conditions to within safe limits.

Table 9.2: The Beaufort scale for wind on land

Beaufort Force	Hourly-average wind speed (m/s)	Description of wind	Noticeable wind effect
B0	< 0.45	Calm	Smoke rises vertically
B1	0.45 - 1.55	Light air	Direction shown by smoke drift but not by vanes
B2	1.55 - 3.35	Gentle breeze	Wind felt on face; leaves rustle; wind vane moves
B3	3.35 - 5.60	Light breeze	Leaves & twigs in motion; wind extends a flag
B4	5.60 - 8.25	Moderate breeze	Raises dust and loose paper; small branches move
B5	8.25 – 10.95	Fresh breeze	Small trees, in leaf, sway
B6	10.95 - 14.10	Strong breeze	Large branches begin to move; telephone wires whistle
B7	14.10 - 17.20	Near gale	Whole trees in motion
B8	17.20 - 20.80	Gale	Twigs break off; personal progress impeded

Beaufort Force	Hourly-average wind speed (m/s)	Description of wind	Noticeable wind effect
B9	20.80 - 24.35	Strong gale	Slight structural damage; chimney pots removed
B10	24.35 - 28.40	Storm	Trees uprooted; considerable structural damage
B11	28.40 - 32.40	Violent storm	Damage is widespread; unusual in the U.K
B12	> 32.40	Hurricane	Countryside is devastated; only occurs in tropical countries

Receptor Sensitivity

9.49. Sensitive receptors in respect of wind microclimate are the pedestrians using the site and the occupants of the Proposed Development and surrounding buildings. Their sensitivity and the magnitude of any change will determine the significance of impact. Sensitivity to wind is dependent upon the activity undertaken, in line with the LCC, as presented in Table 9.3.

Table 9.3: Urban pedestrian activities, in order of increasing sensitivity

Receptor Sensitivity	Activity
Negligible	Areas with non-pedestrian activities
Low	Walking, pedestrian thoroughfares
Moderate	Standing locations
High	Sitting, entrances

Magnitude of Change / Impact

9.50. The assessment of significance refers to the LCC as set out in Table 9.1 to determine the significance of the effect of the Proposed Development with respect to the wind environment; comparison can be made with the conditions on the existing Site. However, because the pedestrian use of a site can change markedly pre- and post-development, it is considered that assessment based upon the suitability of the site for the desired pedestrian use is the most informative and relevant approach. The nature of an effect can either be beneficial, adverse or neutral as follows:

- Beneficial – The measured criteria are less windy than the baseline or desired conditions;
- Adverse – The measured conditions are windier than the baseline or desired conditions for the intended use of the site; or
- Neutral / no change – The measured conditions are equivalent to the baseline or desired conditions for the intended use of the site.

9.51. The nature of an impact can also be described in terms of its timescale; short-term, long-term or permanent. Where impacts are beneficial or adverse, their significance can be assessed as described in Table 9.4.

Table 9.4: Criteria for determining magnitude of change / impact

Magnitude	Criteria
Large	A three-category difference between the proposed activity and predicted LCC, or failure to meet the distress criterion (see in Table 9.2).
Medium	A two-category difference between the proposed activity and predicted LCC.
Small	A one-category difference between the proposed activity and predicted LCC.
Negligible	No change in category between the proposed activity and predicted LCC.

9.52. Comparisons can also be made to the existing wind conditions on-site, where appropriate, using the scale of impact magnitude described above i.e. If it is windier with the Proposed Development than the baseline, then this represents an adverse impact.

Effect Significance

9.53. The significance of a potential effect is derived by considering both the sensitivity of the feature and the magnitude of change, as demonstrated in Table 9.5.

9.54. The receptor sensitivity can influence the evaluation of the effect significance when combined to the magnitude of impact. i.e. An entrance showing suitable conditions for pedestrian walking, as a small adverse effect can be considered to have a moderate/minor adverse significance, due the high receptor sensitivity.

Table 9.5: Matrix for determining effect significance

		Magnitude of change / impact			
		Large	Medium	Small	Negligible
Receptor sensitivity	High	Major	Major	Moderate/Minor	Negligible
	Moderate	Major	Moderate	Minor	Negligible
	Low	Moderate/Minor	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Baseline Conditions

Within the Site

9.55. A quantitative assessment of the likely wind environment has been performed via CFD simulations, based on the existing site and existing surrounding context, including the existing landscape elements to determine baseline conditions at the Site.

9.56. This section studies the comfort and safety of pedestrians in 'Scenario 1: Baseline (existing Site) in existing surroundings', as shown in Figure 9.3.

9.57. Since the completion of Mayfield Park to the north of the Site, the Site has remained a mix of hard landscaping, alongside areas of made ground and the remains of material piles. There are limited areas of low-quality scrubland around the perimeter of the Site. The Site is currently surrounded by hoardings to provide physical security and to improve the visual quality of the Site, screening the vacant land from the park and from residents of Ardwick. The footpaths along the northern edge, Mancunian Way (to the south) and Hoyle Street (to the east) fall within the EIA boundary.

9.58. The wind conditions have been analysed for the whole year, as well as for the summer and the winter season. These composite wind comfort maps are presented in Figure 9.4.

9.59. The EIA Site's overall environment shows comfortable wind conditions supporting year-round sitting, with three smaller areas of short-term sitting to standing conditions in the winter scenario. However, as the Site is currently vacant and surrounded by hoardings (as described in 9.54), it is assumed that no pedestrian activities are in place within this enclosure in the Baseline scenario. The footpaths along the northern, eastern and southern edge of the EIA study area (just outside the hoardings) show suitable conditions for the intended use (walking).

9.60. The annual composite safety map is shown in Figure 9.5. No existing safety exceedance locations have been identified within the boundary of the EIA Site in the Baseline scenario.

Areas surrounding the Site

9.61. The existing Mayfield Park and Playground to the north of the Site are identified as an off-site receptor. The wind conditions at this receptor were found to be in the suitable range for the intended use (walking for the park and sitting to standing for the playground respectively).

9.62. No safety issues have been identified in the surrounding areas of the Site in the existing Baseline scenario.

Climate Change and Adaptation

9.63. In terms of future climate change predictions, whilst it is generally accepted that there is likely to be an increase in storm events (Fung et. al, UKCP18 Factsheet: Wind. Met Office Hadley Centre, 2019), the wind predictions used in this assessment are based on mean wind speeds over a 20-year period which do not account for singular exceptional events when windier conditions can occur. Although climate change is currently expected to have significant effects at a national level, mean wind conditions are not likely to change sufficiently to require specific analysis (see below UKCP18 summary). No clear pattern of increasing strength or frequency of strong winds has thus far been identified. As such, it is normal practice to assume that historical wind conditions give a good indication of the likely range of future conditions.

9.64. Global projections over the UK suggest a modest increase in near-surface wind speeds during winters, along with an increase in frequency of winter storms, in the second half of the 21st century (based on PPE-15 / CMIP5-13 climate models). No compelling trends in the maximum gust speeds have been observed from the UK wind network in the last four decades (Fung et. al, UKCP18 Factsheet: Wind. Met Office Hadley Centre, 2019).

9.65. Throughout the design process, Buro Happold has worked closely with the landscape architects to reduce the windiness on the Site as much as possible and ensure comfortable conditions for the planned pedestrian activities through the integration of landscaping, boulders and screens at the key locations for pedestrian movement and where acceleration was expected. These were refined through a combination of wind microclimate workshops, design markups and CFD results that were circulated with the team. See also ES chapter 7 'Climate Change and GHG Emissions' for more details.

Identification and Evaluation of Likely Significant Effects

Construction Phase

9.66. The construction Phase 1 (construction of Plot J and public realm) is considered under 'scenario 2: baseline (as identified in scenario 1) with Proposed Development Phase 1 construction in existing surroundings'.

Within this scenario, it is assumed that the entire EIA Site, with exception of the existing footpaths along Mancunian Way, Hoyle Street and adjacent to Mayfield Park which are beyond the hoardings, is vacant.

9.67. The construction Phase 2 (construction of Plot K) is considered under 'scenario 3: baseline (as identified in scenario 1) with Proposed Development Phase 1 operational (Plot J and public realm) and Phase 2 construction (Plot K) in existing surroundings'. Within this scenario, it is assumed that only the area which is under construction during this phase (Plot K) and its immediate surrounding is vacant, while Phase 1 is already operational.

9.68. The likely significant effects during construction have been assessed qualitatively on the basis of the professional judgement of the experienced wind engineer in Buro Happold, taking into account the baseline wind conditions and having regard to the outcomes of the CFD analysis of the completed Development. This approach is taken assuming that the construction activities are less sensitive to wind conditions (due to site access being restricted to site workers) than when the Development is completed and occupied (when there will be full public access, including sensitive areas such as entrances and amenity space, for example).

9.69. Apart from the footpaths along the northern (adjacent to Mayfield Park), eastern (Hoyle Street) and southern (Mancunian Way) edge, the Site is currently vacant. The construction of each building will be delivered on a phased programme. Overall, the wind environment during the construction of the Development is likely to be variable as the built form is constructed and, as such, all effects during construction would be temporary. The provision of construction hoardings will likely cause negligible to small beneficial changes to wind conditions within the construction site and in proximity to any hoardings, resulting in a negligible effect.

9.70. When the construction works are completed, the final conditions described in the 'The Operational Phase' sub-sections of this Chapter will materialise.

Table 9.6: Summary of effects during construction of Phase 1 (Plot J and public realm) and Phase 2 (Plot K)

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Part of site under construction: Phase 1 (Plot J and public realm)	Low	Potential temporary, variable, change of wind environment during construction. Negligible to small beneficial changes expected due to construction hoardings.	Negligible	Negligible
Part of site under construction: Phase 2 (Plot K)	Low	Potential temporary, variable, change of wind environment during construction. Negligible to small beneficial changes expected due to construction hoardings.	Negligible	Negligible

Operational Phase

Phase 1 Operational

9.71. Phase 1 (Plot J and the public realm) is considered to be operational in scenario 3. The 3D model of the geometry used in the CFD simulations for this scenario is shown in Figure 9.8. The winter and summer composite comfort maps for this scenario are given in Figure 9.9.

9.72. Detail of the intended uses of the Site is required in order to assess the effects of the wind environment on pedestrian comfort. For neighbouring buildings and open spaces, the likely pedestrian activity will be

business walking to access the surrounding buildings and car parks. For the Proposed Development, information regarding the intended usage of different areas and indicative building plots is taken from the design information provided by the design team. This includes seating areas, building entrances, bicycle and EV parking locations, pedestrian thoroughfares, loading bays and additional areas where outdoor activities are likely to take place. The ground- and podium-level pedestrian activities identified for the Development (at full completion) are shown in Figure 9.6 and 9.7.

9.73. It is assumed that within this scenario the seating and standing locations on and around Plot J are in use. The remaining part of the public realm around Plot K within the EIA boundary is assumed to be closed off by hoardings (as Plot K is still under construction during this phase) and therefore not in use yet.

9.74. The seating areas on the Site are intended for occasional sitting. These will be more frequently used during summer.

9.75. All ground-level seating areas around Plot J, as well as those on the podium, show suitable conditions for their intended use.

9.76. All three cycle stands around Plot J show similar wind conditions to the Baseline (scenario 1), suitable up to one category better than the intended use (standing).

9.77. The entrance on the southeast corner of J1 shows slightly windier winter conditions (one category worse than the intended standing use) as compared to the Baseline scenario. However, this area is on the corner of two plant rooms and not accessed by the public as part of a footpath.

9.78. All the other ground-level and podium-level entrances of Plot J show wind conditions up to one category better than their intended use.

9.79. The annual composite safety map for scenario 3 is shown in Figure 9.10.

9.80. A very small localised safety exceedance spot was found directly on this southeast corner of J1, between the façade and the boulder. As this entails a marginal exceedance of hours annually (only slightly above 2 hours; see annotation in Figure 9.10 on the right) and people are not expected to walk this close to the façade, this safety spot is considered negligible.

9.81. The existing Mayfield Park and Playground to the north of the Site are identified as an off-site receptor. A slight increase in wind speeds is seen on the Playground as compared to the baseline. Mayfield Park shows no change in LCC category due to the Phase 1 Development. Both receptors were found to be in the suitable range for the intended use (as was also the case in the baseline), therefore the effect is classified as negligible.

Table 9.7: Summary of effects during operation of Phase 1

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Seating areas to the west of Plot J (directly adjacent)	High	Similar summer conditions as in Baseline (suitable for sitting); slightly windier winter conditions as in Baseline.	Negligible	Negligible (suitable for intended use: sitting in summer)
Seating areas between J2 and J1	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Seating area at northeast corner of J2	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible
Seating area at northeast corner of J1	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting)	Negligible	Negligible
Seating areas on Plot J podium	High	Wind conditions suitable for intended use (sitting).	N/A	N/A
Cycle stand to northeast of J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Negligible – Small beneficial	Negligible – Minor beneficial
Cycle stand between J2 and J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Negligible – Small beneficial	Negligible – Minor beneficial
Cycle stand to the south of J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Negligible – Small beneficial	Negligible – Minor beneficial
Entrance southeast corner of J1	High	Slightly windier winter conditions as in Baseline; one category worse than intended use (standing), but this area is on the corner of two plant rooms and not accessed by the public as part of a footpath.	Small adverse	Minor/Moderate adverse (plant room doors; not accessed by public)
Entrances on Plot J podium	High	Wind conditions up to one category better than intended use (standing).	N/A	N/A
All other entrances Plot J (ground level)	High	Entrances suitable for / up to one category better than intended use (standing).	Negligible – Small beneficial	Negligible – Minor/Moderate beneficial
Localised safety exceedance at southeast corner of J1	Low	Adverse effect with zone of unsafe conditions for cyclists and frail people. However: very small spot with marginal exceedance (no. hours annually) and at gap between boulder and façade where people will not walk.	Large (safety exceedance)	Minor/Moderate adverse (marginal exceedance in terms of both area and no. hours; people are not expected to walk here)
Existing Mayfield Park (off-site receptor)	Low	Similar wind conditions as in Baseline; up to two categories better than intended use (pedestrian walkthrough).	Medium beneficial	Minor beneficial

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Existing Mayfield Park Playground (off-site receptor)	High - Moderate	Slightly windier than Baseline; conditions suitable for intended use (sitting to standing).	Negligible	Negligible

Phase 1 and Phase 2 Operational

9.82. Both Phase 1 (Plot J and the public realm) and Phase 2 (Plot K) are considered to be operational in scenario 4. The 3D model of the geometry used in the CFD simulations for this scenario is shown in Figure 9.11. The winter and summer composite comfort maps for this scenario are given in Figure 9.12.

9.83. It is assumed that within this scenario all hoardings have been removed and all the planned seating and standing locations on and around both plots are in use as intended.

9.84. The seating areas on the Site are intended for occasional sitting. These will be more frequently used during summer.

9.85. All ground- and podium-level seating areas show suitable conditions for their intended use, except for the seating adjacent to the southeast corner of K1, where wind acceleration occurs. This seating area requires mitigation in order to ensure comfortable conditions for the planned activity.

9.86. All the cycle stand locations across the Site indicate suitable wind conditions for the intended use (standing). The EV charging zones are classified as a minor beneficial effect as slightly calmer wind conditions occur between K2 and K1 as compared to the Baseline scenario.

9.87. Two entrances, one at the eastern façade of K1 and the other at the western façade of J1 (approximately at the centre of the full building length) show windier winter conditions. The former is an emergency door, while the latter is a back-of-house refuse room door and is therefore considered not to be in use as intensively as other building entrances. All other ground- and podium-level entrances show suitable conditions for the intended use (standing).

9.88. All but one (to the southwest of Plot K) of the loading bays along Hoyle Street and Mancunian Way show wind conditions up to one category better than standing. The loading bay to the southwest of Plot K shows walking conditions during winter (and sitting conditions during summer). As drop-off points and loading bays are expected to be in use only for very short durations, walking conditions are also acceptable.

9.89. The annual composite safety map for scenario 4 is shown in Figure 9.13. One zone of unsafe conditions for cyclists and frail people has been identified at the southeastern corner of K1. This is classified as a major adverse effect, which requires mitigation.

9.90. The existing Mayfield Park and Playground to the north of the Site are identified as an off-site receptor. The Playground shows a similar summer but slightly windier winter conditions. These are still within the suitable range for the intended use (sitting to standing). Mayfield Park shows no change in LCC category due to the Proposed Development (with Phase 1 and Phase 2 operational).

Table 9.8: Summary of effects during operation of Phase 2

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Seating areas to the west of Plot J (directly adjacent)	High	Similar summer conditions as in Baseline (suitable for sitting); slightly windier winter conditions as in Baseline.	Negligible	Negligible (suitable for intended use: sitting in summer)
Seating areas between J2 and J1	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible (suitable for intended use sitting in summer)
Seating area at northeast corner of J2	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible
Seating area at northeast corner of J1	High	Similar summer conditions as in Baseline (suitable for sitting); slightly windier winter conditions as in Baseline.	Negligible	Negligible (suitable for intended use: sitting in summer)
Seating areas on Plot J podium	High	Wind conditions suitable for intended use (sitting).	N/A	N/A
Seating areas on Plot K podium	High	Wind conditions suitable for intended use (sitting).	N/A	N/A
Seating areas to the east of Plot K (directly adjacent)	High	Slightly windier summer conditions as in Baseline; windier wind conditions in winter as in Baseline. Conditions suitable for intended use (sitting in summer), except for seating affected by wind acceleration on southeast corner of J1.	Negligible, except for seating near J1 southeast corner (large adverse)	Negligible (seating mostly suitable for intended use: sitting in summer); exception of seating close to southeast corner of K1 (major adverse) which requires mitigation
Seating areas between K2 and K1	High	Similar summer conditions as in Baseline (suitable for sitting); slightly calmer winter conditions as compared to Baseline.	Negligible	Negligible (suitable for sitting in summer)
Seating areas to the west of Plot K	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible
Cycle stand to northeast of J1	Moderate	Similar summer wind conditions as in Baseline; slightly windier winter conditions as in Baseline, but still suitable for intended use (standing).	Negligible	Negligible

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Cycle stand between J2 and J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand between K2 and K1	Moderate	Similar summer conditions as in Baseline; slightly calmer winter conditions as compared to Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand to the south of J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand to the north of Plot K	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand to the west of K2	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Entrances Plot J	High	All entrances suitable for intended use (standing), except for one entrance to the west of J2 with slightly windier winter conditions (this is a back-of-house refuse room door though therefore less critical); and one at the southeast corner of J1 (plant room doors; not accessed by public).	Negligible – Small adverse (two doors)	Negligible – Minor/Moderate adverse (refuse and plant room door)
Entrances Plot K	High	All entrances suitable for intended use (standing), except for one entrance to the east of K1 with slightly windier winter conditions (this is an emergency door, therefore not a permanent public access door).	Negligible – Small adverse (one door)	Negligible – Minor/Moderate adverse (emergency door)
Entrances on Plot J podium	High	Wind conditions up to one category better than intended use (standing).	N/A	N/A
Entrances on Plot K podium	High	Wind conditions up to one category better than intended use (standing).	N/A	N/A
EV charging zones between K2 and K1	Moderate	Similar summer conditions as in Baseline; slightly calmer winter conditions as compared to Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Loading bay along Hoyle Street	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Drop-off / loading bays along Mancunian Way	Moderate	Similar wind conditions as in Baseline, up to one category better than intended use (standing), with exception of loading bay to the southwest of Plot K. As loading bays are expected to be only for short-term use, pedestrian walkthrough conditions are accepted as well.	Negligible - Small adverse (one loading bay)	Negligible – Minor adverse (loading bay; short-term use)
Safety exceedance at southeast corner of K1	High	Adverse effect with zone of unsafe conditions for cyclists and frail people at the southeast corner of K1. This effect requires mitigation.	Large adverse (safety exceedance)	Major adverse (requires mitigation)
Existing Mayfield Park (off-site receptor)	Low	Similar wind conditions as in Baseline; up to two categories better than intended use (pedestrian walkthrough).	Medium beneficial	Minor beneficial
Existing Mayfield Park Playground (off-site receptor)	High - Moderate	Similar summer wind conditions as in Baseline; slightly windier winter conditions as in Baseline, but still suitable for intended use (sitting to standing).	Negligible	Negligible

Cumulative Effects

9.91. The following cumulative schemes have been included in the wind assessment of the Development in the cumulative surroundings (Scenario 5). Any other cumulative schemes not mentioned in the list below are located outside the boundary of the explicit zone of the CFD context model (530m radius from the centre of the development) and it is not anticipated that these other schemes would have any significant effect on the wind conditions on the Site.

- Cumulative Scheme 1 (Planning Ref. 137350/JO/2023) – MSCP building (Mayfield Phase 1A);
- Cumulative Scheme 2 (Planning Ref. 137263/FO/2023) - Plot O (Mayfield Phase 1A);
- Cumulative Scheme 3 (Planning Ref. 137349/JO/2023) - Republic building (Mayfield Phase 1A);
- Cumulative Scheme 9 (Planning Ref. 136874/FO/2023);
- Cumulative Scheme 10 (Planning Ref. 125712/FO/2019);
- Cumulative Scheme 17 (Planning Ref. 132626/FO/2022);
- Cumulative Scheme 18 (Planning Ref. 126608/FO/2020);

- Cumulative Scheme 19 (Planning Ref. 132214/FO/2021);
- Cumulative Scheme 20 (Planning Ref. 121099/FO/2018);
- Cumulative Scheme 21 (Planning Ref. 127317/FO/2020);
- Cumulative Scheme 22 (Planning Ref. 122000/FO/2018);
- Cumulative Scheme 27 (Planning Ref. 139986/FO/2024);

9.92. In this section, the effects of 'scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational in context of future surroundings (Phase 1a* and cumulative developments)' in comparison to scenario 4 (Proposed scenario with Phase 1 and Phase 2 operational) are summarized.

9.93. The 3D model of the geometry used in the CFD simulations for this scenario is shown in Figure 9.14. The winter and summer composite comfort maps for this scenario are given in Figure 9.15.

9.94. The seating areas on the Site are intended for occasional sitting. These will be more frequently used during summer.

9.95. All the seating areas on the Site show similar to slightly milder wind conditions as compared to the Baseline, which are suitable for the intended sitting use in summer.

9.96. Similarly, all the cycle stand and EV charging locations show similar to slightly milder wind conditions than the Baseline. These are all suitable for the planned use (standing).

9.97. Comfortable sitting conditions are found on the podia of both plots.

9.98. For Plot K, three entrances show slightly windier winter conditions in the cumulative scenario, while the summer conditions remain similar to the Baseline. As these entrances are the refuse / waste lift and bike store doors, these are considered less critical and used less intensively. All the other entrances show comfortable conditions for standing.

9.99. For Plot J, similar to the Proposed scenario in the existing surroundings, one entrance to the west of J2 has slightly windier winter conditions. As pointed out in Scenario 4, this is a back-of-house refuse room door and therefore not a primary building entrance. The same holds for the southeast corner door of J1, which is a plant room door that is not accessed by the public. All the other entrances show suitable standing conditions.

Scenario 6

9.100. The annual composite safety map for scenario 6 is shown in Figure 9.16. One small safety exceedance spot was identified within the EIA boundary, along the eastern façade of the cumulative Republic building. This safety exceedance is marginal both in terms of area and annual number of hours of exceedance (only slightly above 2 hours; see Figure 16.16). Moreover, it is located immediately adjacent to the façade and covered by a tree and some large boulders, and people are not expected to walk in between these and the façade. As such, this exceedance is considered negligible.

9.101. Two small safety exceedance zones were also found on the east façade of the cumulative MSCP building. These are also marginal (shown in blue indicating only slightly above 2 hours annually) as can be seen in Figure 9.16, therefore negligible.

9.102. In the cumulative scenario, slightly milder wind conditions are found on the existing Mayfield Park Playground off-site receptor. The rest of the park shows no significant effect compared to the fully operational Proposed scenario in the existing context (scenario 4).

Table 9.9: Summary of cumulative effects

Receptor	Cumulative Effect	Significance of Cumulative Effect
Seating areas to the west of Plot J (directly adjacent)	Similar to slightly milder wind conditions; suitable conditions for intended use (sitting in summer)	Negligible
Seating areas between J2 and J1	Similar wind conditions; suitable conditions for intended use (sitting in summer)	Negligible
Seating area at northeast corner of J2	Similar wind conditions; suitable conditions for intended use (sitting in summer)	Negligible
Seating area at northeast corner of J1	Similar wind conditions; suitable conditions for intended use (sitting in summer)	Negligible
Seating areas on Plot J podium	Wind conditions suitable for intended use (sitting).	N/A
Seating areas on Plot K podium	Wind conditions suitable for intended use (sitting).	N/A
Seating areas to the east of Plot K (directly adjacent)	Slightly milder wind conditions; seating close to southeast corner of J1 now also suitable for intended use (sitting in summer)	Negligible
Seating areas between K2 and K1	Similar wind conditions; suitable conditions for intended use (sitting in summer)	Negligible
Seating areas to the west of Plot K	Similar wind conditions; suitable conditions for intended use (sitting in summer)	Negligible
Cycle stand to northeast of J1	Similar to slightly milder wind conditions; suitable conditions for intended use (standing)	Negligible
Cycle stand between J2 and J1	Similar wind conditions; suitable conditions for intended use (standing)	Negligible
Cycle stand between K2 and K1	Similar wind conditions; suitable conditions for intended use (standing)	Negligible
Cycle stand to the south of J1	Similar to slightly milder wind conditions; suitable conditions for intended use (standing)	Negligible
Cycle stand to the north of Plot K	Similar wind conditions; suitable conditions for intended use (standing)	Negligible
Cycle stand to the west of K2	Similar wind conditions; suitable conditions for intended use (standing)	Negligible
West entrances Plot K	These three entrances show slightly windier winter conditions, while the summer	Minor/Moderate adverse (service doors;

Receptor	Cumulative Effect	Significance of Cumulative Effect
	conditions are similar to the Baseline. As these entrances are the refuse / waste lift and bike store doors, these are considered less critical / used less intensively. This is an impact caused by the cumulative Republic building (of Mayfield Phase 1A), which will incorporate some additional mitigation to resolve windiness at this location.	mitigation as part of Republic building)
Other entrances Plot K	All other entrances suitable for intended use (standing).	Negligible
One west (J2) and southeast entrance (J1)	One entrance to the west of J2 with slightly windier winter conditions (this is a back-of-house refuse room door though therefore less critical); and one at the southeast corner of J1 (plant room doors; not accessed by public). Summer conditions similar to Baseline.	Minor/Moderate adverse (refuse / plant room doors)
Other entrances Plot J	All other entrances suitable for intended use (standing).	Negligible
Entrances on Plot J podium	Wind conditions up to one category better than intended use (standing).	N/A
Entrances on Plot K podium	Wind conditions up to one category better than intended use (standing).	N/A
EV charging zones between K2 and K1	Similar wind conditions; suitable conditions for intended use (standing)	Negligible
Safety exceedance at eastern façade of Republic (Phase 1a) cumulative development	Adverse effect caused by the cumulative scheme of the Republic, which will incorporate some additional mitigation to resolve windiness at this location. Moreover, this exceedance is considered negligible both with respect to the extent, annual number of hours and pedestrian access.	Minor/Moderate adverse
Two off-site safety exceedances at eastern façade of MSCP cumulative development	Adverse effect caused by the cumulative schemes of Mayfield Phase 1A to the west of Phase 1B. Moreover, this exceedance is considered negligible both with respect to the extent, annual number of hours and pedestrian access.	Minor/Moderate adverse
Existing Mayfield Park (off-site receptor)	Similar wind conditions; suitable conditions for intended use (walking)	Negligible

Receptor	Cumulative Effect	Significance of Cumulative Effect
Existing Mayfield Park Playground (off-site receptor)	Slightly milder wind conditions; suitable conditions for intended use (sitting to standing)	Negligible

Mitigation Measures

9.103. Throughout the design process, Buro Happold has worked closely with the (landscape) architects to reduce the windiness on the Site as much as possible and ensure comfortable conditions for the planned pedestrian activities through the integration of landscaping and boulders at the key locations for pedestrian movement and where acceleration was expected. These were refined in the architectural/landscape strategy through a combination of wind microclimate workshops, design markups and CFD results that were circulated with the team.

9.104. As shown in the previous section ('Identification and Evaluation of Likely Significant Effects'), one remaining significant adverse effect (safety exceedance) requiring mitigation was identified at the southeast corner of K1 in Scenario 4. Details of the final wind mitigation options will be submitted as part of a planning condition for the K1 building, to be discharge ahead of operation of the plot.

9.105. In this section, mitigation and enhancement measures are recommended for the identified K1 southeast corner location of significant adverse likely effects associated with the completed and operational Development.

9.106. Initial mitigation testing has shown that a 2 to 3m wide solid canopy in combination with a porous screen is an effective solution to mitigate the safety exceedance zone on the corner of K1. Additional wind testing will be required as part of a planning condition to ensure the safety exceedance is omitted.

9.107. In order to illustrate that these types of mitigations can be an effective solution to enhance the wind comfort and safety conditions on the Site, a full comfort and safety map test was produced. The results of this Mitigation Scenario 6 for the operational Development in the existing surroundings (i.e. Scenario 4 plus mitigation) are shown in the composite seasonal comfort and annual safety maps in Figure 9.17 and Figure 9.18 respectively. The residual effects, after implementation of the proposed mitigations, are discussed in the next section.

9.108. While these recommended mitigation measures for the Proposed Development are merely examples of possible solutions to enhance the wind conditions as demonstrated, the architectural integration of these elements will be conditioned and agreed at a later date to minimise impact on placemaking.

Residual Effects

Construction Phase

9.109. The installation of the mitigation measure (canopy and screen or similar) is expected to be of very short duration and negligible effect. As soon as the mitigation is in place, the wind conditions will transition to the operational phase effect described below.

Table 9.10: Summary of residual effects (construction phase)

Likely Significant Effect	Receptors	Mitigation Measure	Means / Responsibility of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
None	N/A	N/A	N/A	N/A

Operational Phase

9.110. As can be seen from the annual composite safety map in Figure 9.19, the previously identified zone of safety concern at the southeastern corner of K1 is successfully mitigated.

9.111. The integration of the corner mitigation also shows a beneficial effect on the seating area adjacent to the eastern façade of K1 near the corner, where calmer wind conditions result in more comfortable conditions for the intended sitting use.

9.112. No supplementary mitigations are required in order to provide suitable conditions for the planned activities. The integrated landscaping and boulders in combination with the additional canopy and screen mitigation have been tested and verified to provide suitable conditions for the planned activities and eliminate wind distress areas identified in the case without mitigation.

9.113. As mentioned in the 'Mitigation Measures' section, the proposed canopy with screen was tested to demonstrate that this type of mitigation effectively removes the safety exceedance. The architectural integration of the final mitigation will be committed via a planning condition.

Table 9.11: Summary of residual effects (operational phase)

Likely Significant Effect	Receptors	Mitigation Measure	Means / Responsibility of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Major adverse effect (safety exceedance) at southeast corner of K1, identified in Scenario 4	Pedestrian walkthrough area	Corner mitigation in the form of solid canopy in combination with porous screen or similar. Details of architectural integration of final wind mitigation to be committed via a planning condition.	CEMP to be secured through planning condition and implemented by contractor.	Negligible (removal of Safety exceedance with the recommended solid canopy + porous screen mitigation measures).

Monitoring

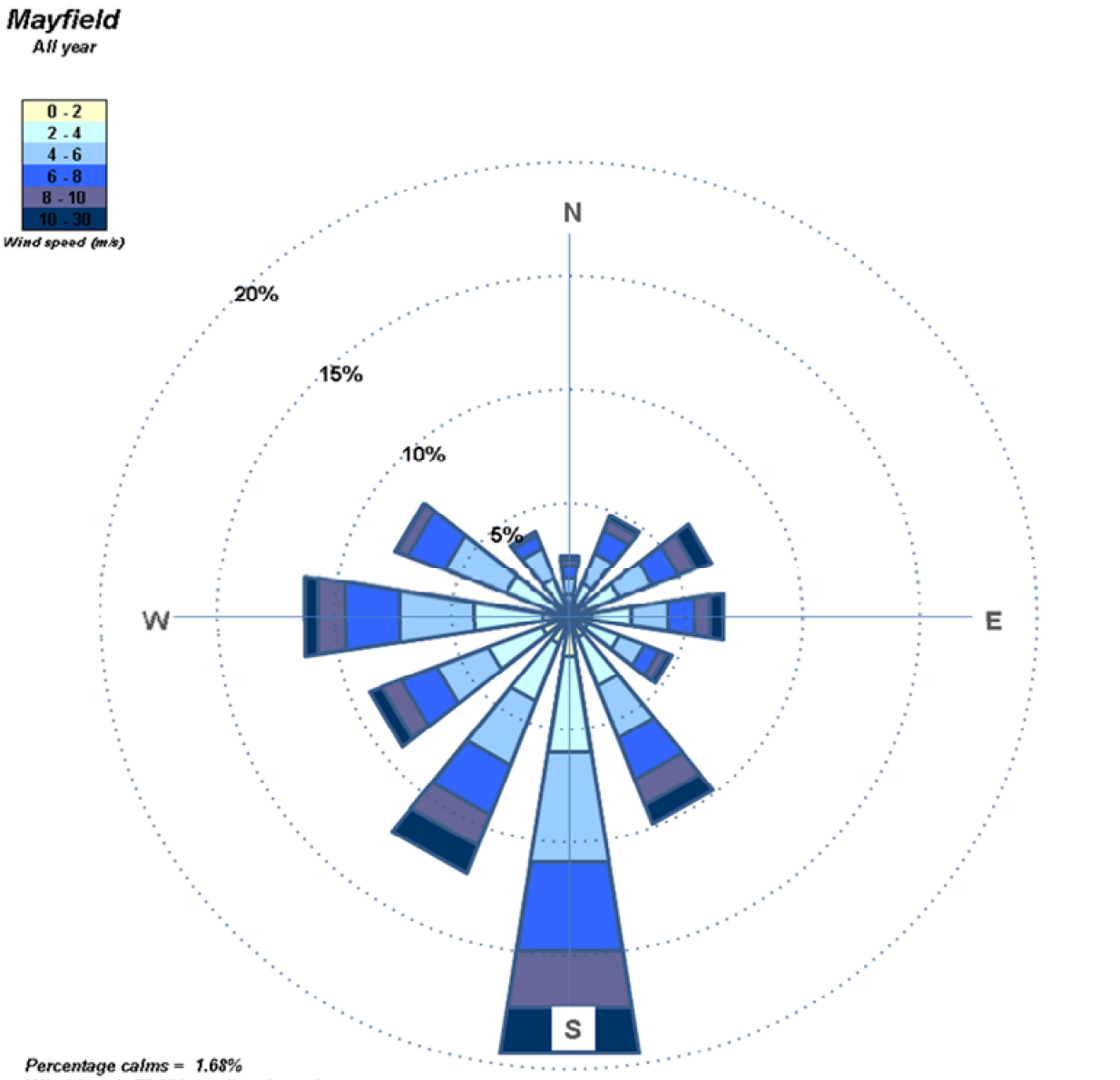
9.114. N/A

Reference List

9.115. This ES Chapter has been prepared in reference to the following:

- Lawson, T.V. (2001), Building Aerodynamics, Imperial College Press (125-137).

- Fung F, Bett P, Maisey P, Lowe J, McSweeney C, Mitchell JFB Murphy J, Rostron J, Sexton D and Yamazaki K. UKCP18 Factsheet: Wind. Met Office Hadley Centre, Exeter



Deg (°)	0	30	60	90	120	150	180	210	240	270	300	330
%	2.66	4.73	6.43	6.59	4.65	9.70	19.25	12.00	9.09	11.33	7.91	3.97

	Figure:	9.1		
	Title:	Annual wind rose for the EIA Site.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

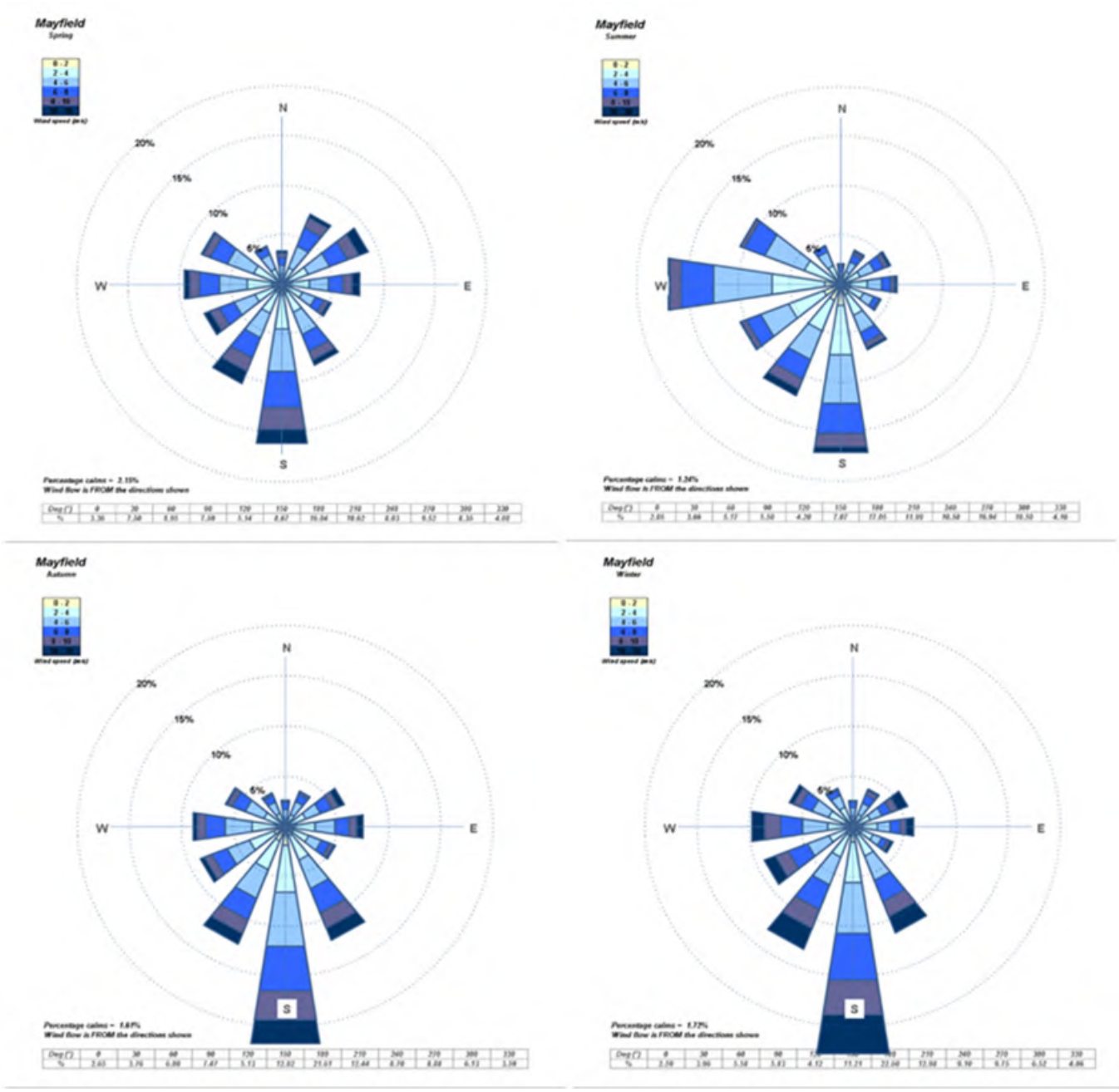


	Figure:	9.2		
	Title:	Seasonal wind roses for the EIA Site.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

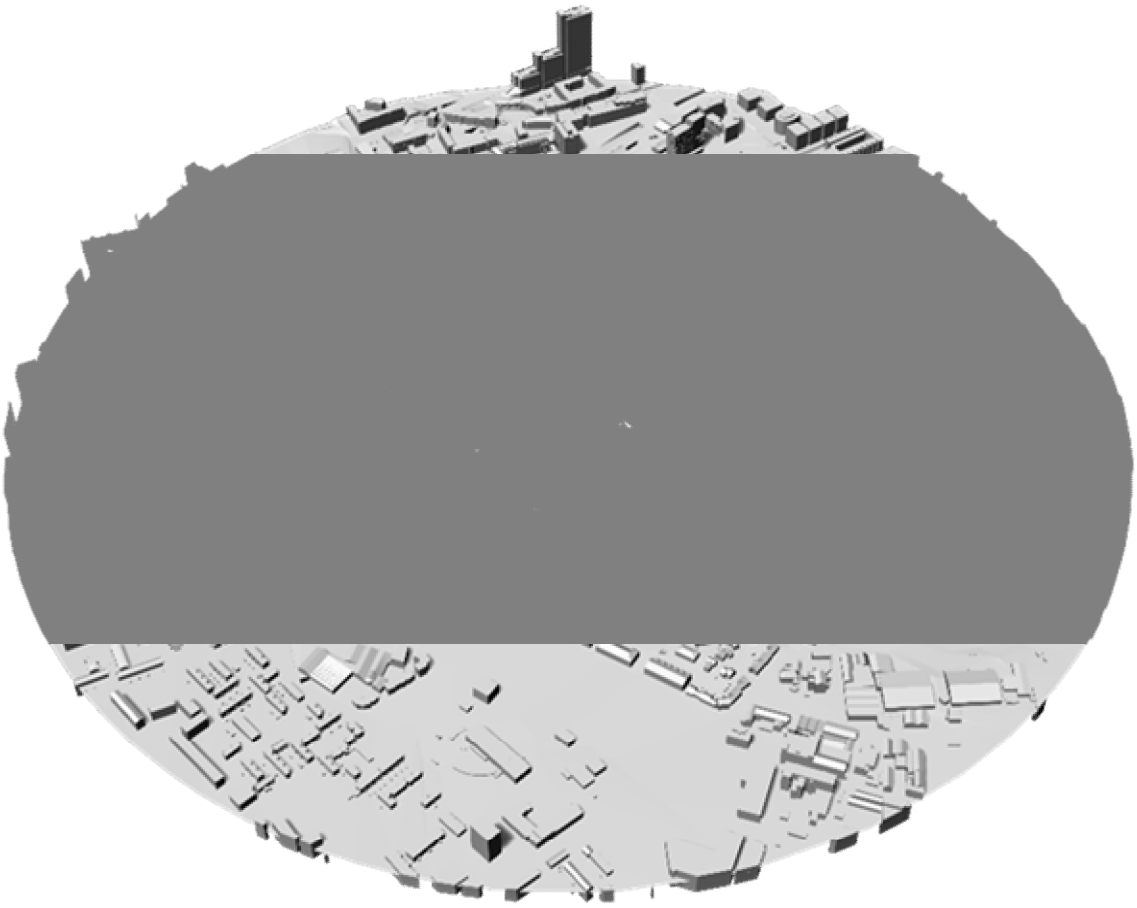
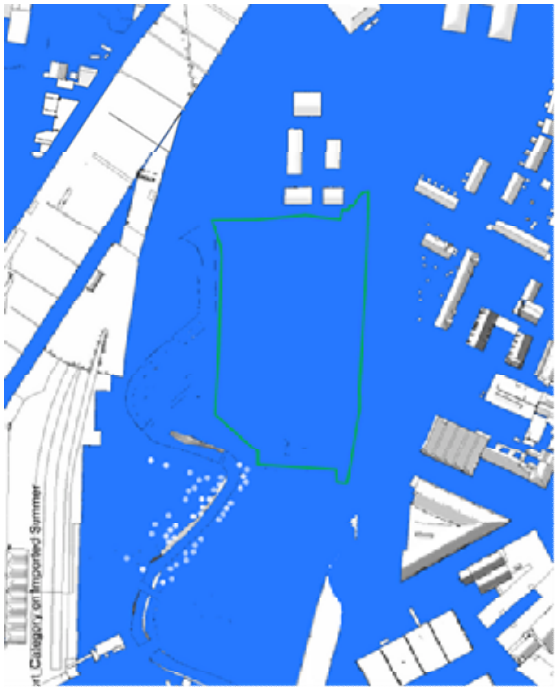


	Figure:	9.3		
	Title:	Scenario 1: Modelled Baseline geometry, existing Site in existing surroundings.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS



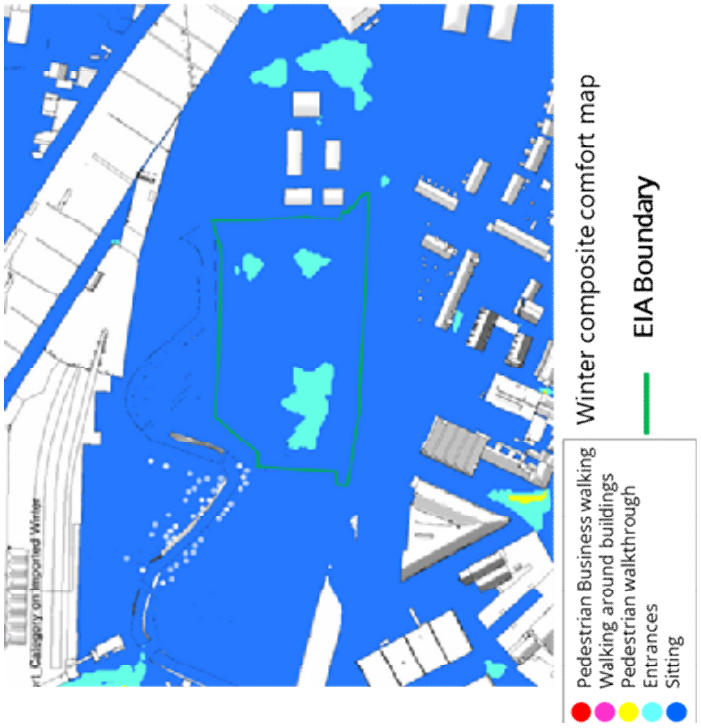


	Figure:	9.4		
	Title:	Scenario1: winter and summer composite comfort map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

	Figure:	9.5		
	Title:	Scenario1: annual composite safety map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS



	Figure:	9.6		
	Title:	Ground-level pedestrian activities.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

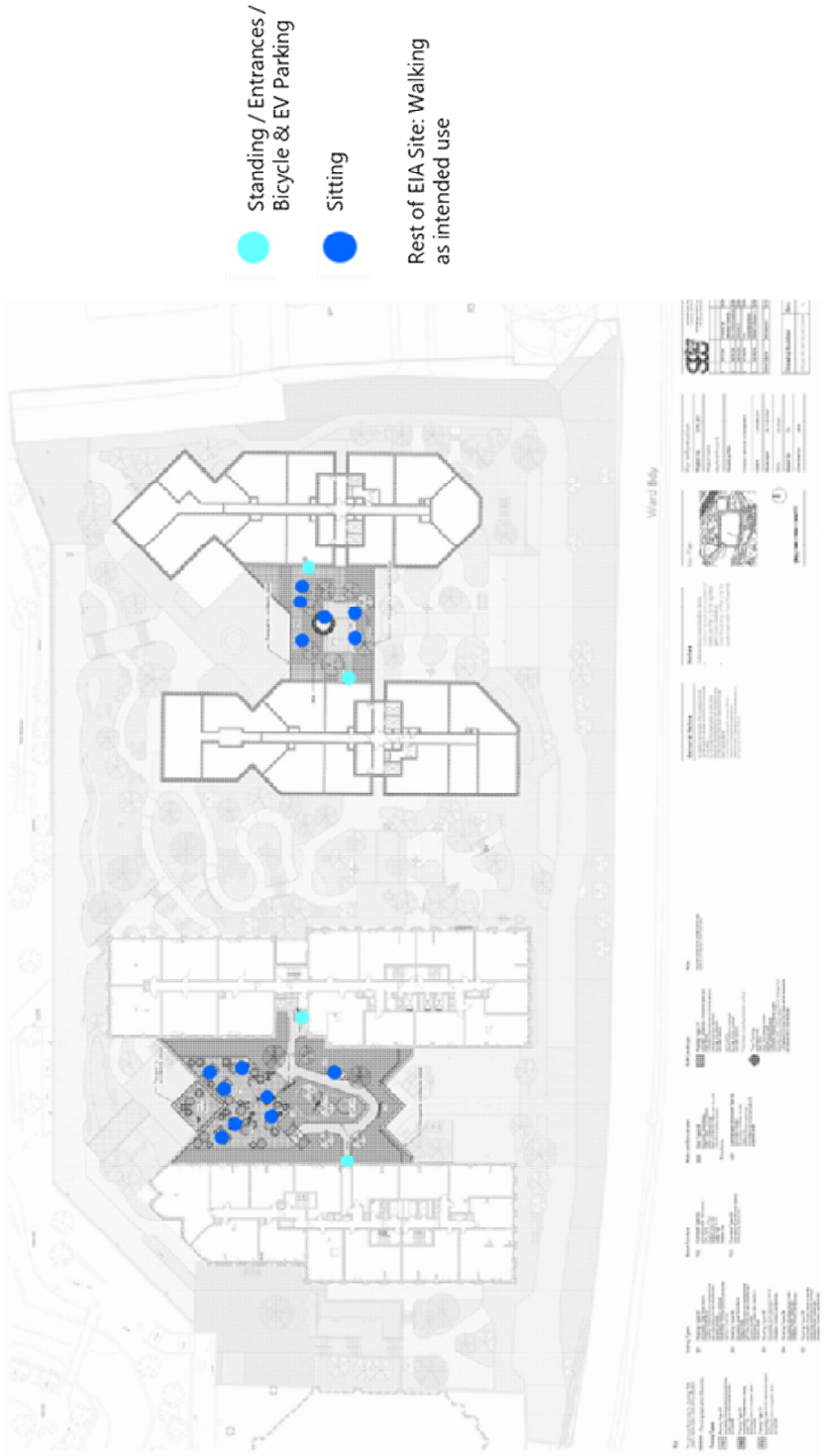


	Figure:	9.7		
	Title:	Podium-level pedestrian activities.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS



Scenario 3: Modelled Proposed Phase 1 geometry, Proposed Development Phase 1 operational (Plot J and public realm) and Phase 2 construction (Plot K) in existing surroundings.	Figure:	9.8		
	:Title			
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

	Figure:	9.9		
	Title:	Scenario 3: winter and summer composite comfort map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

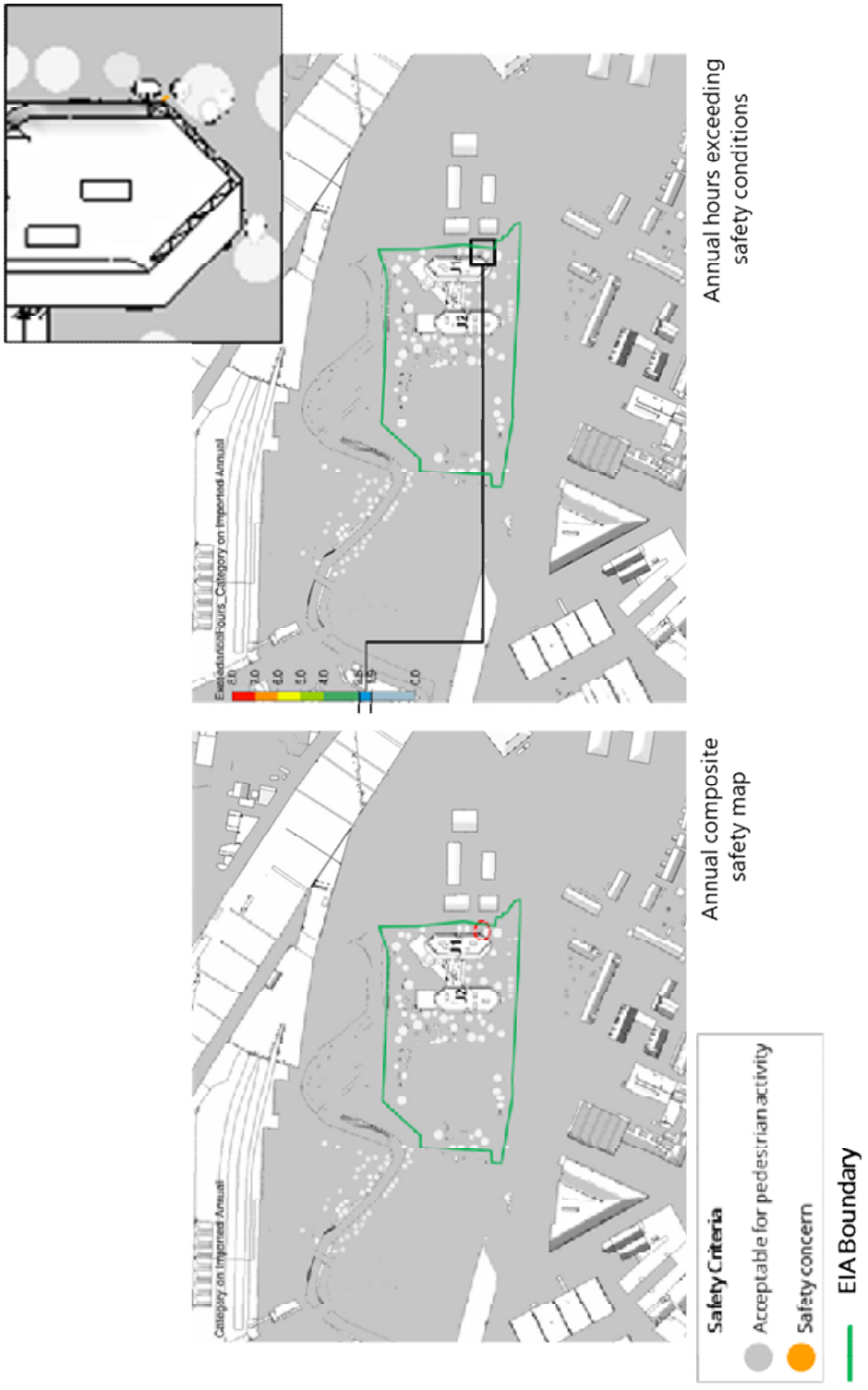
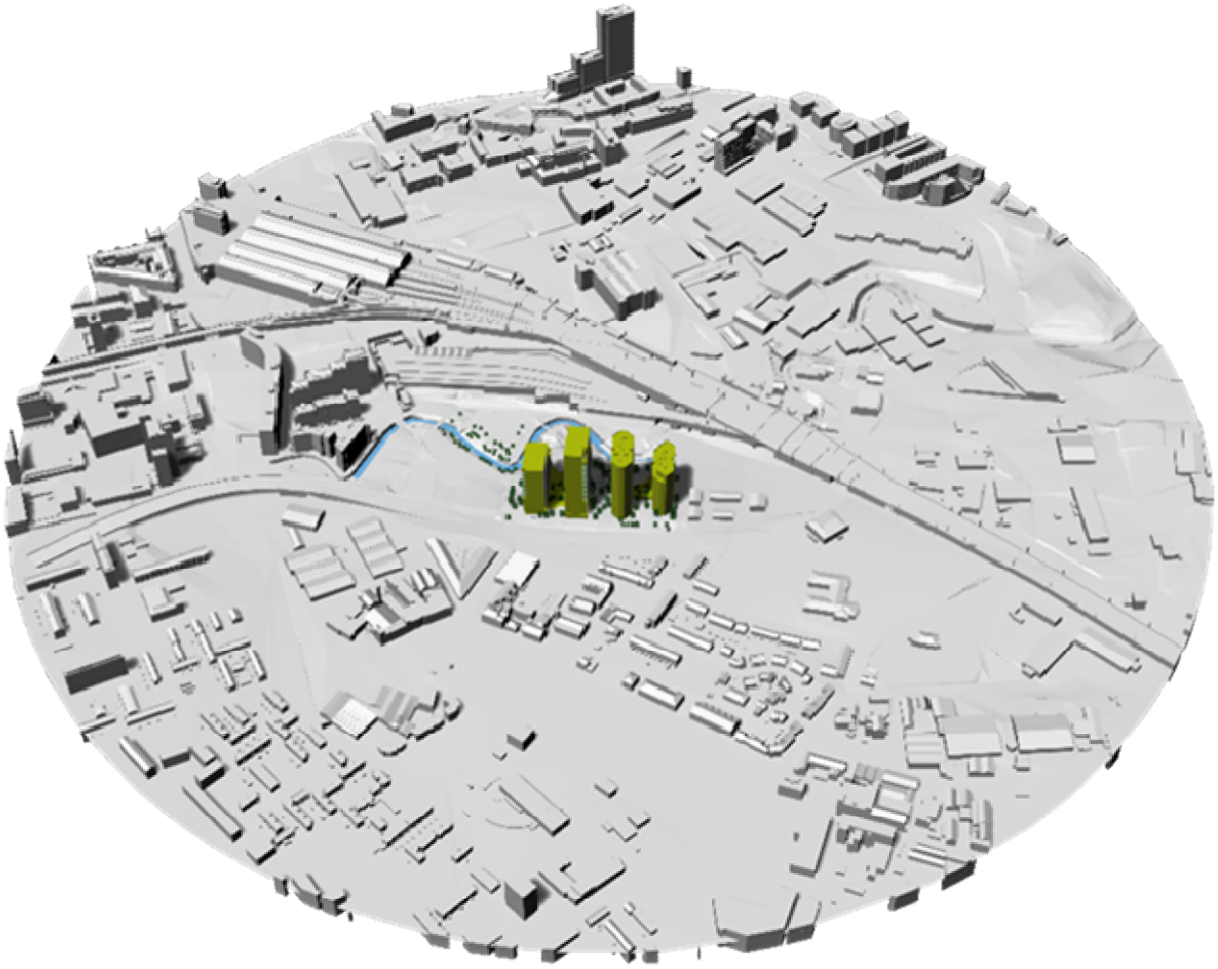


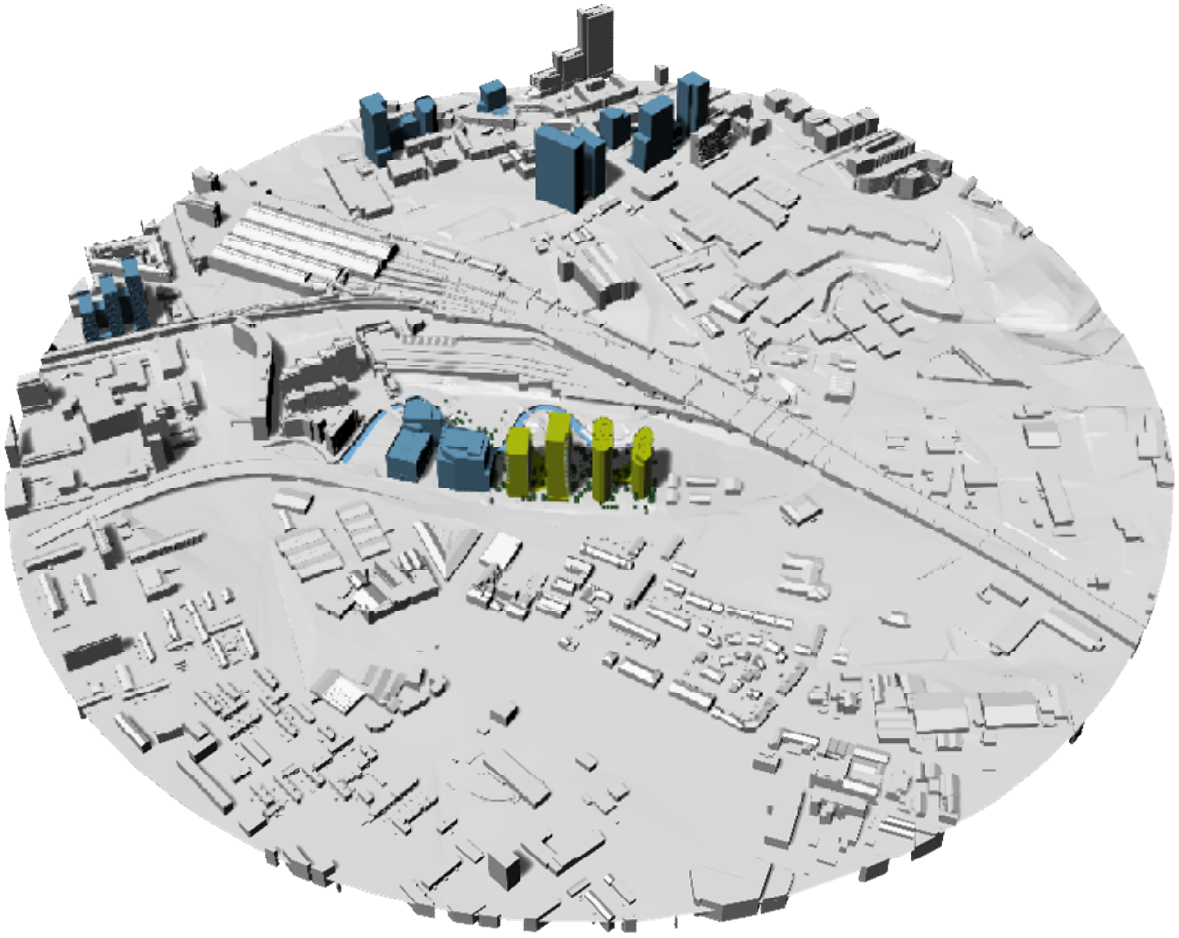
	Figure:	9.10		
	Title:	Scenario 3: annual composite safety map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS



Scenario 4: Modelled Proposed Phase 2 geometry, Proposed Development Phase 1 and Phase 2 operational (Plot J, public realm and Plot K) in existing surroundings.	Figure:	9.11		
	:Title			
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

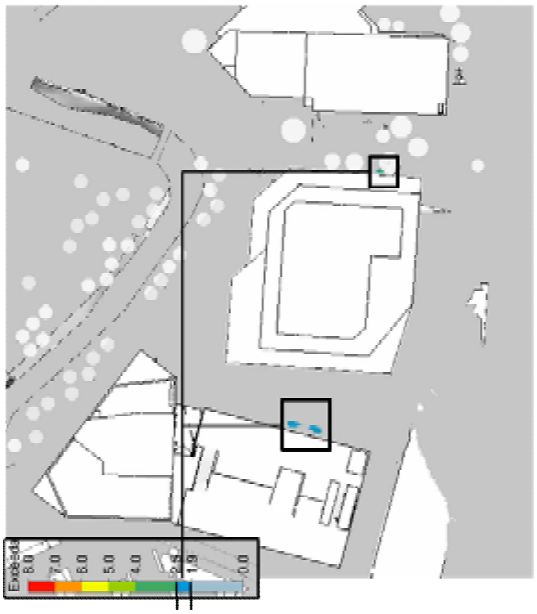
	Figure:	9.12		
	Title:	Scenario4: winter and summer composite comfort map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

	Figure:	9.13		
	Title:	Scenario4: annual composite safety map.		
	Project:	Mayfield Phase 1b		
	Date:	30 June 2023	Scale:	NTS

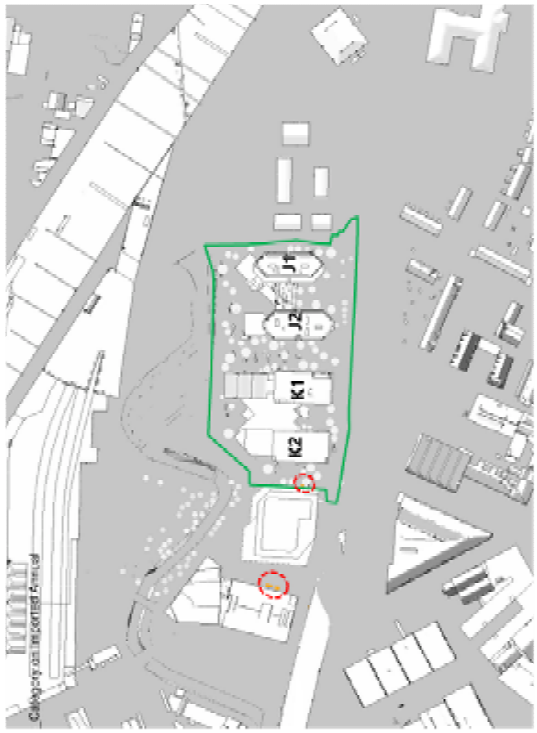


Scenario 5: Modelled Cumulative geometry, Proposed Development Phase 1 and Phase 2 operational (as above) in context of future surroundings (Phase 1a* and cumulative developments).	Figure:	9.14		
	:Title			
	Project:	Mayfield Phase 1b		
	Date:	30 June 2023	Scale:	NTS

	Figure:	9.15		
	Title:	Scenario 5: winter and summer composite comfort map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS



Annual hours exceeding safety conditions



Annual composite safety map

Safety Criteria
Acceptable for pedestrian activity
Safety concern

EIA Boundary

	Figure:	9.16		
	Title:	Scenario 5: annual composite safety map.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

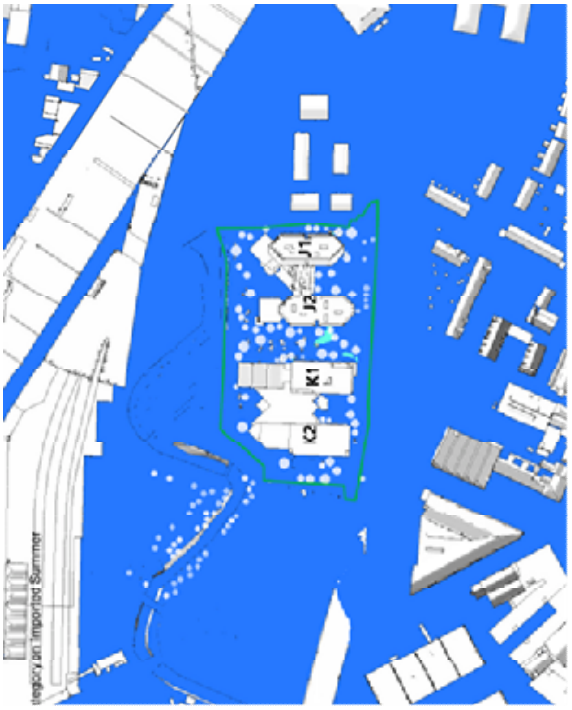




	Figure:	9.17		
	Title:	Scenario 6: winter and summer composite comfort map with inclusion of wind mitigation.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

	Figure:	9.18		
	Title:	Scenario 6: annual composite safety map with inclusion of wind mitigation.		
	Project:	Mayfield Phase 1b		
	Date:	December 2024	Scale:	NTS

10. Human Health

Introduction

10.1. This Chapter of the ES has been prepared by Buro Happold and assesses how the Proposed Development could directly and indirectly impact upon the key determinants of health; to identify those people most likely to be affected by the Proposed Development regarding health inequality; to identify measures to enhance the positive impacts and mitigate any negative effects of the Proposed Development on public health, and to establish responsibilities for delivering and monitoring these impacts.

10.2. The authors of this Chapter have the following qualifications:

Technical Competence in Buro Happold		
	Lead Author	Reviewer
Name	Monica Laucas	Werner van Zyl
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	BSc Urban Sociology, MSc Local Economic Development	BSc Town and Regional Planning, MSc Green Economy
Does the practitioner hold any IEMA qualification?	n/a	Yes
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	6	21
Number of EIA's delivered to date	15	20+

Assumptions and Limitations

10.3. Limitations include:

- Buro Happold are unable to assess the significance and therefore the methodology is different to the other ES Chapters.
- The baseline conditions may change over time and this could influence the findings of the assessment, and could lead to the findings suffering from statistical time lag.

10.4. Assumptions include:

- The residential unit occupancy is based on assumptions around size and tenure. This is used to calculate the additional demand on healthcare services and open spaces.

10.5. Given the lack of clear industry recognised methodology in the assessment of health effects in EIA, particularly in respect of significance, the assessment presented in the Human Health ES chapter will be

qualitative and will be based on the framework provided by the HUDU/NHS Planning for Health Rapid HIA Toolkit and serves as an EIA assessment.

Relevant Legislation, Policy and Guidance

National Policy

National Planning Policy Framework (NPPF, MHCLG, 2024)

10.6. The NPPF was first published in March 2012 and has had several revisions and updates before the latest revision, published in December 2024 (MHCLG, 2023). It sets out the Government's economic, environmental, and social planning policies for England. The social objectives include supporting "strong, vibrant and healthy communities." These policies outline the Government's vision of sustainable development, which should be interpreted and applied locally to meet local and community aspirations.

10.7. Chapter 8 of the framework, 'Promoting healthy and safe communities', expands on the social objective, setting out the requirement that planning policies and decisions should aim to provide healthy, inclusive, and safe places which:

- Promote social interactions, including opportunities for meetings between people;
- Are safe and accessible such that crime and disorder, and the fear of crime, do not undermine the equality of life or community cohesion;
- Enable and support healthy lives, through both promoting good health and preventing ill-health , especially where this would address local health and well-being needs, for example through the provision of safe and accessible green infrastructure or layouts that encourage walking or cycling.

10.8. Chapter 9, 'Providing sustainable transport', outlines support for developments in sustainable locations, reducing congestion and emissions, and improving air quality and public health.

10.9. Chapter 12, 'Achieving well-designed places', describes the standards of good design, including the use of design measures that can promote safe, inclusive and accessible places and thereby improve health and wellbeing. Good design includes, for example, measures that mitigate and minimise light, noise and air pollution.

The 25 Year Environment Plan (HM Government, 2018)

10.10. The environmental plan sets goals for improving the environment within the next 25 years as well as helping the natural world regain and retain good health (HM Government, 2018). The plan has six key targets it aims to achieve with its policies:

- Clear air;
- Clean and plentiful water;
- Thriving plants and wildlife;
- A reduced risk of harm from environment hazards such as flooding and drought;
- Using resources from nature more sustainably and efficiently; and
- Enhance beauty, heritage, and engagement with the natural environment.

10.11. Chapter 1 of the Environment Plan, 'Using and managing land sustainably', lists policies to alter land management such that the benefits of the environment can be secured and enhanced for the future. Policy 1

states that developers should "embed an 'environmental net gain' principle for development, including housing and infrastructure".

10.12. Chapter 3 addresses 'Connecting people with the environment to improve health and wellbeing'. Relevant policies within this chapter include improving health and wellbeing outcomes through green spaces, such as using environmental therapy in mental health services, and 'greening' towns and cities through green infrastructure and planting more trees.

Health Equity in England: The Marmot Review 10 Years On (2020)

10.13. The Marmot Review (2010) argues that serious avoidable health inequalities exist across England and shows these inequalities to be determined by a wide range of socio-economic factors (Institute of Health Equity, 2010). Health is linked to both individuals and communities. The following policy objectives are identified:

- "Give every child the best start in life;
- Enable all children, young people and adults to maximise their capabilities and have control over their lives;
- Create fair employment and good work for all;
- Ensure a healthy standard of living for all;
- Create and develop healthy and sustainable places and communities; and
- Strengthen the role and impact of ill health prevention."

10.14. Based on historical data, the Marmot Review argues that economic growth without a reduction in inequality will not result in better health. Policies should not be targeted to only helping those with the poorest health, but also to reduce overall inequalities in health.

10.15. It is further argued that improving health results in economic benefits. The report also links health equality to promoting environmental sustainability as the poorest people in society are disproportionately affected by the adverse impacts of climate change.

10.16. The Marmot Review 10 Years On report published in February 2020, strengthens the argument provided in the Marmot Review, showing that health inequalities in England are increasing (Institute of Health Equity, 2020a). Social and ethnic inequalities in health should be addressed to ensure better health outcomes for all. The report makes the case for a multi-disciplinary approach to achieve a reduction in health inequalities, which integrates health policies with housing, economic development and transport policies.

Build Back Fairer: The COVID-19 Marmot Review (2020)

10.17. An update to the Marmot Review 10 Years on Report, Build Back Fairer: The COVID-19 Marmot Review (Institute of Health Equity, 2020b) was published in December 2020 to investigate how the pandemic has affected health inequalities in England. The COVID-19 pandemic has exposed and amplified the inequalities highlighted in the Marmot Review 10 Years on Report. The report highlights that the economic harm caused by measures to control the virus may cause further damage to health and widening of health inequalities.

Public Health England (PHE, now OHID) Strategy (2020-2025)

10.18. This strategy sets out Public Health England's priorities for the next five years and how it will work to protect and improve the public's health. 10 key priorities have been identified in the strategy, and include:

- Priority 3: "Creating cleaner air – develop and share advice on how best to reduce air pollution levels and people's exposure to polluted air."

- Priority 5: “Best start in life – work to improve the health of babies, children and their families to enable a happy healthy childhood and provide the foundations of good health into adult life.”

10.19. The importance of working towards a fairer society has been outlined, which means providing the foundations for everyone to have good physical and mental health. By investing in early years, it can offer good value for money and can ensure equality from an early stage, where most inequalities in health often begin.

Sub-Regional Planning Policy

Greater Manchester Joint Development Plan (adopted March 2024)

10.20. The Places for Everyone Plan was written in 2021 and took effect and became part of statutory development plan in March 2024. The Plan is a long-term plan for nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. Policy JP-P6 related to health and outlines the following:

- To help to tackle health inequality, new developments will be required, as far as practicable, to: maximise its positive contribution to health and wellbeing; support healthy lifestyles; and be supported by a Health Impact Assessment for all developments that require an Environmental Impact Assessment;

- Where appropriate, the provision of new or improved health facilities as part of new development, proportionate to the additional demand they would generate;

- Enabling and continued enhancement and successful operation of hospitals; and

- Facilitating greater integration of health and social care, and the provision of integrated wellness hubs, including the co-location of health, community and wellness services.

10.21. Policy JP-P7 relates to sport and recreation to ensure a network of high quality and accessible sports and recreation facilities will be protected and enhanced, supporting greater levels of activity for all ages, which will have positive health impact.

Greater Manchester Strategy 2021-2031 (GMCA, 2021)

10.22. This strategy sets out the long-term vision and priorities for the Greater Manchester area. It outlines the region’s ambitions and objectives across various domains, including the economy, environment, transport, housing, health, and social issues.

10.23. One key objective from the Strategy is about “A fairer Greater Manchester: addressing inequalities and improving wellbeing for all”. The strategy recognises that inequalities across Manchester have worsened since the pandemic. Covid mortality rates are also 25% higher in Manchester than in England as a whole, and mortality rates in deprive areas of Manchester are 2.3 times higher than areas that aren’t deprived in Manchester.

10.24. The strategy also recognises that changing demographics and an ageing population will present major challenges to improving population health and the need for significant innovation to transform the health and social care system. The strategy aims to tackle inequalities, including the widening gap in healthy life expectancy between areas within Manchester. The strategy aims to ensure easy access to all residents to high quality culture, outdoor, sport and leisure opportunities, which will bring significant health benefits for the population of Manchester. Through the strategy, a new Integrated Care System and an Integrated Care Board are being delivered which will replace the current Health and Social Care Partnership and provide a new delivery structure for health and care systems across Manchester.

Taking charge of our Health and Social Care in Greater Manchester (GMCA, 2015)

10.25. The aim of this vision was to deliver the greatest and fastest possible improvement to health and well-being for the population of Manchester, from 2015-2021. In April 2019, a review was done on the progress made so far, and what should be delivered over the next five years to improve health (GMCA, 2022).

10.26. Core objectives outlined in the vision are:

- "Transform the health and social care system to help more people stay well and take better care of those who are ill;
- Align our health and social care system to wider public services such as education, skills, work and housing;
- Create a financially balanced and sustainable system; and
- Make sure our services are clinically safe throughout"

Local Policy

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

10.27. The Manchester Core Strategy document, also known as the Core Strategy Development Plan Document (DPD), is a key planning document that sets out the long-term spatial vision and strategic policies for the City of Manchester. It provides a framework for guiding development and shaping the city's growth and regeneration. The document is prepared by Manchester City Council and is based on extensive research, consultation, and analysis of the city's needs and aspirations. It covers a wide range of planning related topics, including land use, housing, employment, transportations, community facilities, and the environment. The Core Strategy was updated following the adoption of Places for Everyone (PfE) Joint Development Plan in March 2024. Some of the Core Strategy policies have been replaced by PfE policies.

10.28. Policy SP1 outlines spatial principles to guide strategic development in Manchester. The core development principles that should be followed state that developments in all parts of the city should make a positive contribution to neighbourhoods of choice including making a positive contribution to the health, safety, and wellbeing of residents, and considering the needs of all members regardless of any protected characteristics.

10.29. In accordance with policy EC1, employment and economic growth in Manchester, the Council will support significant contributors to economic growth and productivity, which includes health.

10.30. Policy H10 outlines guidelines for housing developments for people with additional support needs. In accordance with this, proposals for accommodation for people with additional support needs will be supported where it will contribute to the vitality and viability of the neighbourhood, and where there would not be a disproportionate stress on local infrastructure, including health facilities.

10.31. In accordance with Policy T2, outlining transport policy for accessible areas of opportunity, developments should be strategically located so there is easy access to services by walking, cycling, and public transport. This is important to connect residents to jobs, health services, leisure, and open space.

10.32. Policy EN4 is to reduce CO2 emissions by enabling low and zero carbon development. The aim is to reduce fuel poverty, and decouple growth in the economy, growth in CO2 emissions, and rising fossil fuel prices. Measures include taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities.

10.33. In accordance with Policy EN9, new developments will be expected to maintain existing green infrastructure in terms of quantity, quality, and multiple function. The Council will encourage developers to enhance the

quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to and between areas of green infrastructure.

10.34. Policies EN10 and EN11, are for safeguarding and improving, and creating new, open space, sport and recreation facilities. The aim is to improve the standards, and provide a network of diverse, multi-functional open spaces, while also allowing better links for disabled people, pedestrians and cyclists across and between sites.

10.35. Policy T1 is to deliver a sustainable, high quality, integrated transport system to encourage modal shift away from car travel to public transport, cycling and walking, to support the needs of residents and businesses and to prepare for carbon free modes of transport. This includes improving access to transport services and facilities to enable disabled people and people with mobility impairments to participate fully in public life, improving pedestrian routes and the pedestrian environment, and improving and developing Manchester's cycle network.

10.36. Policy DM1 stipulates that all developments should have regard to specific issues. In regard to human health, this includes: accessibility, ensuring buildings and neighbourhoods are fully accessible to disabled people, access to new development by sustainable transport modes; community safety and crime prevention; design for health; adequacy of internal accommodation and external amenity space; and green infrastructure including open space, both public and private.

National Guidance

Planning Practice Guidance: Healthy and Safe Communities (MHCLG, 2019)

10.37. The 'Healthy and safe communities' guidance was published in 2014 and last updated in 2019. It sets out guidance on promoting healthy and safe communities (MHCLG, 2019a). The guidance considers planning and health together in two ways: "in terms of creating environments that support and encourage healthy lifestyles, and in terms of identifying and securing the facilities needed for primary, secondary and tertiary care, and the wider health and care system (taking into account the changing needs of the population)".

10.38. The guide defines a healthy place as *"one which supports and promotes healthy behaviours and environments and a reduction in health inequalities for people of all ages. It will provide the community with opportunities to improve their physical and mental health, and support community engagement and wellbeing."*

Spatial Planning for Health (PHE, 2017)

10.39. This report 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:

- Neighbourhood design: the design of a neighbourhood can contribute to the health and well-being of the people living there. Several aspects of neighbourhood design (walkability and mixed land use) can also maximise opportunities for social engagement and active travel. Neighbourhood design can impact our day-to-day decisions and therefore have a significant role in shaping our health behaviours.

- Housing: housing is a basic human right and the quality and affordability of houses can determine the health status of residents. It is estimated that 20% of the UK's housing stock does not meet decent home standards and that the cost to the NHS of poor quality housing is £2.5 billion per annum. Living in good quality and affordable housing is associated with numerous positive health outcomes for the general population and those from vulnerable groups.

- Food environment: The food environment plays an important role in promoting a healthy diet, but this is a complex system influenced and determined by a series of factors, including a person's proximity to food retail outlets and the type of food available. Vulnerable groups, including those on

a low income, children, young people, those who are overweight or obese, and those of certain ethnicities, are less likely to achieve a healthy and balanced diet.

- Natural and sustainable environments: there is a very significant and strong body of evidence linking contact and exposure to the natural environment with improved health and wellbeing.

- Transport: transportation plays an important role in supporting daily activities. Active travel (cycling, walking and use of public transport) can increase physical activity levels and improve physical and mental wellbeing. Prioritisation of active travel can also reduce over reliance on motorised transport, contributing to improved air quality and a reduction in road injuries.

Health Impact Assessment in Spatial Planning (PHE, 2020)

10.40. This document 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. It identifies eight categories of health and wellbeing outcomes in planning: reduce health inequalities; improve mental health and wellbeing; improve diet and weight; improve musculoskeletal health; improve respiratory health; improve cardiovascular health; protect environmental health; and provide access to health and care infrastructure and services. The guide is mostly associated with the plan-making and associated strategic environmental assessment processes. It does include an annex on integrating HIA in EIA and this does confirm the importance of a proportionate and justified approach.

10.41. Effective Scoping of Human Health in Environmental Impact Assessment (Institute of Environmental Management and Assessment (IEMA), 2022)

10.42. The guidance provides a framework that supports a proportionate approach that can apply to all scales and sectors of EIA. It confirms that a wider determinants approach should be taken by EIA scoping, and for health this means deciding on the relevant health issues that are likely and have the potential to significantly affect population health.

10.43. An EIA health chapter is required when either other EIA technical topics have been scoped in to assess likely and potential significant effects on human receptors, or there is a likely significant change for the health of a group of individuals due to the proposed project and in a wider determinant of health not covered by other technical EIA topics.

Other Relevant Policy & Strategy

Manchester Population Health Plan 2018-2027 (MCC, 2018)

10.44. The Manchester Population Health Plan sets out the vision for health in the area, to be achieved by 2027. The aim is for residents to be living longer, healthier lives. The five priority areas are:

- “Improving outcomes in the first 1,000 days of a child’s life;

- Strengthening the positive impact of work on health;

- Supporting people, households, and communities to be socially connected and make changes that matter to them;

- Creating an age-friendly city that promotes good health and wellbeing for people in mid and later life;

- Taking action on preventable early deaths.”

10.45. In accordance with the third priority area, the Council has outlined the importance of having better housing with adequate insulation, which will help keep people well in the winter and prevent physical illness. The

importance of having access to space that allows us to be physically active has been identified, as well as the importance of being exposed to good-quality air. The objectives in line with this priority area include improving the local environment, providing easier opportunities for people to find local solutions for better health and wellbeing, and providing warm, safe homes for children, families and older people.

Building Back Fairer: Tackling Health Inequalities in Manchester 2022 – 2027 (MCC, 2022a)

10.46. The framework sets out the interactivities between the eight identified themes and the four ways that community groups and trusted organisations need to be involved in order to tackle health inequality across Manchester. The eight themes are:

- Poverty, income and debt: poverty is associated with worse long-term physical and mental health, and lower than average life expectancy and Manchester is one of the most deprived local authorities in England. To lift low-income households out of poverty and debt, Manchester will aim to provide a real living wage to more of its workers, and the Council will continue to mitigate against and reduce poverty with extensive support for residents, not just tackling the causes and symptoms of poverty, but making sure families join in culture and leisure that improves quality of life.

- Early years, children and young people: a solid foundation in childhood is essential for the best life chances. 1 in 3 children in Manchester are not school-ready when they start reception, and almost 40% of children in Manchester are eligible for free school meals. Manchester City Council will address this by strengthening the early years offer, implementing additional child development reviews at 18 months, bring in measures to improve school attendance, improve services for families and children who have special educational needs and disabilities, and strengthen the mental health offer schools need.

- Work and employment: being in a good job is usually protective of health. 19,900 residents in Manchester aren't in work due to long-term sickness, which is 5% of the entire working age population. Manchester City Council will work with Greater Manchester Combined Authority to promote the Good Employment Charter and increase sign ups of both members and supporters from employers across the city. New developments will seek to drive and deliver local recruitment and the Manchester Foundation Trust will deliver a recruitment campaign. The Manchester Adult Education Plan, provides an offer linked heavily to skills for employment and entry level skills needed to progress to higher education.

- Homes and housing: poor quality housing is harmful to physical and mental health and widens health inequalities. Many of Manchester's residents earn well below average incomes and too many remain on the housing register for too long. The supply of new affordable housing is a challenge because of the availability of land supply and cost challenges. The Council aims to reduce rough sleeping and homelessness by maximizing opportunities to acquire and refurbish older properties alongside supplying new affordable homes.

- Systemic and structural racism and discrimination: communities that experience racial inequality, and other marginalized groups, are more likely to experience socioeconomic disadvantage. The ethnic diversity of Manchester's population is increasing. Manchester City Council aims to improve the experience and outcomes of communities experiencing racial inequality and this will be done by developing and delivering a comprehensive educational programme for tackling structural and systemic discrimination and racism, to be shared across Manchester, and will support and educate the workforce to improve their knowledge around protected characteristics.

- Places, transport and climate change: Places that provide the conditions for good health have good air quality, transport links and easy access to green space. Neighbourhoods in Manchester with the worst transport links and access to green spaces have some of the poorest health outcomes. The Council aims to map risk and vulnerability to climate change and health inequalities to better understand their distribution and demonstrate the impact of climate change on health in Manchester. The aim is also to improve the quality and connectivity of walking and cycling routes

across the city, and the Council will monitor and evaluate actions to improve air quality and the resulting health outcomes.

- Communities and power: having connected communities, where people have a greater sense of control over their daily lives, are good for health and wellbeing and improving health equity. Organisations across Manchester are working to support people of all ages and backgrounds, focusing on physical activity, sports and leisure, community development, and health and wellbeing. However, many organisations are struggling to meet demand for support as the needs within communities increase, particularly around food poverty, homelessness and support for refugees and asylum seekers.

- Prevention of ill health & preventable deaths: Manchester Local Care Organisation will work with partners, including the city's local networks to primary care provides, to embed a 'population health management' approach, focusing on people living with or at risk of heart disease, diabetes, lung disease or cancer.

Our Manchester Strategy – Forward to 2025 (MCC, 2020)

10.47. The Strategy sets out the future envisaged for the City. The priorities for Manchester City were reset following wide consultation with over 3,800 people during 2020, where they outlined what Manchester means to them, what improvements they have seen, the challenges they face, and what they want to see in the future. Communities said they wanted to see a renewed focus on six key themes: young people; the economy; health; housing; environment; and infrastructure.

10.48. With regards to health, people wanted to see more focus on tackling physical and mental inequalities and ensuring fair access to integrated services.

Assessing the Outcomes for Health and Wellbeing

What is a HIA?

10.49. The 'Healthy and Safe Communities' guidance describes the Health Impact Assessment (HIA) as a useful tool to assess and address the impacts of development proposals (MHCLG, 2019). The London Plan refers to the HIA as "a systematic framework to identify the potential impacts of a development proposal, policy or plan on the health and wellbeing of the population" and as a method to highlight any potential health inequalities that may arise from the Project.

10.50. The HIA has two overarching purposes:

- Assess the potential impact of a programme and/or development on a) population health and b) the distribution of population health;

- Recommend ways to mitigate these impacts, by preventing negative impacts while promoting positive impacts.

10.51. There are three types of HIA:

- A 'full' HIA, which involves a comprehensive analysis of all potential health and wellbeing impacts;

- A 'rapid' HIA, which is a less resource-intensive process and involves a more focused investigation of health impacts;

- A 'desktop' HIA, which draws on existing knowledge and evidence, often using published checklists (NHS, 2019).

10.52. In each case, it is recommended that the HIA is started as early as possible. Comprehensive and Rapid HIAs involve consultation with key stakeholders and evidence appraisal, however, the latter involves moderate

levels of both. A desktop HIA does not usually involve stakeholder consultation, and only uses evidence that is immediately available via online searches.

10.53. For the purpose of this report, due to the diverse nature of health determinants and health outcomes which are to be assessed, it is not possible to quantify the severity or extent of the effects that give rise to these health impacts. Therefore, the Rapid HIA Tool produced by the NHS Healthy Urban Development Unit (HUDU) has been selected as the most appropriate method to adequately assess the health impacts and outcomes of the Project (NHS, 2019a) as part of this ES.

10.54. Within a population there can also be health inequalities. The WHO defines these as "differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes" (WHO, 2018).

10.55. It is proposed that, for general populations, mental health can be thought of as a single spectrum (Figure 10.1), ranging from very low wellbeing, characterised by common mental disorders such as depression and anxiety, to high wellbeing (or 'mental flourishing'). The majority of people within the population are thought to have moderate levels of wellbeing (Huppert, 2014).

The Determinants of Health

10.56. The environment in which we live is a major determinant of health and wellbeing. Modern town planning originated in response to basic health problems, however, it grew largely separate from health over time (Corburn, 2004). Recent concerns about levels of physical activity, obesity, asthma and increasing environmental inequality has put planning back on the health agenda.

10.57. It is now widely acknowledged that an individual's or community's health and wellbeing is not only determined by the availability of healthcare services but also the quality of these services. A range of economic, social, psychological, and environmental influences play an equally important role. The links between health and settlements are often indirect and complex. These 'wider determinants of health' are best illustrated by Barton and Grant's Health Map (Barton & Grant, 2006).

10.58. People are placed at the centre of the map, reflecting the focus on health. All the different facets of a human settlement are reflected in the series of concentric circles which move through social, economic and environmental variables. The settlement is set within its bioregion and the global ecosystem on which it ultimately depends. Broader cultural, economic and political factors which impact on health and wellbeing are represented. The urban development process, and the design and planning of settlements, reside in one sphere – the built environment, which is where planners can see their role in determining health outcomes. In direct terms, they can affect the quality of that environment. The importance of the model is that it can be used to analyse the knock-on effects which are often much more significant in terms of health (Barton & Grant, 2006).

Assessment Methodology and Significance Criteria

Methodology

10.59. Buro Happold has used the assessment matrix set out within the Rapid HIA Tool, taking into account published data and information from a variety of sources, and applying professional judgement informed by relevant guidance to evaluate the health impacts of the scheme.

10.60. This HIA used to prepare this ES Chapter has considered how the Proposed Development may influence the physical and mental health and wellbeing of local residents and inhabitants of the proposed scheme considering the key determinants of health.

Rapid HIA Workshop Tool

10.61. The Healthy Urban Development Unit (HUDU) was created by the GLA in partnership with the NHS with the aim of maximising the opportunities to improve health and wellbeing and to narrow health inequalities. The

unit's work includes assessing health and wellbeing impacts of new developments, and centres on the production of a HUDU 'checklist' of considerations to apply at the planning stage for new developments. Each item on the list is informed by a science base, good practice, and industry standards for health and wellbeing outcomes.

10.62. The Planning for Health 'Rapid HIA Tool' is produced by the HUDU to assess the health impacts of new developments, ensuring that the planning proposals have an overall positive rather than a negative impact, on health.

10.63. The 'Rapid HIA Tool' suggests the evaluation of potential health impacts under eleven topics or broad determinants, which include:

- Housing and design affordability
- Access to health and social care services and other social infrastructure
- Access to open space and nature
- Air quality, noise and neighbourhood amenity
- Accessibility and active travel
- Crime reduction and community safety
- Access to healthy food
- Social cohesion and inclusive design
- Access to work and training
- Minimising the use of resources
- Climate change

10.64. The assessment considers the potential consequences for health and wellbeing from the construction and operation of the proposed scheme and draws information from the following reports:

- Stage 2 Report – Mayfield Phase 1b (Residential)
- Air Quality ES Chapter 15
- Noise ES Chapter 16
- Transport ES Chapter 18
- Socio-economics ES Chapter 11
- Crime Impact Statement
- Design and Access Statements

Scenarios Tested

10.65. Construction of the Proposed Development will be provided across two phases, as outlined in Chapter 5. The phasing outlined is unlikely to affect the human health assessment; therefore, human health impacts will not be assessed for individual phases and will be assessed for the overall construction period (Scenario 3).

10.66. Operational effects will be assessed once the Proposed Development is fully operational (Scenario 4). While some residents are likely to move into the Proposed Development before this date, this is when the full operation impacts will be experienced.

The Study Area

10.67. The geographical extent of the assessed impacts depends on the type of effect and the receptors. Effects will be considered during the construction phase and once the scheme is complete and occupied.

Source of Effect

10.68. The approach to assessing the human health effects of the Proposed Development is based on a socio-environmental model of health. The model defines health broadly and recognises that health and well-being are attributable, not just to health service intervention, but to a wide set of inter-related factors such as lifestyle, employment, education, and income.

10.69. There is no definitive guidance on how to assess human health within an ES. Best practice principles are provided in NHS England's/Healthy Urban Development Unit's (HUDU) Rapid HIA Toolkit (Fourth Edition) 2019 and will form the basis for the approach to assessing impacts on health and wellbeing.

10.70. The HUDU Planning for Health Rapid HIA Tool, Fourth Edition (October 2019) recommends the assessment of potential health impacts under eleven topics or broad determinants. These are listed in the table below, together with the key potential health impacts associated with each and the relevance to the Proposed Development.

Table 10.1: HUDU Health Determinants and Relevance to the Proposed Development

Health determinant	Potential health impact	Relevance to the Proposed Development
Housing quality and design	Access to adequate housing is important for health and wellbeing, and environmental factors such as overcrowding and sanitation in buildings have been identified as causing illness.	The Proposed Development will introduce new housing to the local area.
Access to healthcare services and other social infrastructure	Accessibility is important in terms of transport and access into a building, and the range and quality of services offers. Access to good quality health and social care, education, and community facilities has a direct positive effect on human health.	The Proposed Development may alter access to healthcare services or other social infrastructure as it may impact on demand, physical access or land take for such facilities.
Access to open space and nature	Providing secure, convenient and attractive open/green space can lead to more physical activity and reduce levels of heart disease, strokes and other ill-health problems that are associated with both sedentary occupations and stressful lifestyles. There is growing evidence that access to parks and open spaces and nature can help to maintain or improve mental health.	The Proposed Development is close to open spaces and will therefore have an impact on the health of existing and new residents
Air quality, noise and neighbourhood amenity	The quality of the local environment can have a significant impact on physical and mental health. Pollution from construction can lead to poor air quality which can lead to health conditions. Noise pollution can have a detrimental impact on health resulting in sleep disturbance and other effects.	Findings from other topics – air quality, noise & vibration, and climate change will be reviewed to assess the impact on health

Health determinant	Potential health impact	Relevance to the Proposed Development
Accessibility and active travel	Convenient access to services and facilities encourages greater opportunities for social interaction. Accessible buildings encourage all groups, including older people and people with a disability, to use them. Discouraging car use and providing opportunities for walking and cycling can increase physical activity and provide health benefits.	The Proposed Development will introduce new housing and associated infrastructure. As such, it may have an impact on accessibility and active travel in the area.
Crime reduction and community safety	Thoughtful planning and urban design that promotes natural surveillance and social interaction can help to reduce crime and the 'fear of crime', both of which impact on the mental wellbeing of residents.	The Proposed Development will introduce new housing to the local area. As such, the Proposed Development is expected to have an impact on crime and community safety.
Access to healthy food	Access to healthy and nutritious food can improve diet and prevent chronic diseases related to obesity. Opportunities to grow and purchase local healthy food and limiting concentrations of hot food takeaways can change eating behaviour and improve physical and mental health	The Proposed Development may alter access to healthy food as it may impact on demand, physical access or land take for such services
Access to work and training	Employment and income is a key determinant of health and wellbeing. Unemployment generally leads to poverty, illness and a reduction in personal and social esteem. Work aids recovery from physical and mental illnesses.	The Proposed Development may support local employment opportunities, providing access to jobs and training for the local workforce during the construction phase and employment opportunities in the commercial space once operational
Social cohesion and neighbourhoods	Friendship and supportive networks in a community can help to reduce depression and levels of chronic illness as well as speed recovery after illness and improve wellbeing. Fragmentation of social structures can lead to communities demarcated by socio-economic status, age and/or ethnicity, which can lead to isolation, insecurity and a lack of cohesion.	The Proposed Development may affect social cohesion and neighbourhoods as it may impact accessibility of facilities and composition of communities.
Minimising the use of resources	Reducing or minimising waste including disposal, processes for construction as well as encouraging recycling at all levels can improve human health directly and indirectly by minimising environmental impact, such as air pollution.	Construction activities as well as creation of waste during operation of the Proposed Development may have an impact on resources
Climate change	There is a clear link between climate change and health. Planning is at the forefront of both trying to reduce carbon emissions and to adapt urban environments to cope with higher temperatures, more uncertain rainfall, and more extreme weather events and their impacts such as flooding. Poorly designed homes can lead to fuel poverty in winter	The Proposed Development may result in changes to the climate and environment of the Site. Findings from other topics – air quality, noise and vibration and climate change will be

Health determinant	Potential health impact	Relevance to the Proposed Development
	and overheating in summer contributing to excess winter and summer deaths.	assessed to determine the impact on health.

Significance Criteria

10.71. The human health assessment is a qualitative rather than quantitative assessment due to the diverse nature of health determinants and health outcomes being assessed. It is not possible to quantify the severity or extent of the effects. The methodology set out in the HUDU Toolkit does not include a temporal scale of considerations of the effects. It does not provide a methodology for assessing the significance of outcomes or effects and as such, none is proposed here. Instead, the potential health effects during construction and operation will be described using the criteria provided in the HUDU Toolkit, outlined below.

Table 10.2: Impact categories for health impact assessment

Impact Category	Impact Symbol	Description
Positive	+	A beneficial impact is identified
Neutral	0	No discernible health impact is identified
Negative	-	An adverse impact is identified
Uncertain	?	Where uncertainty exists as to the overall impact

Baseline Conditions

10.72. To understand the potential for health impacts, it is important to establish the assessment baseline. This section focuses on the health determinants in the area surrounding the EIA Site in order to provide a demographic context of the existing community locally. It then considers the baseline in terms of access to infrastructure and conditions relevant to the health of the potential occupants of the Proposed Development.

Population and Health Profile

10.73. The population of Manchester was 579,917 in 2023, representing a 13.5% increase from the population in 2013 (ONS, 2023). The population of Manchester grew proportionately more than that in the North West region and England between 2013 and 2023, which both saw growth of 7.0%. ONS population projections estimate that the population of Manchester will be 593,497 by 2040, representing a 2.3% increase from the 2023 figure (ONS, 2020).

10.74. The proportion of the population of working age (aged 16-64) in Manchester was 70.5% in 2022, higher than the rate in the North West and England, which were 62.5% and 62.9% respectively. This figure is projected to remain fairly consistent, falling only to 69.3% in Manchester by 2040.

10.75. In 2023, the economic activity rate of those aged 16-64 was 74.5% in Manchester, which is lower than both the regional and national levels, which were 76.7% and 79.0% respectively. This level has increased slightly in Manchester however, and in 2020 the economic activity rate was 73.3% (ONS, 2024). Employment rate of those aged 16-64 in Manchester lagged significantly behind the regional and national levels in 2020, where it was just 67.0%. This was 7 percentage points (pp) behind the regional level, and 8.6pp behind the national level. However, Manchester has closed this gap, and in 2023, employment rate of the working age

population had increased to 71.4%, compared to a regional and national level of 73.8% and 76.0% respectively.

10.76. According to the ONS Census 2021, Manchester has a population density of 4772.7 (measured by number of usual residents per square kilometre. This is significantly higher than the population density across the North West, which is just 525.8, and England which is 433.5 (ONS, 2021). Of the 331 local authorities across the UK, Manchester ranks highly, being the 29th most densely populated local authority. The most densely populated local authorities above Manchester mainly fall within London, and Manchester is the most densely populated local authority in the North West.

10.77. Data from the 2021 Census shows that the ethnic minority population forms 51.4% of the population in Manchester (ONS, 2021). This is a significant increase from the proportion recorded in 2011, where 40.8% of the population were from ethnic minority backgrounds (ONS, 2011). The proportion of the population from an ethnic minority is much higher in Manchester compared to the regional level, where only 18.8% of the population are from an ethnic minority (ONS, 2021). The largest minority ethnic group was Asian, Asian British or Asian Welsh, in both Manchester and the North West, comprising 20.9% and 8.4% of the population respectively; of this, the Pakistani group is the largest, representing 11.9% and 4.1% of the population respectively.

10.78. In 2023, 60.3% of the population aged 16-64 in Manchester had a degree level qualification or above (Regulated Qualifications Framework (RQF) Level 4+). This is much higher than the regional level, which was 44.4%. The proportion of those aged 16-64 with no qualifications was 4.6% in Manchester, which is lower than the regional level, at 6.7% (ONS, 2023).

10.79. According to the 2021 Census, the proportion of Manchester's population that have very good health is 51% and 31% have good health. This is broadly in line with the North West where the levels are 48% and 33% respectively, and England which is 48% and 34%. The proportion of the population that has bad or very bad health is just 6%, which is the same level as the North West and only slightly higher than the national average of 5%.

10.80. The life expectancy for males in Manchester is 75.7, which is below the North West life expectancy of 77.7 and below national average of 79.3. Life expectancy for females is 79.9, which is also below the level in the North West, which has a female life expectancy of 81.7, and below the national average of 83.2 (OHID, 2023).

10.81. Child health in Manchester is below the national average in terms of infant mortality rate and prevalence of obesity. Infant mortality rate in Manchester from 2022-2022 was 6.7. This is below the national average of 3.9, and the rate across the North West which was 4.4. The prevalence of obesity among year 6 pupils (aged 10-11 years) is increasing in Manchester and in 2022/23 was at a rate of 29.2%. This is higher than the average across England and the North West, which had rates of 22.7% and 23.8% respectively (OHID, 2023).

10.82. The number of children (under 16s) living in low-income households was 31.1% in Manchester in 2022/23.This is significantly higher than the regional average of 20.5% and the national average of 15.6% (OHID, 2023).

10.83. 5 mortality rate from all causes in Manchester in 2023 was 510.4 per 100,000, which is higher than the regional and national rate, which were 408.1 and 341.6 respectively. Under 75 mortality rate from circulatory diseases and from cancer were also higher in Manchester compared to the North West region and across England. The under 75 mortality rate from circulatory diseases was 112.6 and from cancer was 162.1. The rates in the North West from circulatory diseases and cancer respectively were 93.8 and 134.5, and in England they were 77.4 and 120.8.

Social Determinants

Deprivation and health (MHCLG, 2019)

10.84. The Index of Multiple Deprivation (IMD) is a national dataset published by the Ministry of Housing, Communities & Local Government (MHCLG), which ranks local authorities and lower-level super output areas (LSOAs) in England from most deprived to least deprived. There are seven domains of deprivation, which combine to create the IMD. These domains are: income; employment; education; health; crime; barriers to housing & services; and living environment.

10.85. Manchester ranks poorly on the IMD, being the second most deprived local authority overall in the whole of England in 2019, and 43.3% (122 of 282 LSOAs) of its LSOAs are in the 10% most deprived, up from 41% (115 of 282) in 2015. Manchester was the most deprived local authority in 2015. Manchester performs poorly in terms of health deprivation and crime deprivation, ranking 5th and 1st respectively. However, it performs slightly better for other areas of deprivation, ranking 72nd for education and 55th for employment.

10.86. The site falls within the Piccadilly ward in Manchester and the 055E LSOA. In 2019, this LSOA is in the 30% most deprived across England and is in the 10% most deprived for health, crime, and living environment. However, this LSOA is in the 10% least deprived LSOA for employment and education. This LSOA has seen no improvement overall since 2015, where it was also in the 30% most deprived, but improvements were made in employment and education. Crime deprivation has got worse since 2015, where the LSOA was in the 30% most deprived.

10.87. There are high levels of deprivation across the surrounding area of the site, with the majority of LSOAs to the east of the site being within the 10% most deprived. There is one LSOA directly to the east of the site which is in the 50% least deprived, but all other surrounding LSOAs are in the bottom 50%.

Lifestyle

10.88. Those who have a physically active lifestyle are at a lower risk of cardiovascular disease, coronary heart disease and stroke, compared to those who do not. According to the WHO, adults aged 18-64 should engage in at least 150 minutes of moderate-intensity activity per week (WHO, 2020). Anything above this level of physical activity is negatively correlated with the incidence of non-communicable diseases such as diabetes, obesity, hypertension and mental health disorders.

10.89. In Manchester, 62.1% of adults were considered active (at least 150 minutes of exercise per week), which is comparable with the North West region, and slightly below the average across England which was 63.4% in 2022/23. 10.4% of adults were fairly active (30-149 minutes of exercise per week), which is only slightly below the levels across the North West and England, which were 10.8% and 10.9% respectively. 27.5% of adults in Manchester are inactive (less than 30 minutes of exercise per week), which is comparable to the North West and slightly higher than England, which is 25.7% (Sports England, 2022).

10.90. In 2019/20, 40.2% of young people (aged 5-16) across Manchester were considered active, which was lower than levels across the North West and England, which were 43.3% and 44.9% respectively. Manchester also had a slightly higher proportion of young people who were less active compared to the North West and England.

10.91. Inequalities in active adults across Greater Manchester have been widening for some demographics. Since 2018/19, just one ethnic group has seen levels of inactivity decline – white other, by -2.4%. However, other groups have seen large increases in inactivity, with the most concerning being those from 'Other' or 'Black' backgrounds, where inactivity levels have increased by 18.6% and 16.6% respectively. Across Manchester local authority, the socio-economic inactivity gap has decreased by 1.2%, caused by inactivity increasing by 0.9% among higher socio-economic groups, and decreasing by -0.2% among lower socio-economic groups. However, the gap in inactivity between socio-economic groups still remains at 21.3% (GM, 2020).

10.92. The proportion of adults (18+) in Manchester who are overweight or obese was 63.3% in 2022/23, which is slightly lower than the average across the North West, which was 66.5%. The level across Manchester is also lower than the national average, which was 64.0% (OHID, 2023)

10.93. Smoking is strongly associated with lung cancer (as well as other cancers), chronic obstructive pulmonary disease (COPD) and heart disease. Children are particularly vulnerable to second-hand smoke, which is linked to approximately 300,000 GP consultations and 9,500 hospital admissions each year in the UK. This costs the NHS £23 million annually in the region. (Royal College of Physicians, 2010). Smoking prevalence is high across Manchester, with 17.3% of adults being classed as current smokers 2022. This is higher than the levels across the North West (13.4%), and England (12.7%).

Disability Inequality

10.94. As per the Equality Act 2010, a person is considered to have a disability if they have a self-reported long-standing illness, condition, or impairment that causes difficulty when carrying out day-to-day activities. The proportion of the population of Manchester living with a disability which limits day-to-day activities a lot was 8% in 2021, and disabilities which limit day-to-day activities a little was 9%. These levels are closely comparable with regional and national levels.

10.95. In 2023, the unemployment rate for the working age population (aged 16-64) with a work-limiting disability was 11.7% and for those with a disability as defined by the Equalities Act (EA) was 8.7%. These unemployment levels are higher than regional and national levels. In the North West, unemployment rate for the population with a work-limiting disability was 8.3% and those with an (EA) disability was 6.4%, and for England, the unemployment rates were 7.3% and 5.8% respectively (ONS, 2023).

Housing

10.96. According to the 2021 Census, across Manchester there are a total of 214,732 dwellings. Of these, 65.3% are houses (detached, semi-detached, or terraced), and 28.1% are in a purpose-built block of flats or tenement. The remaining 6.6% are either part of a converted house, part of a converted building, in a commercial building, or in a caravan. 38.0% of all houses are owned, either owned outright, with a mortgage, or with shared ownership. 29.5% are socially rented and 32.3% are privately rented. 0.2% live rent free (ONS, 2021).

10.97. The 2023 Housing Needs Assessment (HNA) for Manchester assesses the size, type and tenue of housing needed up to 2039 for different groups in the community. The assessment focuses on affordable housing, getting the right mix of size and type of housing, housing for older and disabled people, the private rented sector, and self-build and custom housebuilding. The HNA has modelled that there is a need for 3,789 additional units of specialist older persons' accommodation by 2039. The HNA also recommends that 3.6% of new dwellings are built to M4(3) wheelchair accessible standards. A figure of 10,000 affordable housing units was suggested in the Manchester Housing Strategy, which has been confirmed as a realistic target in the HNA (MCC, 2023).

Infrastructure Baseline

Access to healthcare services

10.98. NHS Greater Manchester serves a total of 3,282,643 patients registered across a total of 407 GP practices. There is a total of 2,065 GP FTEs across Greater Manchester, which equates to an average patient list size of 1,589 per FTE GP (NHS Digital, 2024).

10.99. There are four GP practices situated within a 1.5km walking radius from the Proposed Development Site, shown in Table 10.3. All of these GP surgeries have a patient-to-GP ratio of higher than 1,800, the Department for Health (DfH) target of registered patients per FTE GP. However, the majority of the population (75.2%) in the Piccadilly Ward are aged 16-34. On the reasonable assumption that a more elderly patient is more likely to generate higher demand for primary healthcare services, this may alleviate some of the pressure on the surrounding GP practices which have a high patient-to-GP ratio.

Table 10.3: General Practitioners within walking distance (NHS, 2024)

GP Practice	Distance (km)	Registered Patients	FTE GPs	Patients per FTE GP
Vallance Medical	0.5	15,507	1	11,402
Brunswick Medical Practice	0.5	7,941	2	3,593
New Islington Medical Centre	1.0	11,423	3	3,330
The Doc's Surgery	1.1	12,483	4	3,347
Total		**47,354**	**11**	**4,413**

10.100. As of September 2024, all of these practices are accepting new patients.

10.101. The following dentists are within 1.5km of the EIA Site:

- The Vallance Dental Care (0.5km)
- Revive Dental Care Limited (1km)
- MyDentist, Stevenson Square (1.3km)
- New Cross Dental Surgery (1.5km)
- City Centre Dentists (1.5km)

10.102. In addition, the following secondary healthcare providers are situated within 5km of the Proposed Development:

- Several opticians offering NHS sight tests, with the closest located 0.6km away from the EIA Site
- Two sexual health clinics within 1.5km of the EIA Site
- Three locations within 1.5km offering support for drug or alcohol addiction.

10.103. There are five hospitals within 1.5km of the EIA Site, including a children's hospital, an eye hospital, and a dental hospital. Manchester Royal Infirmary is located 1.4km from the EIA Site and is a large NHS Hospital and teaching hospital with a wide range of departments and services offered.

10.104. Greater Manchester Integrated Care Partnership offers a range of services including living with long COVID, mental health support, and vaccinations, among others. The Greater Manchester mental health support hub provides resources for a number of different topics including eating disorders, talking therapy, bereavement, and suicide prevention. There are also a number of telephone numbers and links to external support platforms including SilverCloud, Kooth, Qwell, and the Greater Manchester Bereavement Service. Greater Manchester have also published the Greater Manchester Mental Health and Wellbeing Strategy (GM, 2024).

Open Space

10.105. Manchester City Council last conducted an open space audit in 2009/10, and an updated audit was commissioned in 022, as part of the new Local Plan. The audit identifies that Manchester is home to more than 150 parks and significant areas of semi-natural and amenity open space (MCC, 2009).

10.106. The current provision of open space in Manchester City Centre is 0.95 hectares (ha) per 1,000 population, which is below the recommended standard of 1.9 ha per 1,000 population. Manchester City Centre is characterised by high density housing, predominantly in the form of apartments with no gardens, making the effective provision of green space particularly important (MCC, 2009).

10.107. The Proposed Development is within a reasonable walking distance, as per Manchester City Council's accessibility standards, of four parks, gardens, and outdoor sports facilities. Table 0.5 below shows the parks and open spaces within close proximity to the Proposed Development, and the accessibility standards outlined in the Open Space Audit.

10.108. Mayfield Park was developed as in an earlier phase as part of the Mayfield Strategic Regeneration Framework (SRF), which is now complete and operational. This provides 6 acres of open and play space within walking distance of the EIA Site.

10.109. The 2009 Open Space Audit identifies the local standards for different categories of outdoor space, presented in Table 10.4.

Table 10.4: Surrounding parks and open spaces (MCC, 2009)

Open Space typology	Quality Standard (ha per 1,000 population)	Accessibility Standard	Example and distance from Proposed Development P(m)
City Parks	0.2	15 minute drive	Mayfield Park (0) Pin Mill Brow (450)
Local Parks	0.49	10 minute walk (480)	Ardwick Green Park (275)
Natural and Semi Natural Open Space	1.9	15 minute walk (720) 15 minute drive time (City Centre)	n/a
Amenity Green Space	0.4	10 minute walk (480)	Ardwick Green (300)
Provision for Children	0.027	10 minute walk (480)	Mayfield Park (100)
Provision for young people	0.034	15 minute walk (720)	n/a
Outdoor Sports Facilities	0.98	15 minute walk time (720)	Nicholls Community Football Centre and Power League (450)

Sports and Play Space Facilities

10.110. There are 17 gyms within 2km of the Proposed Development, considered to be a typical walking distance to these types of facilities. Some of the closest gyms (within 1km) are: Gym 72 (Sackville Street); Anytime Fitness Manchester Central (Piccadilly Place); F45 Training (Piccadilly); Bannatyne Health Club (Whitworth Street); Train Urban (Tariff Street); PureGym Manchester Urban Exchange (Great Ancoats Street); Frontline Fit Performance Centre (North Western Street); SoCal Gym (Barlow Place); Sugden Sports Centre (Grosvenor Street); Franks Team Sports Club (Ashton Old Road); and Corner HQ (Hoyle Street).

10.111. These gyms and sports centres provide a range of services including gym space and weights, boxing and other martial arts facilities, swimming pools, sports hall facilities for games including badminton and basketball, football pitches, squash courts, and other sports facilities. In addition, Gartside Gardens has basketball and tennis courts.

10.112. There are a few playgrounds within walking distance of the site. The closest is Mayfield Park, which is roughly 130m from the site.

Social Infrastructure and Community Facilities

10.113. There are 18 primary schools located within walking distance (2km) of the site. These primary schools have a surplus of 201 spaces, but this decreases to a deficit of 110 spaces at a 95% occupancy level, which is the assumed level that should be planned for as per Audit Commission Guidance. There are 13 secondary schools within walking distance of the site (4.5km), which have a surplus of 1,597 spaces, decreasing to 908 spaces at a 95% occupancy level. This indicates that there may not be sufficient capacity in primary schools at the local level, but there is sufficient capacity in secondary schools

10.114. Public libraries across Manchester City Centre are managed by Manchester City Council. There are four public libraries within 2km of the site: Central Library (1.5km); City Library (1.5km); Beswick Library (1.8km); and Miles Platting Community Library (1.8km).

10.115. The two closest community centres are the Ida Kinsey Centre and The Grange Community Resource Centre. The Ida Kinsey Centre offers coffee mornings, clubs, and activities for the local community. The Grange Community Resource Centre offers similar facilities but also provided space for covid vaccinations.

10.116. There are 17 churches within a 1.5km distance from the site. The closest is Brunswick Parish Church which is 600m from the site. In addition, there are eight mosques within 1.5km of the site. The nearest synagogue is 1.6km away from the site, with a larger cluster or synagogues located north of the city centre, about 4.5km from the site.

Access to Work

10.117. 74.5% of the working age population (16-64) in Manchester were economically active in 2023, which is lower than the rate across the North West and England, which were 76.7% and 79.0% respectively. This has however increased in Manchester since 2020, where the economic activity rate was 73.3%. Unemployment has fallen considerably in Manchester from 2020 to 2023, falling from 8.6% to 4.1%, but it still remains higher than across the North West and England, where unemployment is 3.9% and 3.8% respectively.

Access to Healthy Food

10.118. There are several supermarkets and convenience stores within an easy walking distance of the Proposed Development. The nearest is a Sainsbury's Local located roughly 560m from the site. The nearest larger supermarket is Aldi, located 850m away from the site.

Accessibility and Transport

10.119. There is currently no pedestrian access to the Site, but pedestrian facilities in the surrounding areas are generally of good quality. The footway along the south of the Site, adjacent to Mancunian Way is around 3.5m wide. North of the Site is Mayfield Park which provides a network of pedestrian routes and a connection north to Piccadilly Station via Baring Street. Footways on Hoyle Street, to the east of the Site are around 2m wide but are uneven and have step changes.

10.120. There are no cycle routes immediately adjacent to the Site but there are several routes nearby. The National Cycle Network (NCN) route 66 is to the north of the Site and there are local routes nearby. To the east of the Site off Pin Mill Brow there is access to a local route that roughly follows the banks of the River Medlock. North of the Site there is a shared bus/taxi/cycle lane that routes along part of Fairfield Street and towards

the A6. To the west of the Site there is a segregated two-way cycleway on Oxford Road connecting the city centre to the north and Didsbury to the south. There are cycle stands in the public realm in Mayfield Park and there is the 'Beryl Bikes' cycle hire scheme operating in Greater Manchester with the nearest stand around 500m from the Site.

10.121. The Site has excellent public transport access, scoring 8 on the Greater Manchester Accessibility Level (GMAL) scale, which is the highest level of accessibility. The Site is approximately 500m from Manchester Piccadilly train station and the associated Piccadilly tram stop, and there are numerous bus stops within 400m of the Site.

10.122. There are various parking restrictions on the roads around the Site, including, single yellow lines, and no parking zones, and parking restrictions. Parking is limited around the Site, with a total of 79 spaces coasting £5 to park from 8:00am to 17:00pm. As part of Mayfield Phase 1a which has been approved, a 488-space car park will be constructed. There are two rapid EV charging points approximately 600m from the Site, and a high density of slow charging points surrounding Manchester Piccadilly Station.

Air Quality

10.123. An Air Quality Management Area (AQMA) has been declared across Manchester city centre and surrounding arterial roads owing to consistent exceedances of the AQO (air quality objectives) for the annual average concentration of NO2. These exceedances are predominantly due to pollution from road transport, which accounts for 65% of the total NO2 emission within Greater Manchester (GMCA, 2019). The entirety of the EIA Site is within the AQMA.

10.124. Monitoring sites are mainly deployed along A635 Mancunian Way and A6 Downing Street. Two of the closest monitoring sites to the EIA Site measured NO2 annual average concentrations of 35.3 µg/m^3 and 33.4µg/m^3 in 2023, which are within the AQO level of 40µg/m^3.

10.125. The closest automatic monitoring site to the EIA Site is the Manchester Oxford Road Site (MAN1), located 900m southwest of the EIA Site. The annual average NO2 levels at this monitoring site were above the AQO level of 40µg/m^3 for the past five years, except for 2020, in which traffic flows were reduced as a result of Covid-19. This site also recorded higher annual average PM_{10} concentrations.

10.126. The monitored baseline concentrations at monitoring locations along Mancunian Way, adjacent to the EIA Site, are in compliance with the UK NO_2 AQO. Whilst the majority of monitoring locations are in compliance with the annual average AQO, there are several roadside locations in the wider area that are in exceedance of the annual average NO_2 AQO. The nearest automatic monitoring sites have all been in compliance with the PM_{10} and $PM_{2.5}$ AQOs in recent years. The Defra predicted background concentrations for NO_2, PM_{10} and $PM_{2.5}$ are predicted to be in compliance with the relevant air quality objectives at the EIA Site in 2023

Identification and Evaluation of Likely Significant Effects

10.127. This HIA is a qualitative rather than quantitative assessment, due to the diverse nature of the health determinants and health outcomes assessed. Although this ES Chapter describes the likely qualitative health impacts, it is not possible to quantify the severity or extent of the effects which give rise to these health impacts. As such, the potential impacts during construction and operation are described as either positive, neutral, negative or uncertain.

10.128. Where an impact has been identified, actions have been recommended to mitigate any negative impact on health, or possible opportunities to enhance health benefits. It should be noted that in many cases, mitigation to reduce these impacts, or measures to enhance certain benefits, already form part of the Proposed Development and the assessment has considered these impacts as such.

10.129. Health effects from the construction phase and operational phase have both been considered as part of the assessment of the 11 topics and determinants of health. The assessment of health impacts is included in the tables below.

Table 10.5 - Housing Design and Affordability

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal seek to meet all 16 design criteria of the Lifetime Homes Standard or meet Building Regulation requirement M4 (2)?	☒Yes ☐No ☐N/A	The Lifetime Homes Standard is replaced by the new M4(2) optional requirement in the Building Regulations. This is also a PfE policy, which requires all new homes to be built to the accessible and adaptable standard in Part M4(2) of the Building Regulations, unless specific site conditions make this impracticable. M4 (2) requires a new dwelling to provide reasonable provision for most people to access the dwelling and includes features that make it suitable for a wide range of occupants including older people, individuals with reduced mobility and some wheelchair users. All of the homes in Plot K and Plot J are M4(2) apartments. .	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action
Does the proposal address the housing needs of older people, i.e., extra care housing, sheltered housing, lifetime homes and wheelchair accessible homes?	☒Yes ☐No ☐N/A	In accordance with Policy H10 of the Manchester Core Strategy, housing developments in Manchester should follow the guidance for people with additional support needs. In accordance with this, proposals for accommodation for people with additional support needs will be supported where it will contribute to the vitality and viability of the neighbourhood. Policies in the Manchester Housing Strategy (MCC, 2022b) have been designed to meet objectives including meeting the increased demand for social and affordable housing, and bringing forward accommodation to enable independence for people in need of care and support. The baseline assessment identifies that the proportion of the population aged 65 and over in Manchester has increased over the last decade (2013-2023) by 10.6%. However, the proportion of the population aged 65 and over	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		in Manchester was 9.3% in 2023 which is considerably lower than the North West (18.8%) and England (18.7%). All apartments in Plot J have been designed to align with Category 2 – accessible and adaptable dwellings under M4(2). The principles considered in the design should ensure that the tower is useable and enjoyable by a wide range of people. Door widths and corridors are wide enough to allow accessibility, the living space has a clear movement zone in front of the cabinets, bedrooms have clear access to each side of the bed and windows, and a bathroom that can be adapted in the future.		
Does the proposal include homes that can be adapted to support independent living for older and disabled people?	☒Yes ☐No ☐N/A	As previously noted, the baseline assessment identifies an increasing trend in the proportion of the population aged 65 and over in Manchester but this is still lower than regional and national averages. The baseline also highlights that the proportion of people in Manchester living with a disability under the Equality Act is slightly lower than the North West but slightly higher than across England. As stated above, apartments in Plot J have been designed to be accessible and adaptable dwellings, and ensure that the building can be used by a wide range of people.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action
Does the proposal promote good design through layout and orientation, meeting internal space standards?	☒Yes ☐No ☐N/A	Every flat in Plots K and J meet or exceed Nationally Described Space Standards (NDSS). Apartment blocks in Plot K have been orientated on a north/south axis, to avoid any single aspect north facing homes. All homes are either south, east or west facing, with dual aspect introduced where possible. 3 bed homes have been provided with external private	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		amenity in the form of balconies, and Juliette balconies have been applied for the majority of 1 bed 2 person, and 2 bed 4 person homes. All homes meet or exceed the NDSS space standards by up to 2.5%. In Plot K, the number of residential cores and entrances is designed to ensure an efficient flat-to-core ratio, with no more than 9 flats per core on any given floor. The placement of the residential cores has been carefully planned to minimize travel distances from flats, as well as to essential service areas. Residential cores in Plot K have been designed to maximise the number of homes that enjoy views to the park. Plot J has residential cores to maximise efficiency and wayfinding within the buildings. These have also helped to maximise the number of homes with generous views of the park.		
Does the proposal include a range of housing types and sizes, including affordable housing responding to local housing needs?	☒Yes ☐No ☐N/A	The Manchester City Council Housing Strategy (MCC, 2022) highlights the need to diversify the housing stock across the City, including meeting the demand for social and affordable housing. The Proposed Development will provide 879 new units, of which 287 are 1-bed, 545 are 2-bed, and 47 and 3-bed. All of the residential units will be market, and no affordable housing provision is included in the Proposed Development. The Socio-economics chapter identifies a moderate beneficial effect (significant) on the provision of housing as part of the scheme. The Manchester City Council Housing Strategy sets out a target to deliver 36,000 new homes by 2032, and of these, 10,000 should be affordable, which equates to	☒Positive ☐Negative ☐Neutral ☐Uncertain	If the levels of profit change based on the agreed metrics, then affordable housing could be provided. The Applicant should seek to work with Manchester City Council to address the viability of affordable housing by exploring opportunities for grant funding as well as undertaking further reviews of the viability appraisal upon completion of the majority of apartments to consider whether there is any scope for off or on site affordable housing.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		28% of total delivery. Provision of affordable housing is currently assessed as unviable, however if the levels of profit change based on the agreed metrics then there may be an opportunity to deliver off site affordable housing when the scheme's viability is re-appraised prior to completion However, based on the current proposed contribution to affordable housing, it is assessed that this will result in a minor adverse effect on affordable housing provision in Manchester. Overall the effect on health is assessed as positive.		
Does the proposal contain homes that are highly energy efficient (e.g., a high SAP rating)?	☒Yes ☐No ☐N/A	An initial assessment of a selection of apartments from Plots J and K indicate that all apartments are compliant with SAP 10.2, which is the most recent version of the Standard Assessment Procedure. All apartments meet the client requirement of an EPC of B.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Table 10.6 - Access to Health and Social Care Services and Other Social Infrastructure

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal retain or re-provide existing social infrastructure?	☐Yes ☒No ☐N/A	There is currently no existing social infrastructure on the EIA Site.	☐Positive ☐Negative ☒Neutral ☐Uncertain	No further action.
Does the proposal assess the impact on health and social care services and has local NHS organisations been contacted regarding existing and planned healthcare capacity?	☒Yes ☐No ☐N/A	The baseline assessment indicates that there are four GP practices within a walking distance of 1.5km, and the existing ratio of patients to FTE GPs is 4,413, which is considerable higher than the Department for Health target of 1,800. However, the majority of the population (75.2%) in the Piccadilly Ward are aged 16-34, and on the assumption that more elderly patients are more likely to generate higher demand for healthcare services, this may alleviate some of the pressure on the surrounding GP practices which have a higher patient to GP ratio. The increase of 1,875 residents projected within the Socio-economics chapter, will increase demand for local GP services, and the new patient-to-GP ratio would rise to 4,595. This is considered to have a minor adverse (not significant) effect on local NHS services.	☐Positive ☒Negative ☐Neutral ☐Uncertain	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing GP services in the local area.
Does the proposal include the provision, or replacement of a healthcare facility and does the facility meet NHS requirements?	☐Yes ☒No ☐N/A	There are currently no NHS healthcare facilities on the EIA Site, nor are there plans to provide a healthcare facility.	☐Positive ☐Negative ☒Neutral ☐Uncertain	No further action.
Does the proposal assess the capacity, location and accessibility of other	☒Yes ☐No	The baseline assessment of this report and the Socio-economics chapter, have assessed the access to the local social	☐Positive ☐Negative	No further action for secondary school

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
social infrastructure, e.g. primary, secondary and post 19 education needs and community facilities?	☐N/A	infrastructure and suggest there is some existing capacity in local social infrastructure that would likely be sufficient, including libraries, community centres, and places of worship. Within the Socio-economic assessment, it was assessed that the Proposed Development could lead to an additional demand of 92 primary school places. This gives a potential deficit of primary school places within walking distance of the EIA Site, and the Proposed Development would have a minor adverse effect (not significant) on primary school provision in the local area. The baseline assessment shows there is a surplus of secondary school places within walking distance of the EIA Site, and there would be an additional demand of 17 secondary school places as a result of the Proposed Development. It has been assessed that the Proposed Development would have a negligible effect on secondary school provision in the local area.	☒Neutral ☐Uncertain	provision and other social infrastructure. The Applicant should seek to work with Manchester City Council to address the potential overcapacity of primary school places in the local area.
Does the proposal explore opportunities for shared community use and co-location of services?	☒Yes ☐No ☐N/A	In Plot K, both parcels offer shared amenity spaces throughout the block to encourage shared community uses. These might include co-working, lounges, dining rooms, or cinema spaces, alongside multifunctional spaces that can adapt to plug requirements over time. There are also a number of public commercial spaces around the lower and upper ground floor, which could take the form of restaurants, cafes, a gym and wellness centre, bike workshops, or a creche. These spaces have not yet been	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		finalised and will be defined at the Construction Stage. Communal spaces have been provided throughout the building in Plot J for residential amenity use. This includes external terraces and rentable rooms for residents. Retail space is provided on the lower ground and upper ground of Plot J, which is accessible to residents and non-residents. DAS information for Plot J		

Table 10.7 – Access to Open Space and Natures

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal retain and enhance existing open and natural spaces?	☒Yes ☐No ☐N/A	During the construction phase it is likely that some planned closures and diversions of footpaths would be required in the vicinity of the Site. Suitable pedestrian routes would be provided during construction. The Proposed Development includes public realm that is open to the public (apart from the podiums). The public realm will see the existing park increase by an additional 2.5 acres, which will include informal play areas, sustainable drainage features, social spaces, new planting characters including ever-green species for year round structure, shade tolerant planting, and areas of shelter from the elements.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
In areas of deficiency, does the proposal provide new open or natural space, or	☒Yes ☐No	The baseline assessment indicates that the Proposed Development is not in an area of deficiency. However, the Proposed Development still	☒Positive ☐Negative	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
improve access to existing spaces?	☐N/A	provides public realm that is open to the public, and opportunities for information play space including stepping stones, boulders, and low walls. The total amenity space of Plot K spans 287 sqm. Plot J includes residential amenity space in the form of private penthouse terraces as well as rooftop communal lounges for residents' use. The EIA Site is also in very close proximity to the newly developed Mayfield Park, which provides 6.5 acres of open and play space.	☐Neutral ☐Uncertain	
Does the proposal provide a range of play spaces for children and young people?	☒Yes ☐No ☐N/A	A dedicated kids' play area is included in Plot K, ensuring families have a safe and engaging space for children. The Proposed Development is in close proximity to Mayfield Park, which was developed as part of the first phase of the Mayfield development and has a large children's park which includes six slides.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal provide links between open and natural spaces and the public realm?	☒Yes ☐No ☐N/A	The Proposed Development contains an open green space that is open for cyclists and pedestrians to pass through. Paths within the EIA Site provide links into the adjacent Mayfield Park. A network of accessible, stepping, and climbable routes and informal spaces will be created leading to the active ground floors and public amenities of the new buildings.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action
Are the open and natural spaces welcoming and safe and accessible for all?	☒Yes ☐No	In Plot K, there is vibrant and safe amenity spaces at ground and podium level, which is open to the public. A private communal podium area is provided for residents on Level	☒Positive ☐Negative	No further action

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
	☐N/A	01 between the two buildings of Plot K. Plot J includes a wide variety of public and private spaces to allow residents to have a great selection of external facilities, which includes private amenity terraces, and communal spaces on the upper ground and lower ground floors.	☐Neutral ☐Uncertain	
Does the proposal set out how new open space will be managed and maintained?	☒Yes ☐No ☐N/A	Open space will be managed and maintained by the Master Developer, as part of their responsibility for estate management.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Table 10.8 - Air quality, noise and neighbourhood amenity

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal minimise construction impacts such as dust, noise, vibration and odours?	☒Yes ☐No ☐N/A	A construction dust risk assessment has been conducted as part of the Air Quality Assessment, to ensure the effects of construction dust on human health are not significant, provided all recommended measures to avoid or reduce environmental effects are inherently part of the development and considered embedded mitigation. The following recommendations to mitigate against construction dust impacts have been provided, as outlined in Appendix 6B of the Air Quality ES Chapter: • Conducting daily on-site and off-site inspections to monitor dust and record inspection results; and	☒Positive ☐Negative ☐Neutral ☐Uncertain	Follow the recommended measures for air quality, to reduce the impact of construction dust on human health, as outlined in the Air Quality ES Chapter. Follow the recommendations to minimise the impacts of construction noise and vibration through the principles of best practicable means and prepare a Construction Environmental Management Plan to be submitted to the Council, as outlined in the Noise and Vibration ES Chapter.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		• Avoid the use of diesel or petrol-powered generators and using mains electricity or battery-powered equipment where practicable. It is proposed to mitigate and minimise the impacts of construction noise and vibration through the principles of best practicable means (BPM), which can include the selection of quieter items of plant and equipment, the use of low noise methodologies, and implementation of boundary hoarding and localised screening around noisier activities where possible. It is anticipated that a Construction Environmental Management Plan (CEMP) will be submitted to the council before the works begin that gives further details on the mitigation options to be used.		
Does the proposal minimise air pollution caused by traffic and energy facilities?	☒Yes ☐No ☐N/A	Construction vehicles associated with the Proposed Development will lead to an increase in local air pollution concentrations. However, given the predicted small increase in pollution concentration and the fact that local air quality conditions are well below the statutory requirements, the impacts of construction traffic are considered negligible, as outlined in the Air Quality ES Chapter. The operation of the Proposed Development will generate additional traffic on the local road network, likely increasing air pollution from road traffic. The Air Quality Assessment concludes that no on-site or off-site receptors will be likely to exceed relevant statutory requirements once the Proposed Development is	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		operational, and relevant impacts will be negligible. Therefore, no additional mitigation measures will be required to reduce air quality impacts from operation traffic. The energy strategy relies entirely on electric power, utilising zero-emission technologies such as heat pumps to minimize potential air quality impacts. Diesel generators are included only for backup and life safety use, with maintenance testing limited to fewer than 18 hours per year. Since no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated, and a detailed assessment of combustion emissions from the energy plant has been excludes.		
Does the proposal minimise noise pollution caused by traffic and commercial uses?	☐Yes ☐No ☐N/A	Road traffic noise is minimised during the construction and operational phases of the development, with negligible increases in road traffic noise predicted at nearby receptors, and therefore no further mitigation is specific, as outlined in the Noise and Vibration ES Chapter. There is insufficient information at the time of the application to undertake a detailed assessment of noise effects for the operation of commercial units. It has been proposed that an appropriate planning condition be used requiring that prior to the operation of any units, a noise assessment is submitted to and approved by the local planning authority demonstrating how noise has been mitigated and minimised to comply with the relevant policy.	☐Positive ☐Negative ☒Neutral ☐Uncertain	Follow the recommended measures, as outlined in the Noise and Vibration ES Chapter, to minimise and mitigate against any adverse noise pollution during the operational phase.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		Regarding noise from fixed building plant installations, full details are also not available, so target noise level from any plant, which they will be designed to achieve, have been proposed to mitigate and minimise noise and comply with local policy requirements.		

Table 10.9 – Accessibility and Active Travel

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal address the ten Healthy Streets indicators?	☐Yes ☒No ☐N/A	The Healthy Streets indicators are not relevant to developments outside Greater London. Key active mobility and accessibility consideration that would contribute towards meeting the Healthy Streets indicators are detailed in the following assessment criteria.	N/A	N/A
Does the proposal prioritise and encourage walking, for example through the use of shared spaces?	☒Yes ☐No ☐N/A	Access into the EIA Site includes a pedestrian-priority route bordering Mancunian Way and a dedicated footway, which will be minimum 2 metres wide, parallel to the carriageway surrounding the buildings within the EIA Site. There is also a shared-use route to the north of the Proposed Development which is 5-6 metres in width. All paths have been designed so the widths are surplus to the minimum widths recommended in LTN 1/20 (guidance for local authorities on designing high-quality, safe cycle infrastructure).	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal prioritise and encourage cycling, for example by	☒Yes	Secure parking will be provided at a ratio of	☒Positive	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
providing secure cycle parking, showers and cycle lanes?	☐No ☐N/A	approximately 0:8 spaces per unit. Plot J will provide 50% of the provision from day 1, with a total of 194 cycle parking spaces. These will be: • 6 spaces of Enlarged accessible cargo-type bike stands • 48 DDA (1m spaced) Sheffield stands • 140 Josta-type gas assisted double stackers. Future provision will include an additional 114 spaces, totaling 308 spaces, which is 80% provision of homes in Plot J. Future provision will be provided as and when it is required by residents, and there is no planned date for it to be delivered by. Plot K will provide 80% of the number of homes from day 1 – 396 cycle parking spaces, consisting of: • 350 double stackers • 34 Sheffield stands • 12 enlarged cycle spaces	☐Negative ☐Neutral ☐Uncertain	
Does the proposal connect public realm and internal routes to local and strategic cycle and walking networks?	☒Yes ☐No ☐N/A	The Proposed Development is adjacent to the proposed Beeway on Hoyle Street and is within 400m of cycle lanes along the A6 and the Busy Beeway on the A6. Routing north along Hoyle Street from the EIA Site allows access into the Busy Beeway along Fairfield Street.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal include traffic management and calming measures to	☒Yes ☐No ☐N/A	The junction of Hoyle Street and Mancunian Way will be removed, quieting traffic flows along Hoyle Street. Vehicles within the EIA Site will be slowed by chicaned roads and	☒Positive ☐Negative ☐Neutral	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
help reduce and minimise road injuries?		a visible pedestrian priority that will ensure drivers are more aware of their surroundings.	☐Uncertain	
Is the proposal well connected to public transport, local services and facilities?	☒Yes ☐No ☐N/A	The Proposed Development is well connected to Manchester's public transport network. The EIA Site is approximately 500m distance from Piccadilly train station and tram stop, and the Site has a Greater Manchester Accessibility Level classification of 8, which is the highest level of accessibility available in Manchester. The Estate Road to the south of the Proposed Development will see the introduction of a new cycle friendly street adjacent to Mancunian Way.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal seek to reduce car use by reducing car parking provision, supported by the controlled parking zones, car clubs and travel plans measures?	☒Yes ☐No ☐N/A	On-site parking is restricted to 7 spaces which are allocated to EV and disabled parking. Parking can be made available in the adjacent multi-storey car park if designed, but this car park also serves the wider Mayfield masterplan. There are likely to be limited opportunities for residents to park in the multi-storey car park. There are four car clubs approximately 1km from the Site, with a total of 9 vehicles available to hire. Further details on car clubs will be provided in the Travel Plan submitted alongside the planning application.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal allow people with mobility problems or a disability to access buildings and places?	☒Yes ☐No ☐N/A	Parking on-site is restricted to 7 spaces, which are allocated to EV and disabled parking, allowing car access for people with mobility problems or a disability.	☒Positive ☐Negative ☐Neutral	No further action

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		The Proposed Development looks to implement a new accessible route between the estate road to the south, and the park to the north via a winding sloped route that will also provide a climbable landscape, with adequate seating and resting points throughout. Plot J has been designed to be accessible and usable by all. Communal spaces provide enough circulation space for people with mobility impairments and wheelchair users to be able to effectively use the shared facilities. Access to a communal roof terrace has been designed so there is a level threshold between the apartment corridors and the terrace. The main entrance to the apartments is clear and easily identifiable and is no more than 50m from all parking spaces.	☐Uncertain	

Table 10.10 – Crime Reduction and Community Safety

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal incorporate elements to help design out crime?	☒Yes ☐No ☐N/A	A threat, vulnerability and risk assessment assesses both crime and terror threats and recommends measures to mitigate these threats. Recommendations to help design out crime include: Crime prevention through environmental design (clear lines of sight, natural surveillance, demarcation) Secured by Design, Silver requirements, which is the official	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		UK Police flagship initiative supporting the principles of 'designing out crime'		
Does the proposal incorporate design techniques to help people feel secure and avoid creating 'gated communities'?	☒Yes ☐No ☐N/A	As mentioned above, the designs for the Proposed Development have recommended Secured by Design Silver requirements, and crime prevention through environmental design measures to help people feel safe and secure.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal include attractive, multi-use public spaces and buildings?	☒Yes ☐No ☐N/A	The Proposed Development includes commercial and retail space, a gym, food and beverage space, and lobby space. Plot K has been designed to complement and extend the newly developed Mayfield Park, by providing buildings within the park rather than on the edge of the park. This plot has been designed to create a vibrant and welcoming first impression, and the design of the building fosters a sense of community. Buildings within the park bring new spaces and amenities for visitors and residents alike to enjoy, with a range of spaces designed on the ground floor level which could be suitable for: • A gym and wellness centre • Shops • Restaurants, cafes, and bars Exact uses will be defined at later stages. Plot J includes communal spaces, amenity spaces, and commercial units. The commercial units will be designed to be accessible by all, but exact uses will be defined at later stages.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Has engagement and consultation been carried out with the	☒Yes	A comprehensive pre-application public consultation and stakeholder engagement	☒Positive	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
local community and voluntary sector?	☐No ☐N/A	programme was carried out over a four-week period in October and November 2024. To ensure high visibility and to encourage wide and inclusive participation, the consultation took the form of four public drop-in events underpinned by an online exhibition, extensively promoted via a leaflet distribution to over 9,000 addresses, local media adverts, public relations activity and a geo-targeted paid digital media campaign across Meta (Facebook and Instagram). The public exhibition events were attended by 194 people in total and the consultation website received 2,787 visits during the consultation period. The digital advertising campaign reached 981,366 Facebook and Instagram users and generated 2,339 clicks through to the consultation website. In total 147 individual responses were received to the consultation across in-person and online channels. Feedback on the development and its impact on the community has been positive and people were positive about the Mayfield development attracting visitors to the area.	☐Negative ☐Neutral ☐Uncertain	

Table 10.11 – Access to Healthy Food

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal facilitate the supply of local food, for example allotments,	☒Yes ☐No	It is not known at this stage if the proposed retail space will supply local food. There are no	☐Positive ☐Negative	At the construction, it is recommended to consider whether the employment space will be made available

community farms and farmers' markets?	☐N/A	plans for an allotment or farmers' market on site.	☐Neutral ☒Uncertain	to a range of occupiers, including local businesses.
Is there a range of retail uses, including food stores and smaller affordable shops for social enterprises?	☒Yes ☐No ☐N/A	The Proposed Development includes commercial and retail space, use class E (a,b,c). However, at this stage it is not yet known what businesses will occupy these units.	☐Positive ☐Negative ☐Neutral ☒Uncertain	At the construction stage, it is recommended to consider whether the employment space will be made available to a range of occupiers, including local businesses.
Does the proposal avoid contributing towards an over-concentration of hot food takeaways in the local area?	☒Yes ☐No ☐N/A	The Proposed Development will include retail and commercial space. This could allow for the sale of food and drink for consumption on the premises, not exclusively for takeaway.	☐Positive ☐Negative ☒Neutral ☐Uncertain	No further action.

Table 10.12 – Access to work and training

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal provide access to local employment and training opportunities, including temporary construction and permanent 'end-use' jobs?	☒Yes ☐No ☐N/A	The Proposed Development is estimated to generate a net of 177 FTE temporary construction jobs during the construction phase, some of which could be in association with construction training or apprenticeship schemes. It is also estimated that the Proposed Development will generate 120 long-term end-use jobs through the creation of new employment space within the Proposed Development.	☐Positive ☐Negative ☐Neutral ☒Uncertain	During the Construction Stage, measures to ensure there are a variety of employers and employment opportunities, including high-value jobs, should be promoted. It is expected that any requirements for the provision of apprenticeship or training schemes would be agreed as part of a planning condition such as a social value and/or skills and training strategy.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal provide childcare facilities?	☐Yes ☒No ☐N/A	The Proposed Development is primarily residential, with commercial floorspace being use class E (a,b,c,d). Therefore, the Proposed Development does not include childcare facilities.	☐Positive ☐Negative ☒Neutral ☐Uncertain	No further action.
Does the proposal include managed and affordable workspace for local businesses?	☒Yes ☐No ☐N/A	It is not known at this stage which businesses will occupy the retail and commercial space, and therefore it is not known whether there will be managed and affordable workspace for local businesses.	☐Positive ☐Negative ☐Neutral ☒Uncertain	Consider whether the employment space will be made available to a range of occupiers, including local businesses.
Does the proposal include opportunities for work for local people via local procurement arrangements?	☒Yes ☐No ☐N/A	Details regarding local procurement arrangements is not available at this stage.	☐Positive ☐Negative ☐Neutral ☒Uncertain	It is expected that this may be agreed as part of a planning condition such as a procurement and/or skills and training strategy.

Table 10.13 – Social cohesion and inclusive design

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal consider health inequalities by addressing local needs through community engagement?	☒Yes ☐No ☐N/A	As outlined in the baseline assessment, Manchester is the second most deprived local authority in England (MHCLG, 2019), and ranks 5th most deprived for health inequalities. The Proposed Development does not include any affordable housing provision, which would make a positive contribution to the local community. Community engagement has been carried out to gather feedback on the proposals. Respondents were asked to state which features of the proposals	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		to extend Mayfield Park were most important to them. Green features emerged as the most important to participants. Three of the top four elements were all related to green features: planting of new trees (66%), new landscapes (56%) and planting of shrubs and perennials (50%). Six out of ten (61%) mentioned that new areas to sit and relax were important. Some more functional elements also emerged as being important: new walking and cycling routes (48%), areas of shelter (32%) and areas of shade (29%). Almost half (47%) stated that informal play areas were important. This corresponded with a high number of comments which emphasised the health benefits of access to green space. For example, one comment says "Access to green space and opportunities to walk in nature is very important for physical and mental health". Participants were asked what kind of amenities they would like to see included in the ground-floor spaces of the proposed buildings. A GP Surgery was commonly mentioned, with four out of ten (41%) stating that they would like to see one included..		
Does the proposal connect with existing communities, i.e. layout and movement which avoids physical barriers and severance and land uses and spaces which encourage social interaction?	☒Yes ☐No ☐N/A	A new planted, 180 metre Estate Street will run along the southern edge of Mayfield, parallel to the Mancunian Way, improving walking and cycle connectivity to the city centre from East Manchester. Publicly accessible but privately managed to the same high standards as Mayfield Park, the Estate Street will connect Baring Street to Hoyle Street and feature accessible parking bays for residents, a cycle route and new planting, creating	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		a buffer between the park and the Mancunian Way. A new garden square will greet visitors coming from the southern Estate Road, featuring the reclaimed station structure from the roof of Mayfield Station.		
Does the proposal include a mix of uses and a range of community facilities?	☒Yes ☐No ☐N/A	The Proposed Development is primarily residential, but there will be a range of uses occupying the lower ground and upper ground floors of both plots. Shared amenity space is included in Plot K, designed to foster a sense of community bringing neighbours together in shared spaces. Co-working space in Plot K is suitable for both casual and professional use.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal provide opportunities for the voluntary and community sectors?	☒Yes ☐No ☐N/A	There is no existing voluntary or community use on the EIA Site. At this stage, the Proposed Development does not directly specify opportunities for the voluntary sectors or plans for community engagement..	☐Positive ☐Negative ☒Neutral ☒Uncertain	Community and voluntary groups will be considered as part of any community facilities provided.
Does the proposal take into account issues and principles of inclusive and age-friendly design?	☒Yes ☐No ☐N/A	In Plot J, residential cores have wheelchair refuges. Routes around the blocks are 1500mm wide, which exceed the minimum width requirements for M4(2) dwellings, all doors exceed 850mm and have a clear 300mm leading edge to the pull side. Lobbies have a clear 1500mm between door on approach. This should provide good access for people with mobility impairments when moving through the building. Lifts exceed the minimum spatial requirements, which creates improved access to the upper floors and makes it easier for a wheelchair user to traverse the building.	☒Positive ☐Negative ☐Neutral ☐Uncertain	

Table 10.14 – Minimising Use of Resources

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal make best use of existing land?	☒Yes ☐No ☐N/A	The ambition is for the wider Mayfield area to deliver the Mayfield Strategic Regeneration Framework (SRF), which will be a world class, transformational, distinctive and imaginative commercially led neighbourhood. Phase 1b includes Plots J & K and provides a substantial residential space to the overall development. The EIA Site is in a strategic location, adjacent to the newly developed Mayfield Park, which is the anchor Site of the SRF. The existing Site is currently unused, so the Proposed Development makes efficient use of the available land.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal encourage recycling, including building materials?	☒Yes ☐No ☐N/A	The Proposed Development is prioritising circular economy principles through careful material selection and design for adaptability and disassembly. The objective of the development is that a mnimum of 75% of waste is recycled or reused, and that construction waste is reduced to 6.5 tonnes/100m2 with a further target of 3.2 tonnes/100m2 by 2030. Reclaimed railway infrastructure recycled bricks are being considered for use within landscaping. For example, steel canopies from the railway station at end of life can be used for shelter and recycled bricks for pathways within eternal areas. Timber is being considered for the glasshouse area to switch from a non-regenerative source of materials.	☒Positive ☐Negative ☐Neutral ☐Uncertain	As recommended in the Stage 2 Report, there should be collaboration with waste management contractors to maximise recycling and reuse.
Does the proposal incorporate sustainable design	☒Yes	As mentioned above, the Proposed Development is prioritising circular economy principles through careful material selection and	☒Positive	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
and construction techniques?	☐No ☐N/A	design for adaptability and disassembly. An emphasis has been placed on responsible sourcing and construction waste reduction, and the project aims to minimise environmental impact, enhance sustainability, and meet regulatory standards while promoting resource efficiency and long-term building resilience.	☐Negative ☐Neutral ☐Uncertain	

Table 10.15 – Climate change

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal incorporate renewable energy?	☒Yes ☐No ☐N/A	The Proposed Development is targeting low Energy Use Intensity, and aims for an EPC rating of B, with aspirations for A. Operational carbon emissions are minimized through clean energy, renewables, and monitoring. Solar PV panels will cover 40% of the roof, but battery storage is excluded due to budget constraints. The aim is for the development to be 100% renewable energy with no energy generated from fossil fuels. Nature-based solutions like green roofs and rain gardens enhance energy efficiency and resilience.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.
Does the proposal ensure that buildings and public spaces are designed to respond to winter and summer temperatures, for example ventilation, shading and landscaping?	☒Yes ☐No ☐N/A	The Proposed Development is focusing on climate resilience through thermal comfort modelling, addressing heat stress and overheating risks with adaptive measures and Zehnder cooling units (which provide comfortable cooling and heating to indoor spaces). Passive cooling strategies include orientation, window design, and shading, which will reduce reliance on mechanical cooling. Green infrastructure, such as living roofs and rain gardens, will provide natural cooling and shading. Future-proof landscaping and	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
		comprehensive risk assessments will enhance resilience, while mitigating the Urban Heat Island effect (when cities are much warmer than the surrounding rural areas) through drought-tolerant planting.		
Does the proposal maintain or enhance biodiversity?	☒Yes ☐No ☐N/A	The Proposed Development will provide habitat improvements through the creation of habitats with biodiversity value across the EIA Site. This includes introducing shrubs, a rain garden, and wildflower meadow planting. The Proposed Development will secure these habitats and provide the necessary management for them to be maintained for a minimum of thirty years. A Biodiversity Net Gain (BNG) assessment of the Site demonstrates the Site is achieving 115.98% net gain in biodiversity post-development. . Habitat features will be integrated into the Proposed Development to encourage ecological enhancement. This includes bird and bat boxes in Plot K, and a range of invertebrate features located on the roofs, which could include insect hotels, towers, bee blocks or logpiles. Blue roofs will be provided on Levels 01, 08, 10, and green roofs on levels 21 and 28, which will enhance biodiversity and support urban greening. As outlined in the Stage 2 Report, to ensure the UGF target is met, the following recommendations are suggested: • Ensure green features are effectively integrated into the architectural and landscape design without compromising other aspects of the Development; and • Planning for the upkeep of green spaces to sustain their benefits over time.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action

Assessment criteria	Relevant to the Project?	Details and evidence	Potential health impact	Further action or mitigation recommended
Does the proposal incorporate sustainable urban drainage techniques?	☒Yes ☐No ☒N/A	The current design for the Proposed Development includes multiple green infrastructure typologies that can support nature-based SuDS (sustainable urban drainage). These include rain gardens between plots J and K, cascading filtration beds, blue roofs at podium level, living roofs on both the podium and roof levels, and street trees throughout the landscaped area. As recommended in the Stage 2 Report, as the design progresses it will be important to ensure that SuDS are well-integrated into the Site's overall design, contributing to both functionality and aesthetics. Regular maintenance will be necessary to keep SuDS functioning effectively and looking attractive.	☒Positive ☐Negative ☐Neutral ☐Uncertain	No further action.

Cumulative Effects

10.130. Cumulative effects occur when a single receptor is affected by more than one effect at any point in time. This section of the chapter assesses the human health effects of the Proposed Development in combination with the potential human health effects of the committed developments.

10.131. The Proposed Development is expected to start construction of Phases 1 and 2 in 2026 and is expected to be complete by mid-2030. All of the cumulative schemes have been considered for their cumulative effect within Manchester.

During Construction

10.132. The construction phase of the Proposed Development along with the committed developments identified will generate additional construction related employment within Manchester City, and Greater Manchester. The scale of the construction employment cannot be readily quantified on the basis that the information available for each scheme is commercially sensitive. In addition, the timing and phasing of the construction of these schemes along with the Proposed Development may not occur over the same time periods, therefore the temporary construction related effects may not coincide. The combined effects are likely to have an overall positive effect on construction employment in the area.

10.133. The construction phase along with the committed developments identified will also generate increased construction noise and impacts to air quality. However, as outlined in the Air Quality ES Chapter, receptors that have been introduced by cumulative schemes have been considered and are not relevant for this assessment.

During Operation

10.134. All of the cumulative schemes have been assessed during the operational phases due to the effects on the same target economic areas. While detailed information regarding the amount of employment floorspace to

be generated by these cumulative schemes is not available, a high-level assessment suggests that gross direct employment resulting from the cumulative schemed may be around 233 jobs. There will therefore be a positive cumulative effect on operational employment.

10.135. The cumulative schemes together with the Proposed Development, assuming they are built and complete, will approximately provide a combined 3,816 new homes in Manchester. This accounts for approximately 6.4% of the total housing target identified in the 2024 PfE Joint Development Plan (GMCA, 2024). There will therefore be an overall positive cumulative effect on housing provision within Manchester City Council.

10.136. Residents within the Proposed Development and the cumulative developments will put additional demand on existing social infrastructure. Current provision would be inadequate to meet the demand arising from the high number of future residential units coming forward in the absence of mitigation measures. However, given the identified housing need in policy documents and the absence of identified capacity issues, it is expected that planning policy will continue to ensure that there is sufficient investment into the necessary services and infrastructure to accommodate the demand of additional users. In addition, other residential developments may make contributions through relevant S106 agreements, to contribute towards increased capacity to deal with the demand for primary healthcare, education and other social infrastructure, wherever necessary to supplement the provision planned within the committed developments.

10.137. The increase in residential units arising from the cumulative developments will increase demand for open and play space and put pressure on existing provision. However, the cumulative schemes are expected to include additional green infrastructure, play space and open space which is playable in nature (either on site or off site) that will accommodate their own demands (i.e. the demand arising from each individual scheme). The cumulative developments will therefore have a neutral effect on open and play space provision.

Mitigation Measures

Construction Phase

10.138. The key mitigation measure recommended for the construction phase is to follow the recommendations outlined in Appendix 15.2 of the Air Quality ES Chapter to minimise the impact of construction dust, and to prepare a Construction Environmental Management Plan, as outlined in the Noise and Vibration ES Chapter.

10.139. Recommendations for enhancing health impacts have been included in the tables above where relevant.

Operational Phase

10.140. The key mitigation measures recommended for the operation phase are:

- Consider the effects of increased population on social infrastructure and seek to work with Manchester City Council to consider if there is any opportunity to include in the development. As secondary indirect mitigation, the Proposed Development will also generate Council Tax and Business Rates receipts in order to support the provision for public services.
- The Applicant will work with Manchester City Council to address the viability of affordable housing, including exploring the opportunity for grant funding and through reviewing the viability appraisal at a later stage of construction to see if there is any additional room to support affordable housing on Site. This will be captured through planning obligations agreed through a S106.

10.141. Although the effects are not expected to be significant without mitigation measures, it is considered that any uplift in the amount of social infrastructure and affordable housing will bring additional benefits via the Proposed Development. Recommendations to enhance health impacts during the operational phase are provided in the tables above.

Residual Effects

Construction Phase

Likely Health Impact	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Impact
Construction impacts such as dust, noise, and vibration.	Local residents	Follow the recommendations outlined in Appendix 16.2 of the Air Quality ES Chapter, and Noise and Vibration ES Chapter.	Implementation as outlined in Appendix 16.2 of the Air Quality ES Chapter. A Construction Environmental Management Plan (CEMP) will further outline mitigation options.	Neutral

Operational Phase

Likely Health Impact	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Impact
No affordable units included in the Proposed Development	Local residents	If the levels of profit change based on the agreed metrics, then affordable housing could be provided. The Applicant should seek to work with Manchester City Council to address the viability of affordable housing and via grant funding. A further review of viability will be undertaken later in the construction phase.	Engagement with Manchester City Council	Neutral
The Proposed Development could lead to demand for an additional 92 primary school places. The baseline indicates that at the time of writing, there may not be sufficient capacity to accommodate this increase in demand. The total number of spaces available (see Chapter 11) is between 201 and -110, with the latter discounting 5% of total enrollment. However, this additional primary school demand is based on a GLA	Local children & young people	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing primary school places in the local area.	Engagement with Manchester City Council	Neutral

Likely Health Impact	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Impact
guide, which assumes a higher rate of children per household compared to that in Manchester City Centre Wards (only 2% of households have dependent children in Manchester). It should also be noted that some schools are demonstrating a downward trend in the number of applications for school places.				
The Proposed Development could lead to an additional 1,951 people requiring healthcare through GP services (1,875 additional residents and 76 new local employees). The baseline assessment indicates that existing patient to GP ratio is higher than average, and additional residents will place additional pressure on the healthcare services. However, it is noted that the population is younger in the Piccadilly Ward, which may alleviate some of the pressure on healthcare services.	Local residents	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing GP services in the local area.	Engagement with Manchester City Council	Neutral

Monitoring

10.142. No monitoring is recommended for the human health effects.

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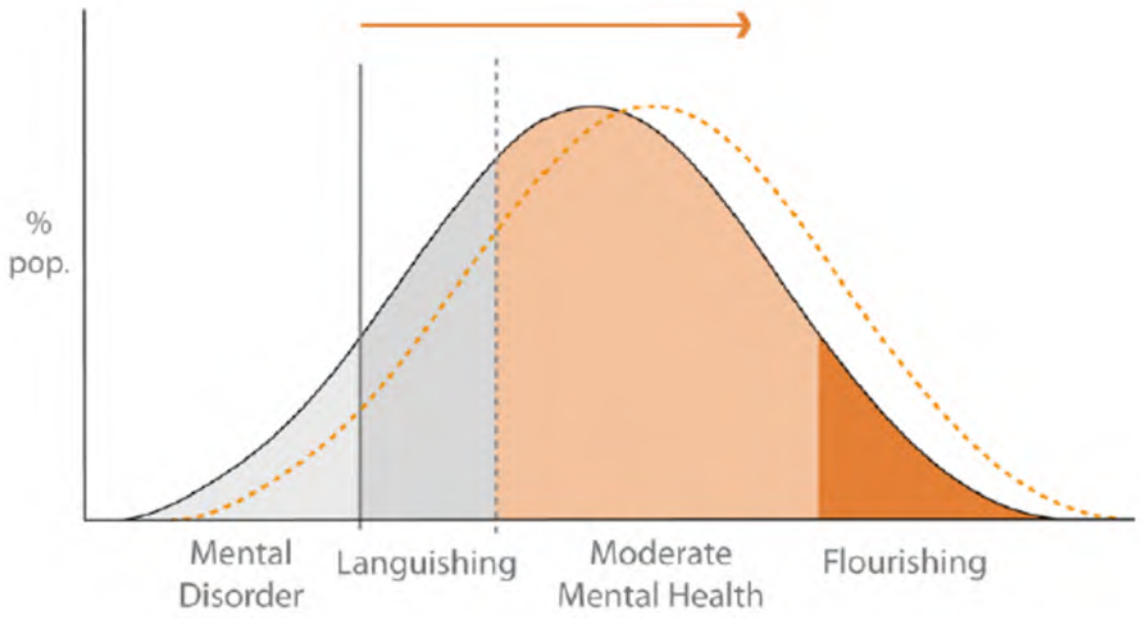


Figure 10.1 - The Mental Health Spectrum (Huppert, 2014)

	Date: December 2024

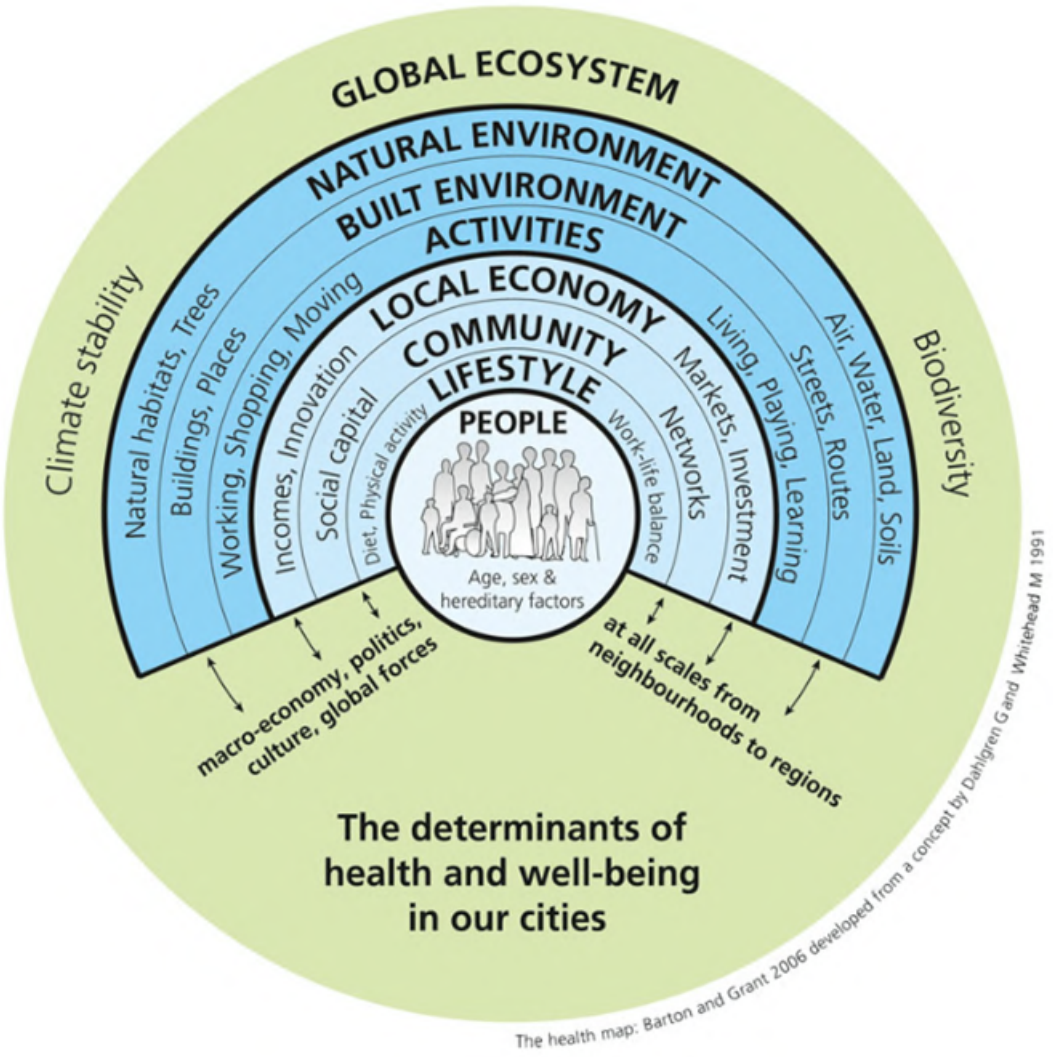


Figure 10.2 - The Health Map (Barton & Grant, 2006)

Date: December 2024

11. Socio-Economic

Introduction

11.1. This Chapter of the ES has been prepared by Buro Happold and assesses the likely environmental effects of the Proposed Development with respect to socioeconomics. This Chapter also describes the methods used to assess the effects; the baseline conditions currently existing at the EIA Site and surrounding area; the mitigation measures required to prevent, reduce, or offset any significant adverse effects; and the likely residual effects after these measures have been adopted. This Chapter does not include any appendices.

11.2. The authors of this Chapter have the following qualifications and experience:

Technical Competence in Buro Happold		
	Lead Author	Reviewer
Name	Monica Laucas	Werner van Zyl
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	BSc Urban Sociology, MSc Local Economic Development	BSc Town and Regional Planning MSc Green Economy
Does the practitioner hold any IEMA qualification?	No	Yes
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	6	21
Number of EIA's delivered to date	15	20+

Assumptions and Limitations

11.3. Assumptions made during the assessment are:

- Employment density using the Homes and Communities Agency's (HCA) Employment Density Guidance to calculate employment from the commercial floorspace; and
- Residential occupancy based on size and tenure. This is used to calculate population numbers and their age breakdown, which is used to calculate the number of children attending primary and secondary schools, and the number of children requiring play space; and.
- Professional judgement is used to assess the significance of effects and the proportionate impact of the Proposed Development, as there are no standards or guidelines for defining socio-economic impacts. Relevant guidance has been used throughout where relevant, for example the HCA Employment Densities Guide has been used to calculate gross jobs based on commercial floorspace and use class.

11.4. Potential limitations of the assessment include:

- The baseline conditions used for the socio-economic assessment may change over time and this could influence the findings of the assessment, and could lead to the findings suffering from statistical time lag; and

- The use of the Employment Densities Guide will be used to calculate Full Time Equivalent (FTE) that align most closely to the proposed purposes of the commercial space. If the facilities are used differently, then there may be variations in FTE employment.

Relevant Legislation, Policy and Guidance

National Policy

National Planning Policy Framework (2024)

11.5. The NPPF sets out the planning policies for England and how these should be applied, providing a framework for local authorities, planning inspectors, and decision-makers to prepare plans for sufficient housing and other developments in a sustainable manner.

11.6. The NPPF provides a set of principles and objectives for balancing competing interests, such as the need for housing and economic growth with environmental protection and community well-being.

11.7. The NPPF outlines the importance of considering an appropriate mix of housing size and type of tenure to reflect the housing need for different groups within the local communities, and this should be reflected in any plan. This includes those requiring affordable housing, families with children, older people, students, people with disabilities, and other groups.

Homes England Strategic Plan 2023-28; (Homes England, 2023)

11.8. The Strategic Plan published by Homes England focuses on the delivery of high-quality homes and thriving places, aimed at supporting levelling up of communities across England. The strategic objectives outlined in the Plan include: delivery homes that people need; creating vibrant and successful places; building a housing and regeneration sector that works for everyone; enabling sustainable homes and places; and promoting high-quality homes in well-designed places.

11.9. Outlined within the Plan, local governments are best placed to understand the housing needs and challenges in their local area and Homes England will work with local authorities to deliver the right housing for each area. There will also be collaboration with private housebuilders, master developers, lenders, and commercial real estate. Homes England also recognise the importance of working with affordable housing providers to deliver much-needed new affordable housing.

Regional Policy

Greater Manchester Strategy 2021-2031 (GMCA, 2021)

11.10. This strategy sets out the long-term vision and priorities for the Greater Manchester area. It outlines the region's ambitions and objectives across various domains, including the economy, environment, transport, housing, health, and social issues.

11.11. The Proposed Development will help achieve some of the priorities and socio-economic objectives set, for the prosperity and holistic growth of the region, within the strategy document. The following are the key objectives of the strategy:

- Reduce inequalities to drive economic growth, ensuring that a variety of demographics are contributing to and benefitting from the region's success;

- Foster and maintain social infrastructure and increase engagement with the local community;
- Make Greater Manchester accessible for people of all ages and backgrounds;
- Increase access to sustainable transport through improved public transport, cycling and pedestrian infrastructure;
- Redevelop buildings to achieve equality and environmental goals.

11.12. The strategy has shared commitments with other strategies in the area, and aims to ensure local communities, neighbourhoods, villages, towns, cities and districts are protected and strengthened, and new homes will be delivered in line with the Housing Strategy (2019-2024). The strategy will ensure the housing delivered is safe, decent and affordable, and the aim is for no one to be sleeping rough in Greater Manchester.

Places for Everyone (PfE) Joint Development Plan 2022-2039; (GMCA, 2024)

11.13. Places for Everyone is a long-term plan of nine Greater Manchester districts which will determine the kind of development that takes place in their boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development. The plan is the result of a process that began as the Greater Manchester Spatial Framework (GMSF) in 2014 and has been informed by the feedback received from residents, businesses, and the development industry to previous consultations on that Plan. It has now become the statutory development plan for each of the nine PfE authorities in March 2024. The nine districts covered by the Plan are: Bolton; Bury; Manchester; Oldham; Rochdale; Salford; Tameside; Trafford; and Wigan. Key policies include:

- Policy JP-H1: Scale, distribution and phasing of new housing development - this sets out the minimum number of additional dwellings of 175,185 that will be delivered over the period 2022-2039 with an annual average of around 10,305 across nine PfE authorities, of which 60,061 new dwellings are set for Manchester with an annual average of 3,533 new dwellings.
- Policy JP-H2: Affordability of new housing – this policy sets out how improvements will be sought in the ability of people to access housing at a price they can afford, which includes maximising the delivery of affordable homes, and supporting the provision of affordable housing as part of new developments. Increasing the supply of affordable homes is listed as an essential component of the overall strategy.
- Policy JP-Strategy 2: City Centre – The role of Manchester City Centre as the most significant economic location in the country outside London will be strengthened. This will be done by focusing on business, retail, leisure, culture and tourism, and increasing the role of residential in growing the City Centre.
- Policy JP-J1: Supporting Long-Term Economic Growth – there is an emphasis on maintaining a high level of economic diversity across the region, and facilitating the development of high value clusters in key economic sectors. This policy also aims to support local job growth, by seeking agreements with employers and developers, including housebuilders, to enter into local labour and training agreements through planning obligations.
- Policy JP-P5: Education, Skills and Knowledge – the policy aims to make enhancements to education, skills and knowledge to benefit existing and new residents. This will be done by enabling the delivery of new and improved facilities, and supporting the continued growth and success of the university sector. This will also be done through ensuring the delivery of sufficient school places to respond to the demands from new housing, such as through working with education providers to forecast changes in demand for school places, and where appropriate requiring housing developments to make a financial contribution to the provision of additional school places.

Local Policy

Manchester Core Strategy (2012-2027); (MCC, 2012)

11.14. The Manchester Core Strategy document, also knows as the Core Strategy Development Plan Document (DPD), is a key planning document that sets out the long-term spatial vision and strategic policies for the City of Manchester. It provides a framework for guiding development and shaping the city's growth and regeneration. The document is prepared by Manchester City Council and is based on extensive research, consultation, and analysis of the city's needs and aspirations. It covers a wide range of planning related topics, including land use, housing, employment, transportation, community facilities, and the environment. The Core Strategy was updated following the adoption of Places for Everyone (PfE) Joint Development Plan in March 2024. Some of the Core Strategy policies have been replaced by PfE policies.

11.15. The strategy document outlines Policy H1: prioritises residential developments on brownfield sites and emphasises the reuse of existing buildings in new developments. The housing trajectory and provision are now Replaced by PfE Policy JP-H1.

11.16. Policy H2: Strategic Housing Location identifies that the key location for new residential development throughout the plan period should be the area to the east and north of Manchester City Centre. The policy highlights that developers should take advantage of opportunities to provide significant regeneration benefits, including diversifying the housing offer to include the provision of houses and/or apartments.

11.17. In accordance with Policy H5, Central Manchester has been designated to accommodate around 14% of the new residential units to be developed by 2027. The Strategy places a strong emphasis on the prioritisation of family housing and other high-value development. Furthermore, the policy allows for the construction of high-density mixed-use housing. This applies to the Proposed Development, which is located within Central Manchester.

11.18. Policy H8 outlines the affordable housing requirements for all residential developments on Sites of 0.3 hectares and above, or where 15 or more units are proposed. New developments will contribute to the city-wide target for 20% of new housing provision to be affordable, and developers are expected to use this 20% target as a starting point for calculating affordable housing provision. The proportion of affordable housing units will reflect the type and size of the development, and affordable housing units will be inclusively designed to reflect the character of the development on Site. Exemptions may be granted under specific conditions, such as the presence of a high level of existing affordable housing or viability concerns. Furthermore, alternative equity-based options for delivering affordable housing will be considered, all with the overarching goals of enhancing housing affordability while considering economic factors during the development process.

11.19. Policy C1 states that the development of district centres that is aligned with the distinct local character, provides housing, a good range of services including retail, health, and leisure facilities.

Guidance

National Guidance

Planning Practice Guidance (MHCLG, 2016)

11.20. Planning Practice Guidance was first published in 2016 by the Ministry of Housing, Communities & Local Government, and sets out a series of planning guidance documents for local planning authorities, developers, and other stakeholders on various aspects of the planning system. Individual guidance documents have been updated since 2016.

11.21. The guidance documents cover several aspects around housing, including housing and economic needs assessment, housing for different groups, housing for older and disabled people, housing supply and delivery, among other pieces of housing guidance. There is also guidance for 'first homes', which stipulates that first homes should be considered to meet the definition of 'affordable housing' for planning purposes.

11.22. Assessing housing need should be the first step in the process of deciding how many homes need to be planned for and should be conducted separately from assessing land availability. Once a housing requirement figure has been calculated, policies should be prepared to address this figure. When considering the types of housing being built, authorities must consider the housing needs for different groups of people, and ensure adequate housing is provided for different groups including older people and disabled people.

Local Guidance

Investing in Success: An Economic Strategy for Manchester (MCC, 2023)

11.23. The Economic Strategy for Manchester outlines the commitments across the City to deliver inclusive economic growth where every resident has the opportunity to thrive, businesses can grow, and an environment where creativity and enterprise flourish. The economic performance of Manchester City is linked to the economic performance of Greater Manchester, and having a prosperous Manchester will lead to a prosperous Greater Manchester. By growing the economy of the city centre and being able to better connect people with the city centre, it can provide greater opportunities for people across the whole city region.

11.24. Some of the key enablers of growth for Manchester City have been reported:

- Housing: by creating a well-balanced housing market characterised by affordability and availability, this will act as a catalyst for economic activity. This can foster an environment conducive to investment and innovation, and supports the city's ambition for sustainable living environments that are well-connected to employment hubs and complemented by essential amenities and services.

- Transport: transport networks facilitate the movement of people and goods, connecting skilled workers to employment hubs and enabling businesses to operate efficiently. The city has expanded its transport network, but there is a current reliance on private vehicles poses challenges, which will require further improvements in public transport.

- Infrastructure: A range of critical infrastructure must be in place to deliver the next phase of economic growth and ensure that the city remains competitive and attracts new businesses. Infrastructure is also essential to ensure residents have the services and facilities they need. Digital connectivity is also now an essential to businesses and residents, and maintaining Manchester's competitiveness in all sectors requires continued investment in digital infrastructure.

- Skills, enterprise and labour: the emphasis is not just about meeting the immediate needs of the local economy, but also about preparing for the future, ensuring the workforce is well equipped to adapt to new challenges and opportunities. The Greater Manchester Local Skills Improvement Plan identifies the types of skills that are needed to enable occupations in science, technology and the green economy, and also healthcare, teaching ad business management.

Assessment Methodology and Significance Criteria

11.25. This section of the assessment outlines the methodology used to establish the potential economic and social effects of the Proposed Development assessed against the baseline conditions. The effects of the Proposed Development are considered at varying spatial levels according to the nature of the effect considered. This proposed approach follows HCA Additionality Guide 4th Edition, which is the widely accepted guidance for socio-economic assessment.

Scenarios Tested

11.26. Scenario 1 will be considered in our assessment under the Baseline Conditions section.

11.27. Construction of the Proposed Development will be provided across two phases, as outlined in Chapter 5. Socio-economic impacts have been assessed for the overall construction period (Scenario 3), under the Construction Phase section, and impacts for the construction phasing (Scenario 2) have also been included under this section. This provides details of the jobs created during the construction phase of each Plot.

11.28. Operational effects will be assessed on the basis of phases 1 and 2 of the Proposed Development coming forward and being fully operational. While some residents are likely to move into the Proposed Development before this date, this is when the full operational impacts will be experienced (Scenario 4). Phasing may affect the operational effects, if the developments from only one phase come forward, however, Scenario 4 considers the operational effects of phases 1 and 2 together, which will be assessed. Cumulative effects will also be assessed (Scenario 5), but phasing will not affect the scenario 5 assessment.

Baseline Study Methodology

11.29. The relevant baseline data has been accessed and analysed for the Site and/or local electoral ward level, and at the Borough and/or regional level where relevant. The baseline section of the assessment has been compiled using the following data sources:

- Additionality Guide (HCA, 2014);
- Annual Population Survey (ONS, 2024);
- Business Register and Employment Survey (ONS, 2023c);
- Census data (Office for National Statistics (ONS), 2021);
- Manchester City Council data;
- Department for Education (DfE) data;
- Greater Manchester data;
- National Health Service (NHS) data; and
- 2015 and 2019 Index of Multiple Deprivation (Ministry of Housing, Communities and Local Government) formerly Department for Communities and Local Government (DCLG), 2019)

Scope of the Assessment

11.30. The socio-economic assessment has been considered against existing socio-economic conditions. There are no obligatory standards or guidelines for defining socio-economic impacts and the significance of effects. In order to assess the significance of effects, professional judgment as to the proportionate impact of the Proposed Development in its local, regional and/or national context has been used. Relevant guidance has been used to calculate impacts. For example, the HCA Additionality Guidance has been used to apply relevant multipliers, leakage rates, and displacement rates in calculations, and the HCA Employment Densities Guide has been used to calculate gross jobs based on commercial floorspace and use class

11.31. The principal economic effect of the Proposed Development is considered relative to Manchester City Council, Greater Manchester (local), and the greater Northwest (regional) and England (national), as these represent the principal labour market catchment areas.

11.32. The measurement of additionality requires an intervention option, a reference (baseline) case, estimation of gross direct effects, leakage, displacement, and multiplier effects. This applies to this assessment's estimated of the employment generated by the Proposed Development.

11.33. Gross direct effects are the total effect of an intervention in terms of a specific output, such as employment. This considers both direct and wider induced effects.

11.34. Where possible, quantitative assessment has been undertaken. This relates particularly to the assessment of employment and economic effects. Gross employment is calculated in relation to the demolition and construction phases of the Proposed Development. The methodology applied for the calculation of gross employment generation in the demolition and construction phase is based on a turnover per construction employee estimate. For this assessment the average turnover per construction employee is £147,209 (in the North West of England). The number of FTE jobs created have been calculated based on the convention that each permanent FTE job is equivalent to ten person years of temporary employment.

11.35. At the operational stage, employment density figures for the non-residential uses within the Proposed Development are, where possible, derived from the HCA Employment Densities Guide.

11.36. In calculating the estimated number of jobs generated by the Proposed Development, both at the demolition and construction and operational stages, the methodology follows that set out in the HCA Additionality Guide 4th Edition. The guidance recommends that the gross number of jobs should be adjusted to arrive at a net figure which takes account of deadweight, leakage, and displacement. The same guidance has been used when calculating the indirect and induced multiplier effects. For clarity, the definitions of these terms are summarised below:

- Deadweight: defined as the 'output that would have occurred without the intervention.' In this case the 'intervention' is the Proposed Development;

- Leakage effects: are outputs that benefit those outside of the intervention's target area and are deducted from the gross direct effects. With regard to employment generation, this can be interpreted as those employed at the Proposed Development who reside outside of Manchester. According to 2021 Census data from the Office for National Statistics (ONS), 57.8% of those working in Manchester city live outside this area, and 3.8% of those working in the North West live outside the region. These correspond to a high to very high leakage rate for Manchester and a low leakage rate for the North West, as per HCA additionality guidance (ONS, 2021; HCA, 2014).

- Displacement: is the number of intervention outputs (e.g., jobs) that are accounted for by reduced outputs elsewhere in the target area. The additional employment generated at the Proposed Development would be net of employment lost from the existing uses on the Site. A displacement rate of 25% is assumed based on guidance and 'ready reckoner' values provided in the HCA Guidance.

- Indirect and induced multiplier effects: in commercial development pertain to employment, investment and income associated with both the construction phase and occupation of the premises. The presence of multiplier effects implies that the Proposed Development will have proportionately greater effects than the direct effect of investment alone. For example, employment generated further along the supply chain represents an indirect multiplier effect, while those jobs created through extra spending from workers in the area represent an induced multiplier. For the purposes of this assessment, a multiplier of 1.5 has been applied based on strong supply chain linkages at the regional level.

11.37. Additional expenditure associated with the Proposed Development is calculated with reference to Family Spending statistics (ONS, 2019). Family Spending provides figures for average weekly expenditure on goods and services for UK households.

11.38. The expected population for the Proposed Development has been calculated with the use of the Greater London Authority (GLA) Population Yield Calculator (GLA, 2019). The GLA Population Yield Calculator is a tool to estimate population yield from new housing development. It is commonly used across Great Britain due to its robustness and flexibility.

The Study Area

11.39. Effects on social and community infrastructure are assessed by various geographical effect areas, according to the most up-to-date socio-economic data or policy available. This depends in part on the availability of relevant data, but the impacts of the Proposed Development on social and community infrastructure will likely be more local in nature, rather than regional or national. Table 11.1 below illustrates the geographical area of effects and summarises the rationale for the effect area.

Table 11.1: Geographic Area of Effect

Effect	Geographical Area of Effect	Rational base for impacted area
Employment generation during demolition and construction phase	Greater Manchester and North West Region	Since demolition and construction employment is relatively mobile, it is not generally considered appropriate to assess the potential employment effects of the demolition and construction stage at the local level.
Employment generation during operational phase	Manchester City, Greater Manchester	Given the nature of the Proposed Development, which includes commercial space, it is likely that operational employment could impact at all scales.
Additional local spending	Manchester City, Greater Manchester, and North West Region	The impact of additional local spending could impact at all scales.
Primary Education Provision	Within 2km of the Site	Based on National Travel Survey distance thresholds
Secondary Education Provision	Within 3.2km of the Site	Based on National Travel Survey distance thresholds
Health Provision	Within 1.5km of the Site	Considered a reasonable walking distance within 1km, extended to 1.5km for lack of local service provision.
Open Space	On-site, 720m radius or 15 minute walk time	Recommended standard for natural and semi-natural open space as per the City Wide Open Spaces Sport & Recreation Study (2009)
Child Play Space	On-site, 480m radius or 10 minute walk time	Recommended standard for children's play space as per the City Wide Open Spaces, Sport & Recreation Study (2009)

11.40. The assessment of likely socio-economic effects is considered based on:

- Magnitude of change – this entails consideration of the absolute numbers of residents or employees affected and the size of the geographic area within which effects will be experienced.
- Scale of the impact – this requires consideration of the relative magnitude of each impact in its relevant market context; and
- Duration of the impact – more weight is given to long-term permanent changes than to short-term, temporary ones.

11.41. Conformity with standards for provision or accessibility as set out in relevant guidance and scope for mitigation is considered.

Source of Effect

Potentially Significant Effects

11.42. Table 11.2 sets out the potential effects from the Proposed Development, and the receptors likely to be impacted by these effects.

Table 11.2 Potentially significant socio-economic effects

Effect	Receptor	Applicable Development Phase
Temporary Employment opportunities, direct and indirect	The local economy and labour market	Construction
Employment generation through the increased population and new commercial space	The local economy and labour market	Operation
Increase in housing provision	The local housing market	Operation
Increase in affordable housing provision	The local housing market	Operation
Increased spending in the local economy as a result of the increased population	The local economy and local businesses	Operation
Increased demand for educational facilities	Local residents	Operation
Increased demand for healthcare facilities	Local residents	Operation
Increased demand for open space and play space	Local residents	Operation

Significance Criteria

11.43. The following criteria have been used to describe the sensitivity of the receptors, the magnitude of the impacts and the significance of the effects. There is no statutory definition of what constitutes a significant socio-economic effect and guidance is of a generic nature. The assessment of effects in this chapter has been based on the methodology presented in Chapter 2. The assessment has sought to be objective and to quantify effects where possible. Where quantification has not been possible, a qualitative assessment has been made and justified. A detailed description of the methodology for impact magnitude and sensitivity is included in the Identification and Evaluation of Likely Significant Effects section.

Baseline Conditions

11.44. In this section, an overview of the current socio-economic conditions in the Site's local and regional surroundings is presented. The assessment relied on various data sources, including:

- The 2021 Census data for insights into the area's demographics and economy;

- Data from the Office for National Statistics (ONS) to gain a comprehensive understanding of key local socio-economic indicators;

- Information from the National Health Service (NHS) to comprehend healthcare and related socio-economic aspects in the Site's vicinity;

- Information from DfE to assess the capacity of educational facilities within 2km and 3.2km from the Proposed Development for primary and secondary schools respectively.

11.45. Furthermore, relevant local and regional studies and assessments conducted in both Manchester City and Greater Manchester have been referenced to enhance the understanding of the Site's existing socio-economic dynamics.

Existing Site

11.46. The existing Site for Mayfield Phase 1b has no buildings or developments currently on the Site. The Site is part of the larger Mayfield Strategic Regeneration (SRF) boundary. Phase 1a of the development has been implemented which will deliver 400,000 sq.ft of commercial floorspace and a multi-storey car park. The Site is adjacent to the north of the Mancunian Way, to the south of Mayfield Park, to the west of Hoyle Street and to the east of Mayfield Phase 1a.

11.47. The Site borders Mayfield Park, the newly developed large outdoor space, and there are several other open spaces close to the Site, including Pin Mill Brow, a large park and garden just over 1km to the north east. The Site is also in close proximity to Freight Island and Depot Mayfield. Freight Island is a cultural hub of food, drink and entertainment, and Depot Mayfield is a 10,000 capacity venue in Manchester's historic former railway station. Depot Mayfield was transformed in 2019 into a multi-purpose space for arts, music, industry and culture. Both sites play a large role in the nighttime economy for the surrounding area of the Proposed Development.

Demographics

11.48. The Site is located within the Piccadilly ward, approximately 2.4km from Manchester City Centre. Piccadilly ward had a population of 14,007 in 2022, accounting for 3.6% of the total population of Manchester in 2022.

11.49. The population of Manchester increased by 4.0% between 2020 and 2022, compared to 1.8% and 1.4% regionally and nationally, indicating rapid population growth within Manchester. The total population in Manchester in 2022 was 568,996 (ONS, 2023d). The total population in Manchester is expected to grow by 4.3% by 2040, with people aged 65+ expected to be growing by 34.2%, from 53,502 to 71,815, and those aged 16-64 are expected to grow by 2.5%, from 400,859 to 411,048. The proportion of the population aged 0-15 is expected to shrink by 3.5% across the same period (ONS, 2023c).

11.50. In 2022, the proportion of the population that were working age (between 16-64) in Manchester was 70.5% (400,859 out of a total population of 568,996), which was higher than the regional and national figures, at 62.5% and 62.9% respectively, and up 5.2% since 2020. 74.5% of the population aged 16-64 were economically active in Manchester in 2023, compared to 76.7% in the North West and 79% nationally. The unemployment rate of those aged 16-64 was 4.1% in 2023 in Manchester, falling from 8.6% in 2020 (ONS, 2023c).

11.51. The population of the Piccadilly Ward, where the Proposed Development is located, comprises almost entirely of people aged 16-64 (95.8%), of which the vast majority are under 35 (75.2% aged 16-34), which is considerably higher than the Manchester, regional and national levels (ONS, 2023c). Overall, 26.6% of the total population in the Piccadilly Ward were full time students in 2021 (3,031 out of 11,375). This indicates that the Piccadilly Ward has a much higher concentration of students compared to Manchester as a whole (18.0% of total population), and the North West (8.0% of total population)(ONS, 2021).

11.52.

11.53. In 2023, 60.3% of the population aged 16-64 in Manchester had a degree level qualification or above (Regulated Qualifications Framework (RQF) Level 4+). This is much higher than the regional level, which was 44.4%. The proportion of those aged 16-64 with no qualifications was 4.6% in Manchester, which is lower than the regional level, at 6.7% (ONS, 2024).

11.54. Data from the 2021 Census shows that the ethnic minority population forms 51.4% of the population in Manchester. This is an increase from the proportion recorded in 2011, where 40.8% of the population were from ethnic minority backgrounds. The proportion of the population from an ethnic minority is much higher in Manchester compared to the regional level, where only 18.8% of the population are from an ethnic minority. The largest minority ethnic group was Asian, Asian British or Asian Welsh, in both Manchester and the North West, comprising 20.9% and 8.4% of the population respectively; of this, the Pakistani group is the largest, representing 11.9% and 4.1% of the population respectively (ONS, 2021).

Economic Profile

11.55. In 2023, the employment rate in Manchester was 71.4%, making it worse than the rate across the North West and Nationally, which were 73.8% and 76.0% respectively. The employment rate however was up from 67.0% in 2020. The median weekly earnings for residents in Manchester in 2023 was £634.80, which is lower than the national median reported as £683.40. Workplace earnings were higher in Manchester, reported as £706.70, making median workplace earnings higher than the national median at £683.50. Resident and workplace earnings in Manchester have both seen an increase since 2020 of £98.60 and £113.10 respectively. (ONS, 2023b)

11.56. The employment rates measured by industry group are presented in Table 11.3. The largest share of employment in Manchester is in the professional, scientific & technical group (14.1%), followed by health (12.3%) and business administration & support services (11.6%). Professional, scientific & technical, and business administration & support services are slightly higher than the proportions in the North West and England, and health is closely aligned to the proportions regionally and nationally. The industry sectors with the smallest share of the workforce are agriculture, forestry & fishing (0.02%), mining, quarrying & utilities (0.4%), and motor trades (0.5%). These proportions are broadly aligned to regional and national figures (ONS, 2023c).

Table 11.3 Proportion of employees by region (2022)

Broad industrial group	Manchester	North-West	England
Agriculture, forestry & fishing	0.0%	1.1%	1.3%
Mining, quarrying & utilities	0.4%	1.0%	1.1%
Manufacturing	3.0%	8.8%	7.4%
Construction	2.1%	5.2%	4.9%
Motor trades	0.5%	1.6%	1.8%
Wholesale	3.0%	4.3%	3.8%
Retail	6.9%	8.7%	8.4%
Transport & storage (inc postal)	6.0%	4.7%	5.1%
Accommodation & food services	8.6%	7.9%	7.9%
Information & communication	5.8%	3.3%	4.7%

Broad industrial group	Manchester	North-West	England
Financial & insurance	4.4%	2.4%	3.3%
Property	3.0%	1.8%	2.0%
Professional, scientific & technical	14.1%	9.4%	9.5%
Business administration & support services	11.6%	8.2%	9.0%
Public administration & defence	5.3%	4.8%	4.2%
Education	9.3%	7.8%	8.3%
Health	12.3%	14.8%	12.9%
Arts, entertainment, recreation & other services	3.7%	4.0%	4.4%

Health

11.57. NHS Greater Manchester serves a total of 3,282,643 patients registered across a total of 407 GP practices. There are a total of 2,065 GP FTEs across Greater Manchester, which equates to an average patient list size of 1,589 per FTE GP (NHS Digital, 2024).

11.58. There are four GP practices situated within a 1.5km walking radius from the Proposed Development Site, shown in Table 0 4. All of these GP surgeries have a patient-to-GP ratio of higher than 1,800, the Department for Health (DfH) target of registered patients per FTE GP. The nearest GP practice to the Proposed Development is Vallance Medical, which is situated approximately 0.5km from the Proposed development, and has a high patient-to-FTE GP ratio of 11,402.

11.59. The majority of the population (75.2%) in the Piccadilly Ward are aged 16-34. On the reasonable assumption that a more elderly patient is more likely to generate higher demand for primary healthcare services, this may alleviate some of the pressure on the surrounding GP practices which have a high patient to GP ratio.

Table 11.4: General Practitioners within walking distance (NHS Digital, 2024)

GP Practice	Distance (km)	Registered Patients	FTE GPs	Patients per FTE GP
Vallance Medical	0.5	15,507	1	11,402
Brunswick Medical Practice	0.5	7,941	2	3,593
New Islington Medical Centre	1.0	11,423	3	3,330
The Doc's Surgery	1.1	12,483	4	3,347
Total		**47,354**	**11**	**4,413**

* Numbers may not add up due to rounding

11.60. The following dentists are within 1.5km of the EIA Site:

- The Vallance Dental Care (0.5km)
- Revive Dental Care Limited (1km)
- MyDentist, Stevenson Square (1.3km)
- New Cross Dental Surgery (1.5km)
- City Centre Dentists (1.5km)

11.61. In addition, the following secondary healthcare providers are situated within 5km of the Proposed Development:

- Several opticians offering NHS sight tests, with the closest located 0.6km away from the EIA Site
- Two sexual health clinics within 1.5km of the EIA Site
- Three locations within 1.5km offering support for drug or alcohol addiction.

11.62. There are five hospitals within 1.5km of the EIA Site, including a children's hospital, an eye hospital, and a dental hospital. Manchester Royal Infirmary is located 1.4km from the EIA Site and is a large NHS Hospital and teaching hospital with a wide range of departments and services offered.

11.63. Greater Manchester Integrated Care Partnership offers a range of services including living with long COVID, mental health support, and vaccinations, among others. The Greater Manchester mental health support hub provides resources for a number of different topics including eating disorders, talking therapy, bereavement, and suicide prevention. There are also a number of telephone numbers and links to external support platforms including SilverCloud, Kooth, Qwell, and the Greater Manchester Bereavement Service. Greater Manchester have also published the Greater Manchester Mental Health and Wellbeing Strategy (GM, 2024).

Index of Multiple Deprivation (IMD, 2019)

11.64. The Index of Deprivation (IMD) is a national dataset published by the Ministry of Housing, Communities, and Local Government (MHCLG), that provides a tool for ranking deprivation spatial analysis in England at the local authority level and Lower-level Super Output Areas (LSOAs). The IMD combines deprivation information from seven domains: income; employment; education, skills and training; health deprivation and disability; crime; barriers to housing and services; and living environment.

11.65. There are 282 LSOAs in Manchester local authority, and 43% of these (122) were in the 10% most deprived LSOAs in 2019, up from 41% in 2015. An additional 45 LSOAs were in the 20% most deprived in 2019, meaning over half of the LSOAs in Manchester were in either the 10% or 20% most deprived. There are no LSOAs in the 10% least deprived and only one LSOA in the 20% least deprived neighbourhoods in England. Manchester ranked 2 out of the 317 local authorities across England, indicating high levels of deprivation across the local authority.

11.66. Manchester ranked 1 out of 317 for crime deprivation, with 61.4% of the LSOAs in the 10% most deprived. Manchester also performs poorly in terms of health deprivation, ranking 5 out of 317, and 52.1% of the LSOAs in the 10% most deprived. Manchester performs better for education, skills and training, and employment deprivation, ranking 72 and 55 respectively and 14.5% and 33.7% of LSOAs in the 10% most deprived.

11.67. The Site is located within Manchester 055E LSOA, within the Piccadilly ward. This LSOA is among the 30% most deprived neighbourhoods in the country. When comparing the Piccadilly Ward to other Wards in Manchester, it is one of the least deprived across the City. The least deprived Wards in Manchester have a score of 15.5-31.1, and the most deprived range from 48.4-62.7. Piccadilly Ward has a score of 26.83.

Housing Profile

11.68. According to 2021 Census data, Manchester boasts a total of 214,730 dwellings. Of these, 6,263, or 2.9% are located within the Piccadilly ward. Across Manchester, the majority (61.8%) of households are in rental accommodation, with 29.5% in social rented and 32.3% in private rented. This is significantly higher than across the North West and England, where 36.9% and 37.6% of households are in rental accommodation, with 17.6% and 17.1% being in socially rented accommodation respectively. According to Census 2021 data, Manchester was in the highest 4% of English local authority areas for the share of households in the social rented sector in 2021. Only 37.2% of households are owned in Manchester compared to 62.3% in the North West and 61.3% in England (ONS, 2021).

11.69. According to 2021 Census data, in the Piccadilly Ward in Manchester, 98.0% of all housing units are flats, with only 1.9% of housing types being some form of house (detached, semi-detached, or terraced). This is very different to the housing type across Greater Manchester, which is characterised by having 65.3% of all housing units as either detached, semi-detached, or terraced housing, and only 34.6% flats, which is significantly lower than the Piccadilly Ward (ONS, 2021)

11.70. The average house price in Manchester in March 2024 was £238,044, with the average price for a flat being £206,438 and a detached house being £420,600. Manchester is cheaper than the average across England, where the price of a property cost on average £299,321 in March 2024, a flat cost £247,313 and a detached house cost on average £465,243 (Land Registry, 2024).

Education

11.71. In 2023, the average trip distance to school for 5- to 16-year-olds in England was 2.4 miles (3.8 km) and the average time to school was 19 minutes. This varies based on the type of schools and age of pupils.

11.72. The National Travel Survey states that the distance threshold for primary school children to travel to school in the North West is 2km (DfT, 2024). As such, the baseline for primary education considers schools within 2km of the Site.

11.73. Travel statistics by the Department for Transport show that secondary school children travel further and therefore it is appropriate to consider education provision on a wider geographical basis. According to the National Travel Survey, the distance threshold for secondary school children to travel to school in the North West is 4.5km and as such, this is the baseline for secondary education provision.

11.74. The existing baseline education provision relevant to the Site has been assessed considering the National Audit Office (NAO) guidance. In terms of availability of education places, the NAO states that “it considered that on average 5 per cent was the bare minimum needed for authorities to meet their statutory duty with operational flexibility, while enabling parents to have some choice of schools”.

Primary Education

11.75. Table 11.3 presents information about the 18 primary schools located with a 2km radius of the site, which corresponds to the average distance travelled by primary-age pupils in North-West England (DfT, 2024).

11.76. The table indicates which schools have the capacity to accept new pupils, and which schools are already at or over capacity. The table suggests there is a surplus of 201 spaces in primary schools located within walking distance of the Site.

11.77. It is assumed that 95.0% occupancy should be planned for, as per Audit Commission Guidance. At a 95% level, the provision of primary school places is no longer in a surplus and falls to a deficit of 110 spaces. There are additional primary schools in the area, which have not been included in Table 11.5, as capacity and enrolment information is not available.

Table 11 5: Primary Education Schools within walking distance (DfE, 2024)

School Name	Number of Roll	Capacity	Surplus/Deficit	Surplus/Deficit at 95% Capacity
Abbott Community Primary School	239	240	1	-11
Plymouth Grove Primary School	408	472	64	40
Webster Primary School	479	420	-59	-80
Medlock Primary School	432	500	68	43
St Chrysostom's CofE Primary School	478	465	-13	-36
Armitage CofE Primary School	487	500	13	-12
St Luke's CofE Primary School	459	485	26	2
St Philip's Church of England Primary School	199	210	11	1
Holy Name Roman Catholic Primary School Manchester	225	210	-15	-26
St Brigid's RC Primary School	232	207	-25	-35
St Patrick's RC Primary School	196	250	54	42
St Wilfrid's RC Primary School	225	210	-15	-26
CofE School of the Resurrection	212	210	-2	-13
St Joseph's RC Primary School Manchester	243	249	6	-6
St Anne's RC Primary School	227	218	-9	-20
Ashbury Meadow Primary School	488	494	6	-19

School Name	Number of Roll	Capacity	Surplus/Deficit	Surplus/Deficit at 95% Capacity
Park View Community Primary	407	459	52	29
Co-Op Academy New Islington	382	420	38	17
Total	6,018	6,219	201	-110

Secondary Education

11.78. Table 11.6 provides information for the 13 secondary schools accommodating students aged between 11 to 18, located within a 4.5k radius from the Site. This distance aligns with the average distance travelled by secondary-age pupils in North-West England (DfT, 2024).

11.79. The difference between the number of students enrolled in a school and the number of school places is presented in Table 11.6. The difference indicates whether provision of school places is over or under capacity. The data suggests that there is a surplus of 1,597 in secondary schools located within walking distance of the Site. If it is assumed that 95.0% occupancy should be planned for, the total surplus would decrease to 908 secondary school places within 4.5km of the site. It should be noted that full capacity information is not available for some schools within 4.5km of the Site, and have therefore not been listed in Table 11.6 below.

Table 11.6: Secondary schools within walking distance (DfE, 2024)

School Name	Number of Roll	Capacity	Surplus/ Deficit	Surplus/ Deficit at 95% Capacity
Trinity CofE High School	1,506	1,500	-6	-81
St Peter's RC High School	1,046	1,000	-46	-96
Manchester Academy	1,090	1,170	80	22
The East Manchester Academy	930	1,000	70	20
Manchester Communication Academy	1,224	1,200	-24	-84
Manchester Creative Studio	39	300	261	246
Dean Trust Ardwick	1,292	1,200	-92	-152

School Name	Number of Roll	Capacity	Surplus/ Deficit	Surplus/ Deficit at 95% Capacity
Eden Boys' Leadership Academy, Manchester	627	800	173	133
Eden Girls' Leadership Academy, Manchester	625	800	175	135
Co-op Academy Belle Vue	217	1,200	983	923
Cedar Mount Academy	880	900	20	-25
Whalley Range 11-18 High School	1,667	1,650	-17	-100
Manchester Enterprise Academy Central	1,050	1,070	20	-34
Total	**12,193**	**13,790**	**1,597**	**908**

Open Space and Child Play Area

11.80. Manchester City Council last conducted an open space audit in 2009/10, and an updated audit was commissioned in 2022, as part of the new Local Plan. The audit identifies that Manchester is home to more than 150 parks and significant areas of semi-natural and amenity open space.

11.81. The current provision of open space in Manchester City Centre is 0.95 hectares (ha) per 1,000 population, which is below the recommended standard of 1.9 ha per 1,000 population. Manchester City Centre is characterised by high density housing, predominantly in the form of apartments with no gardens, making the effective provision of green space particularly important (MCC, 2009).

11.82. The Proposed Development is within a reasonable walking distance, as per Manchester City Council's accessibility standards, of four parks, gardens, and outdoor sports facilities. Table 0.5 below shows the parks and open spaces within close proximity to the Proposed Development, and the accessibility standards outlined in the Open Space Audit.

11.83. Mayfield Park was developed as in an earlier phase as part of the Mayfield Strategic Regeneration Framework (SRF), which is now complete and operational. This provides 6 acres of open and play space within walking distance of the EIA Site. The 2009 Open Space Audit identifies the local standards for different categories of outdoor space, presented in Table 11.7.

Table 11.7: Surrounding parks and open spaces

Open Space typology	Quality Standard (ha per 1,000 population)	Accessibility Standard	Example and distance from Proposed Development (m)
City Parks	0.2	15 minute drive	Mayfield Park (0m)

Open Space typology	Quality Standard (ha per 1,000 population)	Accessibility Standard	Example and distance from Proposed Development (m)
			Pin Mill Brow (450m)
Local Parks	0.49	10 minute walk (480m)	Ardwick Green Park (275m)
Natural and Semi Natural Open Space	1.9	15 minute walk (720m) 15 minute drive time (City Centre)	n/a
Amenity Green Space	0.4	10 minute walk (480m)	Ardwick Green (300m)
Provision for Children	0.027	10 minute walk (480m)	Mayfield Park (0m)
Provision for young people	0.034	15 minute walk (720m)	n/a
Outdoor Sports Facilities	0.98	15 minute walk time (720m)	Nicholls Community Football Centre and Power league (450m)

Identification and Evaluation of Likely Significant Effects

Methodology for Determining Impact Magnitude

11.84. The criteria used to assess how far an effect deviates from the baseline condition i.e., the magnitude of change, are described in Table 11.8 below.

Table 11.8: Criteria for determining magnitude of change/impact

Magnitude	Criteria
Large	Effects that would have a significant economic or social effect locally or would be felt more widely than the city scale. Likely to directly affect many receptors or those with high sensitivity.
Medium	Effects that have a material economic or social effect locally or would be felt at a city scale.
Small	Effects that have some economic or social effect at a much-localised level.
Negligible	Effects that have minimal economic or social effects.

Methodology for Determining Sensitivity

11.85. Receptors sensitive to socioeconomic factors vary in their nature and scale, and as such their values cannot be directly compared. Evaluation of socioeconomic receptors therefore requires a qualitative, rather than quantitative, assessment of the sensitivity of each receptor, regarding their ability to respond to change based on recent rates of change and turnover. The criteria for assessing the sensitivity of receptors is outlined in Table 11.9 below.

Table 11.9: Criteria for determining receptor sensitivity

Receptor	Sensitivity
High	Receptors that will be most directly affected by any effects of the Proposed Development and receptors with significant economic or social stake in the area (e.g. residents of the Proposed development, local residents)
Moderate	Receptors that are sensitive to effects by virtue of proximity, accessibility or the specific facilities or uses provided by the Proposed Development (e.g. local community facilities, employees, businesses)
Low	This category represents receptors that are likely to experience some effect from the Proposed Development but at a low level (e.g. existing local businesses)
Negligible	Receptors with minimal connection to the Site and little likelihood of being affected by any development effects (e.g. regional population)

Impact Significance Matrix

11.86. This assessment uses the scale of significance described in ES Chapter 2 Methodology to assess the potential and residual effects of the Proposed Development against the baseline conditions. As mentioned, the assessment process aims to be objective and quantifies the effects as far as possible. However, some socio-economic effects can only be evaluated on a qualitative basis.

11.87. The significance of a potential effect is derived by considering both the sensitivity of the feature and the magnitude of change, as demonstrated in Table 11.10.

11.88. Note that moderate and major effects are considered to be 'significant'. Where an effect is assessed as being within the 'Moderate / Minor' category, professional judgment has been used to determine if it is considered a significant effect or not.

Table 11.10 – Significant of Effect Matrix

		Magnitude of Change/Impact			
		Large	Medium	Small	Negligible
Receptor Sensitivity	High	Major	Major	Moderate/Minor	Negligible
	Moderate	Major	Moderate	Minor	Negligible
	Low	Moderate/Minor	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Sensitive Receptors

11.89. The socioeconomic context is ever evolving and responsive, with ongoing shifts that impact various elements. In this section of the ES chapter, the adaptability of receptors is evaluated, assigning a 'low' sensitivity designation to those capable of adjusting to changes. For instance, displaced workers who can secure alternative employment within the surrounding area or within Greater Manchester are considered less sensitive than receptors that exhibit less flexibility, like social infrastructure resources. A summary of the identified receptors and their sensitivity can be found in Table 11.11.

Table 11.11 Identified receptors and their sensitivity

Receptor	Sensitivity	Justification
Local residents in the surrounding areas	Moderate	The area is presently vacant; consequently, no current residents will be affected. However, nearby residents may be sensitive to alterations in traffic patterns and property values. Furthermore, the introduction of 879 new dwellings will lead to an increase in the local population. The baseline identified a lower proportion of children within the local ward and immediate surrounding area compared to the Manchester and regional average.
Children & young people in the local areas	Low	There are currently no residents and no children on the site. Residents in the neighbouring areas will be affected by increase in services and service demand.
Local business	Low	Sensitivity varies depending on the nature of the business. Businesses located near the Proposed Development are more likely to experience greater footfall from the increase in new residents. While certain businesses might experience temporary disruptions during the construction phase, it is important to note that the long-term impacts will endure owing to the rise in local expenditure.
Employment opportunities	Low	The impact of the Proposed Development is expected to be minimal due to the site's current vacancy. More employment opportunities are expected to be created through the inclusion of commercial space.
New residents within the Proposed Development	Moderate	The Proposed Development will have moderate to high levels of impact on new residents. New residents are likely to be readily adaptive to change.
New employees within the Proposed Development	Moderate	The Proposed Development will have moderate to high levels of impact on existing residents. New employees and businesses are likely to be readily adaptive to change.

Construction Phase

11.90. The Proposed Development is expected to generate new employment opportunities within the construction sector. To estimate the scale of this employment, standard ratios for gross output per construction employee have been used. This chapter first projects the total gross construction employment resulting from the Proposed Development and subsequently consider factors such as leakage, displacement, and multiplier effects. These analyses have enabled an evaluation of the net impacts on both local and regional economies.

11.91. The estimated construction period for the Proposed Development spans approximately 5 years, accounting for the overlap between enabling works and the construction programme (i.e., non-permanent works). Consequently, the impact is transient in nature. Although these employment opportunities are short-term, they represent a favourable economic impact that can be quantified based on the construction's scale and type.

11.92. The direct expenses associated with constructing the Proposed Development will boost economic activity in Piccadilly ward, Manchester and the broader regional economies. To estimate the employment created during the temporary construction phase, the average output per construction industry employee is applied

to the estimated total construction cost. As a result, the Proposed Development is projected to generate a total of up to 1,575 person-years of construction employment on-site.

11.93. Using the convention of equating ten person-years of employment to one full-time equivalent (FTE) job in the construction sector, it is estimated that approximately up to 158 gross FTE construction jobs will be generated during the temporary construction phase.

Leakage Effects

11.94. Leakage effects refer to impacts that occur outside the project's immediate area. In the case of the Proposed Development, leakage pertains to the loss of employment opportunities beyond the boundaries of Manchester City. Analysis utilising Census 2021 origin-destination data reveals that 62.9% of individuals employed in Manchester travel less than 10 km to their work destination, or work from home in Manchester. This corresponds to a medium to high leakage rate of 37.1%, as defined by HCA Additionality Guidance (HCA, 2014), suggesting that a substantial portion of the benefits will accrue to individuals residing outside the project's benefit area.

11.95. Applying a leakage rate of 37.1% to the estimated up to 158 gross direct construction jobs created by the Proposed Development indicates that an estimated up to 99 individuals from within Manchester and up to 58 individuals from elsewhere will be employed on-site throughout the construction period.

Displacement Effects

11.96. Displacement measures the extent to which a project's benefits are offset by reductions in output or employment elsewhere. Increased demand for labour has the potential to draw workers away from other positions, thereby reducing the net benefit.

11.97. Construction workers often shift between projects, especially when delays occur or to meet project deadlines. It is assumed that due to the labour market's flexibility and the fact that construction workers at the Proposed Development represent a small proportion of the Manchester labour force, displacement effects on direct construction employment will be minimal. In the context of a Manchester construction project, a low displacement rate of 25% is considered appropriate, as per the HCA guide (HCA, 2015). Applying this displacement rate to the total gross direct employment figure of up to 158 construction employees yields a net direct employment figure of up to 118 workers.

Multiplier Effect

11.98. In addition to the direct employment generated by the Proposed Development itself, there will be an increase in local employment arising from indirect and induced effects of the construction activity. Employment growth will arise locally thought manufacturing services and suppliers to the construction process (indirect or supply linkage multipliers). Additionally, part of the income of the construction workers and suppliers will be spent within Greater Manchester Area, generating further employment (in terms of induced or income multipliers).

11.99. Applying a multiplier of 1.5 to the total net direct employment figure of 118 construction workers results in net indirect employment of 59 jobs during the construction period.

Net Construction Employment Effects

11.100. Table 11.12 presents the temporary employment generated by construction of the Proposed Development, taking leakage, displacement, and multiplier effects into account. The total net additional employment created by the Proposed Development within Manchester is estimated to be up to 111 FTE jobs, whilst up to 66 FTE jobs will be created outside of Manchester, supporting a total of 177 FTE net jobs during the temporary construction phase. Table 11.12 and Table 11.13 show the construction jobs created for each phase and Table 11.14 presents the total construction benefits for Scenario 2.

Table 11.12: Construction Employment Effects Phase 1

	Manchester	Elsewhere	Total
Gross Direct Employment	54	32	86
Displacement	14	8	22
Net Direct Employment	41	24	65
Indirect & Induced Employment	20	12	32
Total Net Employment	**61**	**36**	**97**

Table 11.13: Construction Employment Effects Phase 2

	Manchester	Elsewhere	Total
Gross Direct Employment	45	26	71
Displacement	11	7	18
Net Direct Employment	34	20	53
Indirect & Induced Employment	17	10	27
Total Net Employment	**50**	**30**	**80**

Table 11.14: Construction Employment Effects for both Phases

	Manchester	Elsewhere	Total
Gross Direct Employment	99	58	158
Displacement	25	15	39
Net Direct Employment	74	44	118
Indirect & Induced Employment	37	22	59
Total Net Employment	**111**	**66**	**177**

11.101. In the context of a large labour pool of construction workers in Manchester, the direct, indirect, and induced employment and expenditure created by the temporary construction phase of the Proposed Development is assessed to result in a moderate beneficial, long-term and temporary effect on the Manchester economy.

Operational Phase

11.102. This section analyses the scale, duration, and significance of socio-economic effects relative to the baseline socioeconomic conditions recognised in the previous sections of this chapter. Effects are assessed for the Proposed Development once completed and occupied. Relevant aspects of the Proposed Development and designed-in mitigation.

Existing Employment Deadweight

11.103. The existing employment that the site supports can be referred to as the 'deadweight' level of employment. 'Deadweight' refers to the outcome which would have occurred without intervention. As the site currently does not accommodate any employment, the existing employment deadweight is considered zero.

Operational Employment and Economic Effects

11.104. Upon completion and operation, the Proposed Development is expected to create long-term job opportunities. When estimating the project's operational job impact, it is essential to consider both its gross and net effects. This evaluation should account for factors such as leakage, displacement, and multiplier effects.

11.105. The level of existing employment supported by the site can be described as its "deadweight" employment. Deadweight refers to the outcome that would naturally occur without any external intervention. Since the site currently does not host any employment, its existing employment deadweight is zero.

11.106. The number of jobs generated by the Proposed Development will be contingent on the final mix of development and the allocation of floor space by usage category. The preliminary Proposed Development plan includes approximately 3,611 sq. m. (Gross Internal Area) of commercial space, across the two plots.

11.107. Based on appropriate employment density calculations, it is anticipated that the Proposed Development, once completed and operational, could yield a total of 107 gross direct jobs within the proposed Commercial space. It is worth noting that the estimated gross direct employment might not accurately represent the actual employment resulting from the commercial floor space. This discrepancy arises from the employment density assumptions made during this stage. The precise employment density of the flexible commercial space will depend on the specific arrangement of each usage class during operation.

Table 11.15: Gross Direct Operational Employment

Employment Space	Floorspace (sqm) (NIA)	Employment density (sqm) (GIA)	Gross Direct Employment
Commercial E (a, b, c) Retail/Restaurant/Cafe	1,870.1	20	94
Commercial E (d) Sport & Recreation	1,713	65	30

11.108. Assuming a leakage rate of 37.1%, a low level of displacement (25.0%) and a 1.5 multiplier, it is estimated that the Proposed Development will result in a total net gain of an estimated 120 jobs, of which approximately 76 will be created within Manchester. Table 11.16 presents further details.

Table 11.16: Net Operational Employment

Employment Space	Manchester	Elsewhere	Total

Gross Direct Employment	67	40	107
Displacement	17	10	27
Net Direct Employment	50	30	80
Indirect and Induced Employment	25	15	40
Total Net Employment	76	45	120

11.109. Considering the additional net direct, indirect, and induced employment created by the permanent employment from the Proposed Development, it is assessed that there will be moderate beneficial long-term permanent effect on the city of Manchester economy.

Indicative tenure size and unit mix

11.110. The Proposed Development will introduce 879 more units to the neighbourhood. Plot J will have 385 new units and Plot K will have 494 new units. All of the units in the Proposed Development will be market and there will be no affordable housing provided.

11.111. Additionally, there will be a dedicated area of 2,118 sqm (GIA) for back-of-house operations, plant, cycle parking, and bin storage in Plot K.

Table 11.17: Indicative unit size mix

Dwelling	Total Units (Market)
1 Bedroom	287
2 Bedroom	545
3 Bedroom	47
Total	879

11.112. The likely number of future residents at the Proposed Development has been calculated based on the occupancy rates of the different sized homes, as per the approach in the GLA Population Yield Calculation (2019), which, in the absence of local guidance, provides an estimate of the number of future residents of the Proposed Development. However, proportion of households with a dependent child within Manchester City Centre is around 2%, meaning a much lower figure than that set out below in Table 11.18 is likely.

Table 11.18: Demographic split of the total number of residents in the Proposed Development (GLA, 2019)

Dwelling	Total Residents
Ages 0, 1, 2, 3 & 4	202
Ages 5, 6, 7, 8, 9, 10 & 11	130
Ages 12, 13, 14 & 15	25

Dwelling	Total Residents
Ages 16 & 17	13
18-64	1,471
65+	35
Total	1,875

Additional Local Spending

11.113. To estimate the benefit of the Proposed Development in terms of additional local expenditure, average weekly spending figures for residents in North - West England have been applied to the estimated number of residents. The likely number of residents has been calculated based on the occupancy rates outlines within the GLA Population Yield Calculator.

11.114. An estimated 1,875 people will reside at the Proposed Development.

11.115. To ensure a conservative estimate of new local spending, it is further assumed that some of those moving to the new market tenure homes would already reside in the local area, Manchester, and would thus not generate net new expenditure. To account for this, a displacement rate of 25% has been applied based on HCA ready reckoners. This discount also accounts for the potential to 'double count' the employment benefits.

11.116. To account for additional regional expenditure rather than at city of Manchester level, a leakage rate is accounted for. It is assumed that 37.1% of the household expenditure will be leaked outside of Manchester.

11.117. By applying these assumptions, a total net expenditure of £5,299 per person per annum is generated into the Manchester economy, as shown in Table 11.19.

Table 11.19: Direct, Indirect and Induced Spending per Person per Annum in Manchester (HCA, 2014; ONS, 2023a; Buro Happold calculations, 2024)

	Gross Direct Expenditure (£)	Net Direct Expenditure (£)	Total Net Expenditure (£)
Total Net Spending	11,237	8,428	5,299

11.118. Applying the average expenditure figures to the estimated 1,875 residents occupying market homes within the Proposed Development, an estimated total net benefit of up to £9.9m million per annum of additional local spending is generated. It is assumed that residents occupying the new affordable housing already live in the area therefore spending by these residents is not included in a calculation of the net additional local spending. The table below shows the direct, indirect, and induced residential spending in Manchester.

Table 11.20: Direct, Indirect and Induced Residential Spending in Manchester (HCA, 2014; ONS, 2023a; Buro Happold calculations, 2024)

	Gross Direct Expenditure (£)	Net Direct Expenditure (£)	Total Net Expenditure (£)
Total Net Spending	21,067,364	15,800,523	9,934,571

11.119. Considering the additional annual spending by residents within the Proposed Development, it is assessed that there will likely be a moderate beneficial (significant), long-term permanent effect at the local level and a minor beneficial (not significant), long-term permanent effect at all other spatial scales.

Housing

11.120. The Manchester Local Plan Strategy (2012) set out a target for an additional 50,000 dwellings in 20 years, resulting in an average of 2,500 dwellings provided per year. Policy H2 of the Core Strategy identifies a delivery requirement of 1,070 per annum on average within the Strategic Housing Location, where the Proposed Development is located. This target was supplemented by the Manchester Housing Strategy (2022), which identified a delivery target of 36,000 dwellings between 2022-3032, and also the PfE Joint Development Plan (GMCA, 2024) for 60,061 new dwellings across Manchester City from 2022 – 2039, or 3,533 per year.

11.121. The Proposed Development will contribute to meeting these targets by providing an additional 879 units, which represents approximately 24.9% of the average annual housing target outlined in the PfE Joint Development Plan for Manchester City.

11.122. Once the Proposed Development is completed, the additional 879 homes are considered to have a major beneficial (significant), long-term permanent effect on meeting the target for new housing provision in Manchester.

Affordable Housing

11.123. Affordable housing is defined as homes subsidised below market value ('intermediate homes') and social rented homes.

11.124. The Manchester City Council Core Strategy (2012) set the expectation that new developments will provide a minimum of 20% affordable housing. The Plan stipulates that 5% should be for social or affordable rented housing and 15% for intermediate housing. However, this target was replaced in the 2024 Core Strategy Addendum, by policy JP-H2 in the 2024 PfE Joint Development Plan, which stipulates that it is important to provide a diverse mix of values and tenures, as well as an increase in affordable housing. No specific targets have been set for affordable and intermediate housing.

11.125. In addition, the Manchester Housing Strategy (2022) identifies a delivery target of 10,000 new affordable homes in the decade between 2022 and 2032.

11.126. Of the 879 homes included in the Proposed Development, all will be market homes. The current viability appraisal shows that the scheme, with the inclusion of affordable housing, will render the project unviable. There are opportunities to deliver off site affordable housing if the levels of profit change based on agreed metrics, when the scheme's viability is re-appraised prior to completion. However, based on the current proposed contribution to affordable housing, it is assessed that this will result in a minor adverse effect on affordable housing provision in Manchester.

Education

11.127. This section assesses the effects of increasing demand for education. The Proposed Development will result in an increased demand for educational places in any households with children occupying the new units.

Education Demand

11.128. The education assessment below describes the pupil yields, which have been calculated using the GLA Calculator, to obtain the number of children resident within the Proposed Development. Standard assumptions of the proportion of children assumed to generate new demand for school places have been applied to the population yields, to calculate the number of children likely to require access to schools within the local area.

11.129. Applications of these yields and assumptions to the accommodation schedule provides the following total number of school places at different stages of education provision as shown in Table 11.21.

Table 11.21: Estimated School Places Yield from the Proposed Development

Header	Primary School	Secondary	Total
Number of pupils	92	17	110

* Numbers may not add due to rounding.

Primary Education

11.130. The baseline analysis indicates that there is currently a deficit of 110 primary school places within 2.0 km of the Site at a 95% occupancy rate.

11.131. Considering the assessment above, the expected demand arising for primary school places of up to 92 students could not be fully met within local schools. As a result, it is anticipated that the Proposed Development will have a minor adverse (not significant) effect on the provision of primary school places at the local level, which is not significant.

Secondary Education

11.132. The baseline analysis indicates that there is currently a surplus of 908 secondary school places within 4.5 km of the Site at a 95% occupancy rate .

11.133. It is estimated that the Proposed Development will result in demand for up to 17 additional secondary school places, which could be met locally. As such, the Proposed Development is likely to have a negligible effect on secondary education provision within the local area.

Primary Healthcare

11.134. The baseline analysis identifies four GP practices located within a 1.5 km walking distance of the site. The current patient-to-FTE GP ratio stands at 4,413, which is notably higher than the national average of 1,800 patients per GP.

11.135. The projected addition of 1,875 residents due to the Proposed Development will increase the demand on local healthcare facilities. Furthermore, since 2015, employees have had the option to register with a GP near their workplace rather than their home. The inclusion of 76 new employees to the local area as a result of the Proposed Development, is expected to have a minimal impact on local GP practices.

11.136. In the scenario where all new residents and employees choose to register with local GPs, the patient-to-GP ratio would rise to 1 GP per 4,595 patients, significantly higher than the national standard of 1,800 patients per GP. The younger population profile of the Piccadilly Ward may offset some of the increasing pressure on the surrounding GP practices, under the assumption that an elderly patient would likely generate higher demand for healthcare services. However, the healthcare services in the surrounding area are already

oversubscribed and additional residents will add additional pressure. As a result, it is assessed that the Proposed Development is likely to have a minor adverse (not significant) effect on primary healthcare provision at the local level.

Open Space

11.137. The baseline analysis shows that the Proposed Development is within a reasonable walking distance of four parks and gardens.

11.138. Manchester City Council sets out standards of green space provision for local parks at 0.49 ha/1,000 persons, natural and semi-natural greenspace at 1.9 ha/1,000 persons, and amenity greenspace at 0.4 ha/1,000 persons.

11.139. It is estimated that the Proposed Development will accommodate 1,875 residents, who will place additional demands on open space. The baseline analysis has shown that the site has access to two large open spaces, including the newly developed Mayfield Site, which sits adjacent to the Proposed Development.

11.140. The Proposed Development will include approximately 499 sqm of open space consisting of an amenity level (46 sqm), and a roof terrace (154 sqm). All of the open space is open to the public apart from the podiums (277 sqm). The provision of green public space will help mitigate the impact the increased resident population may have on public spaces in the local area and provide new accessible open space for residents and employees within the surrounding locality.

11.141. The Proposed Development is also walking distance from the newly developed Mayfield Park, which provides a large amount of open space.

11.142. Overall, it is estimated that the Proposed Development will have a negligible effect on open space provision in the local area.

Play Space

11.143. The baseline analysis shows that there is one playground within walking distance of the site.

11.144. Manchester City Council sets out the provision of areas designed for play and social interaction involving children and young people, of 0.027 per 1,000 population for children (under 12), and 0.034 per 1,000 population for young people (aged 12-18).

11.145. The child yields, or the estimated number of children to reside within the Proposed Development once completed and occupied, as contained within the GLA Population Yield Calculator, have been applied to the accommodation schedule.

Table 11.22: Results of the estimated play space requirements for the Proposed Development.

Age Group	Number of Children or young people	Total Play Space Recommended (sqm)
Children aged 0-11	332	87.9
Young people aged 12-18	37	12.7

11.146. Applying local policy targets, there is a requirement for 100.6 sqm of play space to serve 369 children aged 0 to 18 years old estimated to reside within the Proposed Development once completed and fully occupied.

11.147. The Proposed Development will not include any formal play space across the Site, but there will be opportunities for informal play through the inclusion of stepping stones, boulders and low walls. The

Proposed Development is also walking distance from the newly developed Mayfield Park, which was developed as part of an earlier phase of the SRF, and provides a playground for children and a large amount of open space.

11.148. Considering the provision of green infrastructure and play areas within the Proposed Development and the proximity to other areas designated for children and young people, it is assessed that the Proposed Development is likely to have a negligible effect on play space provision within the local area.

Cumulative Effects

11.149. Cumulative effects occur when a single receptor is affected by more than one effect at any point in time. Prospective developments within the surrounding area could have cumulative socio-economic effects with respect to population, housing provision, employment, spending, and demand for social infrastructure such as schools, healthcare and open space.

11.150. This section of the chapter assesses the socio-economic effects of the Proposed Development in combination with the potential socio-economic effects of the committed developments.

11.151. All of the cumulative schemes have been considered for their cumulative effect within Manchester. Those cumulative schemes which have provided commercial floorspace and residential units have been included in the calculations.

During Demolition and Construction

11.152. The construction phase of the Proposed Development along with the committed developments identified will generate additional construction related employment within Manchester and the North West. The scale of the construction employment generated cannot be readily quantified on the basis that the information available for each scheme is commercially sensitive. In addition, the timing and phase of the construction of these schemes along with the Proposed Development may not occur over the same periods, therefore the temporary construction related effects may not coincide.

11.153. The combined effects of the developments are likely to have a major beneficial (significant), long-term cumulative effect on construction employment due to the potential for the committed developments to generate a considerable amount of construction employment (in addition to the Proposed Development).

During Operation

11.154. All of the cumulative schemes have been assessed during the operational phases due to the effects on the same target economic areas. While detailed information regarding the amount of employment floorspace to be generated by these cumulative schemes is not available, a high-level assessment suggests that gross direct employment resulting from the cumulative schemes may be upwards of 233 jobs. Thus, there will be an overall minor beneficial, long-term permanent effects on employment within the North West.

11.155. The cumulative schemes together with the Proposed Development, assuming they are built and complete, will provide approximately 3,816 new homes in Manchester. This accounts for approximately 6.4% of the housing target identified in the 2024 PfE Joint Development Plan (GMCA, 2024). Thus, there will be an overall permanent moderate beneficial, long-term cumulative effect on housing within the North West.

11.156. Residents within the Proposed Development and the cumulative developments will put additional demand on social infrastructure. Current provision is likely to be inadequate to meet the demand arising from the high number of residential units coming forward, especially for healthcare provision. However, given the identified housing need in policy documents and the absence of identified capacity issues, it is expected that planning policy will continue to ensure that there is sufficient investment into the necessary services and infrastructure to accommodate the demand of additional users. In addition, other residential developments may make contributions through relevant S106 agreements, to contribute towards increased capacity to deal with the demand for primary healthcare, education and other social infrastructure, wherever necessary to supplement the provision planned within the committed developments. In this case, the cumulative schemes are likely to have a negligible effect on social infrastructure provision.

11.157. The increase in residential units arising from the cumulative developments will increase demand for open and play space and put pressure on existing provisions. The cumulative schemes have proposed public realm and landscaping works. If this takes the form of open and play space provision, the cumulative developments will likely have a minor beneficial effect on open and play space provision. However, if no open and play space is provided, then the cumulative developments will likely have a negligible effect on open and play space provision.

Mitigation Measures

Construction Phase

11.158. There are no adverse significant socio-economic effects identified for the Proposed Development during the construction phase.

Operational Phase

11.159. There are no significant socio-economic effects identified for the Proposed Development that require mitigation during the operational phase. However, the Proposed Development will deliver 879 residential units, which may place additional pressure on primary healthcare facilities and current primary school space provision.

11.160. There is no affordable housing provision for the Proposed Development based on the conclusions of the current viability appraisal. The Applicant should seek to work with Manchester City Council to address the viability of affordable housing, which could be achieved through grant funding and could also be achieved through later stage reviews of the S106.

Residual Effects

11.161. The Proposed Development is assessed to have an overall beneficial effect on the local population, increasing economic activity through additional local spending and provision of new homes.

Construction Phase

11.162. Table 11.23 summarises the residual effects of the Proposed Development during demolition and construction.

Table 11.23: Summary of residual effects during demolition and construction

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Creation of 199 new additional construction jobs	Regional Workforce	None required	n/a	Moderate beneficial (significant), long-term and temporary effect on the Manchester economy

Operational Phase

Table 11.24 summarises the residual effects of the Proposed Development during operation.

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
An increase in the residential population could lead to additional local spending	Local businesses	None required	N/A	Moderate beneficial (significant) long-term permanent effect at the local level. Minor beneficial (not significant), long-term permanent effect at all other spatial levels.
Generation of 143 net new additional jobs once complete and operational	Local employment	None required	N/A	Moderate beneficial (significant) long-term permanent effect
Provision of up to 879 new units of different sizes	Local residents	None required	N/A	Major beneficial (significant), long-term permanent effect.
No affordable units included in the Proposed Development	Local residents	If the levels of profit change based on the agreed metrics, then affordable housing could be provided. The Applicant will work with Manchester City Council to address the viability of affordable housing through both grant funding opportunities and through later stage reviews of the viability appraisal to consider whether there is an opportunity for off-site affordable housing contributions.	Engagement with Manchester City Council	Negligible
The Proposed Development could lead to demand for an additional 92 primary school places. The baseline indicates there is not sufficient capacity to accommodate this increase in demand	Local children & young people	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing primary school places in the local area.	Engagement with Manchester City Council	Negligible
The Proposed Development could lead to demand for an additional 17 secondary school	Local children &	None required	N/A	Negligible effect

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
places. The baseline indicates there is sufficient capacity to accommodate this increase in demand.	young people			
The Proposed Development could lead to an additional 1,965 people requiring healthcare through GP services. The baseline assessment indicates that existing patient to GP ratio is higher than average, and additional residents will place additional pressure on the healthcare services.	Local residents	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing GP services in the local area.	Engagement with Manchester City Council	Negligible
Up to an additional 1,875 people could reside in the local area as a result of the Proposed Development, increasing the pressure on green space. The Proposed Development includes 499 sqm of open space, of which 222 sqm is open to the public.	Local Residents	None required	N/A	Negligible effect
The Proposed Development could lead to an additional 369 children and young people in the area, requiring an additional 87.9 sqm of play space for children and 12.7 sqm of play space for young people. The site is within close proximity to one park (Mayfield Park) with facilities for children and young people. The Proposed Development does not include any formal play space, but there are opportunities for informal play throughout the development with the inclusion of stepping	Local children & young people	None required	N/A	Negligible effect

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
stones, boulders and low walls.				

Monitoring

11.163. No monitoring is recommended for any of the socio-economic effects.

Reference List

11.164. This ES Chapter has been prepared in reference to the following:

- DfE, (2024). Department for Education Information about Schools
- DfT, (2024). Department for Transport National Travel Survey
- GLA, (2019). Greater London Authority Population Yield Calculator
- GMCA, (2019). Greater Manchester Housing Strategy
- GMCA, (2021). Greater Manchester Strategy 2021-2031
- GMCA, (2024). Places for Everyone (PfE) Plan
- HCA, (2014). Homes and Communities Agency Additionality Guide
- Homes England, (2023). Homes England Strategic Plan 2023-28
- IMD, (2019). Index of Multiple Deprivation
- Land Registry, (2024). UK House Price Index
- MCC, (2009). Manchester City Council Core Strategy Evidence: City Wide Open Spaces, Sport & Recreation Study
- MCC, (2012). Manchester Core Strategy (2012-2027)
- MCC, (2022). Manchester Housing Strategy
- MCC, (2023). Investing in Success: An Economic Strategy for Manchester
- MHCLG, (2016). Planning Practice Guidance
- MHCLG, (2023). National Planning Policy Framework (NPPF).
- MHCLG, (2024). Proposed reforms to the National Planning Policy Framework and other changes to the planning system
- NHS Digital, (2024). General Practice Workforce

- ONS, (2020). Population Projections 2018
- ONS, (2021). 2021 Census Data
- ONS, (2023a). Family Spending in the UK
- ONS, (2023b). Annual Survey of Hours and Earnings
- ONS, (2023c). Business Register and Employment Survey
- ONS, (2023d). Mid-Year Population Estimates
- ONS, (2024). Annual Population Survey

12. Ecology and Biodiversity

Introduction

12.1. This Chapter of the ES has been prepared by Buro Happold and assesses the likely environmental effects of the Proposed Development with respect to ecology and biodiversity. This chapter also describes the methods used to assess the effects; the baseline conditions currently existing at the site and within the Zone of Influence (ZoI); the mitigation measures required to prevent or reduce any significant adverse effects; and the likely residual effects after these measures have been adopted.

12.2. This Chapter is accompanied by the following appendices:

- Appendix 12.1. Summary of legislation and guidance.
- Appendix 12.2. Phase 1B landscape plans and planting strategy.
- Appendix 12.3. Previous surveys and reports relevant to this assessment.

12.3. Potential effects have subsequently been assessed for each important ecological feature within the ZoI.

12.4. Cumulative effects associated with ecology and biodiversity have additionally been considered within this chapter.

12.5. The authors of this Chapter and their experience are summarised below.

Technical Competence in Buro Happold		
	Lead Author	**Reviewer**
Name	Kathryn Weir	Aaron Grainger
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	BSc Hons in Natural sciences, zoology, botany and ecology MSc in Wildlife conservation	BSc (Hons) Environmental Science MSc Ornithology
Does the practitioner hold any IEMA qualification?	No Qualifying member of the Chartered Institute of Ecology and Environmental Management	No MCCIEM (Full Member of Chartered Institute of Ecology and Environmental Management)
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	Over three years	Over sixteen years
Number of EIA's delivered to date	8 - 10	Over 50

Assumptions and Limitations

12.6. The most current UK Habitat Classification survey undertaken on the 22nd May 2024 is not intended to produce a comprehensive list of plants and animals for the EIA Site, as any ecological surveys will be limited by factors which affect their presence. These factors include: the time of year, weather conditions, variation in rates of germination and establishment, migration patterns and behaviour. For all species surveyed, a lack of evidence of their presence does not necessarily confirm its absence, merely that there was no indication of its presence during each survey. However, due to the nature of the habitats present, it is considered that the survey findings and other information gathered for this assessment are sufficient for determining the importance of ecological features identified in this assessment.

12.7. Species data collated during the desk study is mainly derived from records submitted by members of the public. Therefore, it should not be taken as a definitive list of the protected species that may occur in the local area.

12.8. An updated habitat survey was undertaken of the EIA Site to evaluate its current baseline condition regarding habitats and to identify any suitable habitat for wildlife on site. However, an updated data record search from the Local Environmental Records Centre and updated species surveys, specifically bat surveys were not undertaken for the EIA Site.

12.9. An updated data record search was not commissioned due to the location of the EIA Site being a highly urban area that has previously been cleared of any ecologically important habitat and therefore significant changes in species records are unlikely to have occurred in the interim period since the received 2019 data records. An updated desk study was carried out using Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website and publicly available data such as Manchester local plans and biodiversity strategies, as well as FSC National Biodiversity Network (NBN) Atlas Tool for QGIS which provides an interface between QGIS and NBN Atlas. This tool allows publicly available biodiversity data to be extracted and mapped, providing an indication of updated species records within the ZoI of the EIA Site, building upon the previous 2019 data records.

12.10. Updated bat surveys were not undertaken of the EIA Site due to previous clearance of suitable roosting habitat (woodland) and demolition of buildings on and adjacent to the EIA Site. Previous bat roost surveys did not identify confirmed roosts nor features with roosting potential within the EIA Site boundary. Also, bat activity recorded throughout the wider Mayfield SRF was predominantly common pipistrelle, the most common and widespread bat species in the UK. During the update habitat survey undertaken this year, a retaining wall feature bordering the Mancunian Way was identified as having low potential for roosting bats. Due to this feature being retained throughout development, implementation of a Construction Environmental Management Plan (CEMP) during the construction phase and buffered by proposed habitat creation once completed and operational, further bat surveys were not deemed to be required.

12.11. No additional limitations or constraints to the surveys were identified.

Relevant Legislation, Policy and Guidance

12.12. The following legislation and policy are relevant to and has had an influence on the ecological assessment and/ or mitigation proposed in this ES chapter. A summary of relevant legislation and policy considered can be found in Appendix 12.1.

Legislation

International legislation, agreements and conventions

- United Nations Convention on Biological Diversity (1992)

National legislation

- The Environment Act (2021)
- Conservation of Habitats and Species Regulations 2019 (as amended)
- Wildlife & Countryside Act 1981 (as amended) (WCA)
- Countryside and Rights of Way Act 2000 (the CRoW Act)
- Natural Environment & Rural Communities Act 2006 (the NERC Act)

Policy

National planning policy

- National Planning Policy Framework (MHCLG, 2024)

Regional planning policy

- The Northwest of England Plan Regional Spatial Strategy to 2021
- Greater Manchester Strategy 2021-2031
- Greater Manchester Resilience Strategy 2020 – 2030
- Greater Manchester 5-Year Environment Plan (2019 – 2024)
- Greater Manchester Spatial Framework (Draft, 2019) (GMSF)

Local planning policy

12.13. Manchester's Local Development Plan:

- Manchester Core Strategy (2012);
- Our Manchester Strategy – Forward to 2025 (2022)
- Manchester Climate Change Framework 2020-25
- Great Outdoors: A Green and Blue Infrastructure Strategy for Manchester 2015-2025

Guidance

National guidance

- Planning Practice Guidance 2016 (Department for Communities & Local Government, 2016, updated 2024)
- Office of the Deputy Prime Minister Circular 06/2005, (ODPM, 2005)

Local guidance

- Biodiversity Strategy and Action Plan 2022-2030 – the City of Manchester's Nature Recovery

- The Unitary Development Plan for the City of Manchester
- Guide to Development in Manchester SPD (2007)
- Mayfield Strategic Regeneration Framework (2018)

Assessment Methodology and Significance Criteria

Scenarios Tested

12.14. The assessment of ecology and biodiversity effects will consider the following scenarios:

- Scenario 1: Baseline (existing Site, including developments currently under construction);
- Scenario 2: Baseline with Proposed Development Phase 1 construction;
- Scenario 3: Baseline with Proposed Development Phase 1 and Phase 2 construction (as above);
- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operation (as above); and
- Scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational (as above) and cumulative developments

12.15. Scenario 1 involves a review of the existing ecological baseline conditions and identification of sensitive ecological receptors on site or within the ZoI that may be impacted by the Proposed Development.

12.16. An assessment of scenario 2 and 3 will be combined within the construction phase sections as assessing them separately would not make a significant difference to the assessment of effects for ecology and biodiversity due to the short time frame between the two phases starting and completing, the fact that each phase will generate similar effects, as well as the existing low ecological value of habitats and wildlife opportunities present the extent of each phase. Potential construction effects from nearby developments that are located within the ZoI and are already under construction will be included within the scenario 2 and 3 assessment. Developments subject to planning permissions or otherwise identified within the committed developments are considered as part of the cumulative analysis in scenario 5 and this scenario is considered in the 'Cumulative Effects' section of this ES chapter.

12.17. Scenario 4 involves an assessment of the potential operational effects caused by the Proposed Development within the ZoI. This scenario is covered within the operation phase sections. Potential operational effects from nearby developments that are located within the ZoI and are already under construction will be included within the assessment.

12.18. Scenario 5 relates to the operation of the Proposed Development in conjunction with identified developments subject to planning permissions or otherwise identified within the committed developments are considered as part of the cumulative analysis in scenario 5 and Chapter 2. This scenario is considered in the 'Cumulative Effects' section of this ES chapter.

Assessment approach

12.19. This assessment of potential impacts and effects on ecology has been undertaken in line with the CIEEM 2024 Guidelines for Ecological Impact Assessment in the UK and Ireland.

12.20. Planning documents and previous reports relating to the Proposed Development that were reviewed as part of this assessment are identified in Table 12.1.

Table 12.1 Documents that support the assessment of ecological impacts for the Proposed Development

Document reference/ number	Author and date
Mayfield, Phase 1 EIA Volume 1, Chapter 9	Deloitte and Buro Happold, September 2019
Mayfield, Phase 1 EIA Volume 2, Appendices 9.2 – 9.7:	
• 9.2. Mayfield Regeneration Development Ecological Assessment and Bat Inspection	Buro Happold, November 2017
• 9.3. Mayfield Regeneration Development Bat Surveys	Buro Happold, November 2017
• 9.4 Mayfield Regeneration Development Black Redstart and Breeding Bird Survey Report	Buro Happold, November 2017
• 9.6. Mayfield, Manchester Ecological Assessment	Penny Anderson Associates, March 2019
Mayfield, Phase 1 EIA Addendum, Volume 1	Deloitte and Buro Happold, November 2021
Mayfield, Phase 1 Statement of Conformity	Deloitte and Buro Happold, June 2023
Mayfield Site Compound, Updated Ecological Surveys	Buro Happold, November 2023
Mayfield Phase 1B Masterplan	Shedkm and Studio Egret West, August 2024
Manchester Phase 1B, Mayfield Screening and Scoping Report	October 2024
Phase 1B landscape plans and planting strategy	Studio Egret West, November 2024

The Study Area

12.21. The ‘study area’ includes all land within the EIA Site boundary. An additional ‘study buffer’ is also included, where appropriate, around the ecological feature being investigated. The study area can therefore vary according to the target species, species group or habitat being surveyed. Details of the study area and study buffer are provided in this section for each survey type. In this section, and throughout this Chapter, ‘the EIA Site’ refers to the area within the red line boundary. Other sites relating to designated areas or other developments are specifically named.

12.22. In accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM, 2024) guidelines, potential effects that could occur at greater distances were assessed with respect to international statutory protected sites and national statutory and non-statutory protected sites up to an additional study buffer of 10km and 1km respectively, from the EIA Site boundary. In addition, potential effects to protected and priority fauna species within a 1km buffer from the EIA Site boundary were considered where appropriate.

12.23. The ZoI for ecology is defined as the ‘area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities’. The ZoI may extend beyond the EIA Site boundary and is dependent on the receptor’s sensitivity to environmental change, how mobile a receptor is, and whether there are any hydrological or airborne links between planned activities and the features. The previously defined buffer distances are deemed suitable for the species or habitats present or with potential to be present on the EIA Site.

Baseline Methodology

12.24. The methodology for collecting baseline data is based on best practice guidance and utilises a combination of current and historical resources as described below:

Desk Study

12.25. A desk study was carried out using a combination of publicly accessible internet-based sources and open-access GIS NBN spatial tools. In addition, previously received data records commissioned from the Greater Manchester Ecology Unit (GMEU) and previous ecological survey work carried out for the wider SRF was also reviewed and considered as part of this assessment.

12.26. Internationally protected sites, statutory designated sites, priority habitats, and ancient woodland within 1km of the site were reviewed from the publicly accessible MAGIC website.

12.27. Non-statutory designated sites and records of protected and priority species within a 1km radius of the EIA Site were reviewed from the previously commissioned data record search from GMEU carried out in 2019. An updated data record search from GMEU was not commissioned due to the reasoning previously stated in Assumptions and Limitations section (Section 12.8), however, additional species records were reviewed using the FSC NBN Atlas Tool which pulls through data from the UK's largest repository of publicly available biodiversity data. Local plans were also reviewed to determine any updates on local wildlife sites.

12.28. Previous surveys reviewed as part of the desk study include:

- Mayfield Regeneration Development Ecological Assessment and Bat Inspection (2017)
- Mayfield Regeneration Development Bat Surveys (2017)
- Mayfield Regeneration Development Black Redstart and Breeding Bird Survey Report (2017)
- Mayfield, Manchester Ecological Assessment (2019)
- Mayfield Site Compound, Updated Ecological Surveys (2023)

Field survey

12.29. A habitat survey using the UK Habitat Classification System (UKHab) was undertaken on 22nd May 2024 in accordance with published best practice guidance (Chartered Institute of Ecology and Environmental Management (CIEEM), 2017). This survey was used to update the existing baseline condition of habitats present on site since the previous survey undertaken in 2019.

12.30. No further protected species surveys were deemed to be required for the baseline assessment of the EIA Site based on the justification presented in the Assumptions and Limitations section (Section 12.8).

Source of Effect

12.31. Following the baseline evaluation of the importance of ecological features as described in the Receptor Sensitivity section below (see Table 12.2), only those assessed as being of local ecological importance (low sensitivity) or above are considered within the impact assessment along with all legally protected species in order to ensure statutory compliance.

12.32. Likewise, the impact assessment only considers the potentially 'significant' effects of the Development on ecology and nature conservation. Impacts on important ecological features are considered during both the construction phase and operational phase of the Proposed Development.

12.33. The ecology and biodiversity effects that were identified as having the potential to be significant and were therefore assessed are set out below.

During Construction

- Damage and disturbance from noise/vibration, lighting, dust and run-off towards Mayfield Park
- Damage and disturbance from noise/vibration, lighting, dust and run-off towards the River Medlock
- Indirect impacts on bats from noise/vibration, light, dust and run-off
- Loss of habitat reducing foraging opportunities and severing commuting routes for bats
- Indirect and direct impacts on breeding birds

Completed and Operational

12.34. Impacts from lighting towards:

- Mayfield Park
- River Medlock
- Foraging and commuting bats
- Other local fauna including black redstart, generalist birds and invertebrates
- Creation and management of new biodiverse habitats on site

Significance Criteria

Receptor Sensitivity

Importance of ecological features

12.35. Under CIEEM guidelines (CIEEM, 2018), ecological receptors (or features) are referred to in terms of their ecological importance rather than their sensitivity. The relative importance of ecological features, established through the desk study, extended habitat survey and species-specific surveys, are based on the following geographic scale:

- International;
- National;
- Regional;
- County/Metropolitan;
- Local; and
- Negligible.

12.36. Designated sites have already been assessed for their nature conservation importance. For example, sites important at the European level include those designated as Special Areas of Conservation (SACs) which are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and sites important at the national level include those designated as Sites of Special Scientific Interest (SSSIs) under the Wildlife and Countryside Act 1981 (as amended). Examples of designated sites that are of importance at a county level include Local Nature Reserves (LNR) or County Wildlife Sites (CWS).

12.37. Some habitats and species located outside of designated sites also have a geographic frame of reference which has been used as an objective starting point for identifying their importance such as those:

- Considered to be priorities for conservation in England;
- Listed as habitats and species of principal importance under the Natural Environment and Rural Communities Act 2006 (NERC); and/or
- Listed as being of local importance in local Biodiversity Action Plans (BAPs).

12.38. However, the final importance assigned to habitats and species outside of designated sites has been determined by considering a number of additional criteria, for example local rarity, diversity, or function as a habitat corridor (CIEEM, 2018 based on Ratcliffe 1977).

12.39. Table 12.2 sets out the sensitivity levels in wider EIA terms in conjunction with the corresponding geographic scale of ecological importance.

Table 12.2 Criteria for determining receptor sensitivity

Sensitivity	CIEEM Geographic Scale of Ecological Importance
High	National or above
Moderate	County/Regional
Low	District/Local
Negligible	Negligible

Assessment of Significant Effects

12.40. An assessment of the likely significant effects is presented for all ecological features that have been scoped into this ES Chapter, because they are of nature conservation importance or are legally protected and there is a reasonable potential for there to be a significant effect.

12.41. At this stage, the assessment considers the impacts and effects of the Development with the proposed buildings and landscape design (embedded mitigation), but without the implementation of secondary mitigation measures.

Mitigation Measures and Assessment of Residual Effects

12.42. Where a potential effect exists, secondary measures are provided. An assessment of the significance of any residual effects after mitigation is then made.

Characterising Ecological Impacts

12.43. Impacts on ecological features (adverse or beneficial) can be direct or indirect. Direct impacts refer to the direct interaction of an activity with an ecological receptor (feature) and indirect impacts refer to an impact on an ecological receptor (feature) which are not a direct result of an activity. These impacts have been characterised based on the following parameters set out in the CIEEM guidelines:

- Extent (the spatial or geographical area over which the impact may occur);
- Magnitude (size, amount, intensity or volume of the impact);

- Duration (defined in absolute terms and where relevant in relation to the species/habitat being assessed i.e. a species lifecycle or the period over which habitat succession may occur);

- Reversibility (based on whether recovery is likely within a reasonable timeframe); and

- Frequency and timing (the number of times the impact is repeated and whether the timing of an impact coincides with important seasons or life cycle stages).

Determining Significance

12.44. The following definitions are used for the terms 'impact' and 'effect':

- Impact – Actions resulting in changes to an ecological feature. For example, the construction activities of a development resulting in removal of a hedgerow; and

- Effect – Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from the loss of a hedgerow.

12.45. Effects can be significant at a wide range of geographical scales. CIEEM defines a significant effect to be:

'an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity).'

12.46. The significance of ecological effects uses terminology derived from CIEEM Guidelines. The approach is summarised below:

- Designated Sites and Ecosystems: Significant effects encompass impacts on structure and function of defined sites and ecosystems. For designated sites, the focus is whether the Development and associated activities are likely to undermine the Site's conservation objectives or negatively affect the conservation status of the species or habitats for which the Site is designated. For ecosystems, the focus is whether the Development is likely to result in a change in its structure or function; and

- Habitats and Species: Consideration of conservation status is important for evaluating the significance of effects on individual habitats and species. Conservation status for habitats is determined by the sum of the influences acting on the habitat that may affect its extent, structure and function as well as its typical species composition within a given geographical area. For species, it is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

12.47. Potential and residual effects (adverse or beneficial) are defined in Table 12.3 and can be either temporary or permanent.

Table 12.3 Definitions of Significance Criteria for Ecology

Significance Criteria	Description of Criteria and CIEEM Significance Terminology
Very Substantial (Major) and Beneficial	A beneficial effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a regional level or above.
Substantial (Major) and Beneficial	A beneficial effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a county level.

Significance Criteria	Description of Criteria and CIEEM Significance Terminology
Moderate and Beneficial	A beneficial effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a district level.
Minor and Beneficial	A beneficial effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a local level.
Negligible (insignificant)	No significant effect on an important ecological feature.
Minor Adverse	An adverse effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a local level.
Moderate and Adverse	An adverse effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a district level.
Substantial (Major) and Adverse	An adverse effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a county level.
Very Substantial (Major) and Adverse	An adverse effect on the conservation status of a defined site or ecosystem(s) and/or the habitats or species that is significant at a regional level or above.

12.48. This chapter determines significance at geographical scales in accordance with the CIEEM 2024 guidelines. The significance of effect is also considered as being negligible, minor, moderate or major. Minor, moderate and major effects are considered to be significant at the geographical level specified in this assessment. Negligible effects are considered not significant.

Baseline Conditions

Current Baseline (Scenario 1)

12.49. The current baseline assesses the existing conditions of the EIA Site as it exhibits in the assessment year of 2024. Where relevant to ecology, the current baseline also includes ecological receptors from developments under construction within the ZoI, as described for Scenario 1 in Section 12.12.

12.50. Evaluation of the ecological baseline conditions is based on a range of site and protected species surveys as well as desk study data collected between 2017 and 2024. These are summarised below and are presented in Appendix 12.3.

Designated Sites

Statutory Designated Sites

12.51. No statutory designated sites are located within or adjacent to the Site. Within 1km to the north of the site is the Rochdale Canal. Certain stretches of the canal have been designated as a Special Area of Conservation (SAC) because it supports a significant population of floating water-plantain Luronium natans in a botanically diverse waterplant community which also holds a wide range of pondweeds Potamogeton spp. The canal also has predominantly mesotrophic water. This population of Luronium is representative of the formerly more widespread canal populations of north-west England. Certain stretches of the canal are also designated

as Sites of Special Scientific Interest (SSSI) because they support protected species alongside other red data book and priority species. The closest designated stretch is approximately 4km downstream from the closest point of the canal to the EIA Site. There are no other statutory designated sites within a 1km search area of the site.

12.52. The sections of the Rochdale Canal designated as an SAC and/ or SSSI would be considered of international or national ecological importance.

Non-Statutory Designated Sites

12.53. Previous reports (2017 and 2019) relating to the Mayfield development area to the south and southeast of the site, identified that there are two Sites of Biological Interest (SBIs) within 1km of the site – Rochdale Canal, Stott's Lane - Ducie Street Basin SBI and Ashton Canal SBI. The Rochdale Canal provides habitat for regionally important species, such as floating water plantain Luronium natans, and the Ashton Canal is recognised as important for its submerged aquatic flora.

12.54. These two SBI's are considered to be of county ecological importance.

Priority Habitat and Ancient Woodland

12.55. The data search returned no priority habitats within the Phase 1B Site boundary. Priority habitats within 1km of the Site include areas of deciduous woodland located approximately 250m south of the site and 450m east of the site. Two parcels of open mosaic habitat (draft) were also identified approximately 625m east of the site and approximately 870m north of the EIA site. The River Medlock, which is both a UK and a Manchester priority habitat is located immediately north of the EIA Site which recently experienced enhancements to its previously channelised form as part of the establishment of the Mayfield Park.

12.56. The priority deciduous woodland and open mosaic habitat are assessed to be of local ecological importance.

12.57. The River Medlock is of County/Metropolitan ecological importance due to its wildlife corridor properties linking the area to the wider landscape, as well as provided foraging and commuting opportunities for bats and other wildlife. The river section adjacent to Site has also undergone significant restoration naturalising the river bank and riparian zone in sections throughout Mayfield Park, as well as the incorporation of wildlife beneficial planting and species-specific habitat features.

12.58. No ancient woodland was identified on Site or within 1km of the Site boundary.

Habitats on Site

12.59. Habitats recorded on site as identified during the UK Habitat Classification survey undertaken in May 2024 predominantly included habitats associated with vacant previously cleared development sites. A description of habitats identified on-site, and their likely ecological importance is displayed in Table 12.4 and spatially represented in Figure 12.2.

Table 12.4 Habitats identified on the EIA Site

UK Hab Habitat	UKHab habitat codes	Likely ecological importance	Description
Scattered young trees;	w 200 202	Local	14 self-set young trees scattered across site within grassland and scrub areas.
Other neutral grassland	g3c 521	Local	One section within the northeast corner of site displaying a species-rich grassland structure

UK Hab Habitat	UKHab habitat codes	Likely ecological importance	Description
			left unmanaged since site clearance occurred.
Developed land, sealed surface	u1b 805	Negligible	Sealed hardstanding areas found on site.
Artificial unvegetated, unsealed surface	u1c 805	Negligible	Unsealed surfaces with less than 10% vegetation cover. The second most dominant habitat type found on site.
Mixed scrub dominated by non-native invasive buddleia;	h3 524	Negligible	Patches of dense mixed scrub found throughout the site. Dominated by non-native invasive buddleia species and therefore considered of negligible ecological importance.
Bramble scrub;	h3d	Negligible	Small patch of dense scrub dominated by brambles located within the centre of the site. Due to small size of habitat parcel and located within urban setting, this habitat is considered of negligible ecological importance.
Sparsely vegetated land with ruderal and ephemeral species	u 81 82 10 805	Negligible	Areas of previously cleared land with patchy opportunistic plant associations of ruderal and ephemeral species as well as scattered scrub.
Modified grassland	g4	Negligible	A patch of grassland within the centre of the site with low species diversity.

Habitats off-site

12.60. Mayfield Park is located adjacent to the Phase 1B EIA Site and opened to the public in 2022. The park underwent river enhancements including the use of soft and bioengineering solutions where possible in combination with hard engineering solutions and setbacks for the river corridor, enabling a variety of wetland habitats to be created to provide biodiversity benefits.

12.61. Other ecologically important habitats through either creation of new or enhancement of existing habitats have been incorporated into the design of the Park. Habitats of ecological importance now present within Mayfield Park include:

- Wetland river mosaic and associated planting
- Other neutral grassland and wildflower planting areas

- Trees
- Protected, priority and notable species

12.62. A description of the receptor species identified during the desk study and previous ecological surveys as well as the nature conservation importance of the populations of these species within the EIA Site boundary is provided in the following section. A full description of the survey methods and results are provided in Appendix 14.3 within the Ecological Assessment and Bat Inspection report (2017), Bat Surveys report (2017), Black Redstart and Breeding Bird Survey Report (2017), Ecological Assessment report (2019) and Updated Ecological Surveys report (2023).

Bats

12.63. Previous desk studies carried out for the full Mayfield SRF in 2017 and 2019 returned multiple records for bats within 2km of the Site. Species returned in the data search included common pipistrelle Pipistrellus pipistrellus, soprano pipistrelle P. pygmaeus, unidentified pipistrelle Pipistrelle sp., Daubenton's bat Myotis daubentonii, and unidentified bat species Chiroptera sp. The majority of records returned within the ZoI were pipistrelle species, common pipistrelle and soprano pipistrelle. The common pipistrelle is one of the UK's most common bat species, found in a wide range of habitats including suburban and urban habitats.

Roosting

12.64. Five built structures on the wider Mayfield site, including four buildings and one culvert, were confirmed as bat roosts as part of the 2017, 2018 and 2019 bat surveys. The structures are utilised by low numbers of common pipistrelle bats as low conservation status summer day roosts, with one building also being considered to have potential for use by hibernating bats. As shown in Figure 14.3, none of the confirmed roosts or structures identified in the previous surveys are located within the EIA Site.

12.65. During the update 2024 habitat survey, one feature with low potential for roosting bats was identified along the southern edge of the EIA Site. This feature is the retaining wall within the central southern section of the EIA Site along the Mancunian Way Road. No further surveys were deemed to be required due to:

- The wall is being retained throughout development and the implementation of a Construction Environmental Management Plan (CEMP) during the construction phase will fully mitigate any potential adverse effects such as pollution, disturbance and lighting.
- Vegetation clearance of the EIA Site has been undertaken removing all suitable habitat for bats such as the woodland parcel that used to be present on the EIA Site.
- The EIA Site, since vegetation clearance, has been used as an area for spoil deposition and where waste from park management and maintenance appears to be stored, with likely ongoing disturbance from vehicles through the area.
- The retaining wall borders the busy Mancunian Way Road meaning the wall is subject to large volumes of disturbance from traffic in the form of vibrations and noise.

12.66. Although no roosts were identified within the EIA Site, previous roosts and roosting potential have been identified within the wider SRF including Mayfield Park adjacent to the EIA Site. Also, provision of additional artificial bat roosting features has occurred as part of the Mayfield Park development. However as per figure 12.3, no known roosts or buildings with roosting potential are within close proximity to the EIA Site and given the current site conditions and location, only common and widespread species are likely to be present.

Foraging and commuting

12.67. The habitat identified during the updated 2024 survey of the EIA Site also confirmed no suitable habitats for bats were present. There was a small parcel of other neutral grassland in the northeastern corner and

sixteen scattered young self-established trees but due to the quality and limited extent of these habitats, they were not deemed optimal for foraging and commuting bats.

12.68. Surveys during July and August 2019 confirmed that bats continue to use the wider Mayfield site for foraging and commuting. Due to the creation of suitable habitat as part of the Mayfield Park landscape design including retention of a dark corridor along the River Medlock, it is likely bats continue to forage and commute in areas adjacent to the EIA Site to date.

12.69. The bat species identified to forage and commute through the EIA Site are largely of common pipistrelle and soprano pipistrelle. Common pipistrelles are common and widespread in the UK, including in urban areas and soprano pipistrelles is also widely distributed across the UK. Although the EIA site does not contain suitable foraging and commuting habitat, the adjacent Mayfield Park and River Medlock offers suitable habitat and foraging opportunities for bats.

12.70. The roosting, foraging and commuting bat assemblage associated with the wider SRF site comprises common and widespread species. As such, it is considered to be of local ecological importance.

Birds

Schedule 1 Species

12.71. The previous desk studies identified four Schedule 1 (WCA) species of bird records within 2km of the wider SRF site. These include the black redstart Phoenicurus ochruros, kingfisher Alcedo atthis, peregrine falcon Falco peregrinus and little ringed plover Charadrius dubius. However, based on the updated habitat survey undertaken of the EIA Site in May 2024, it is evident that the EIA Site lacks suitable habitats and nesting features for any Schedule 1 bird species.

12.72. Part of the wider SRF site falls within the Black Redstart Priority Area as identified as part of the Species Action Plan which aims to maintain a breeding population in Greater Manchester. However, the EIA Site is not situated within the Black Redstart Priority Area and the previous targeted black redstart and breeding bird surveys in 2017 did not identify use of the EIA Site or the wider Mayfield SRF by black redstarts.

12.73. Therefore, the EIA Site is considered to be of negligible importance for black redstarts, kingfisher, little ringed plover, and peregrine falcons, and are not considered as individual receptors further in this assessment.

General bird assemblage

12.74. The Site has fragmented parcels of suitable habitat for nesting and foraging bird species including parcels of bramble scrub, mixed scrub, other neutral grassland and scattered trees. The proximity of the Mayfield Park with enhanced river habitat and additional foraging and nesting features also provides valuable opportunities for common birds to utilise the EIA Site and its surroundings.

12.75. The habitats found on site during the 2024 updated habitat survey are common and widespread in the wider urban area of Manchester. Therefore, due to the urban location of the EIA Site and previous bird surveys of the wider SRF, the EIA Site is considered unlikely to support a diverse bird assemblage, with habitats identified on the EIA Site only suitable for supporting more common and widespread bird species. As such, the bird assemblage associated with the EIA Site is considered to be of local ecological importance.

Future Baseline

12.76. The future baseline is assessed for comparison with the construction and operational scenarios and accounts for how the assessment baseline conditions would change in absence of the Proposed Development by the time in which it is expected to be operational. Therefore, the future baseline year for this assessment is 2030.

12.77. In the absence of development, the land use of the EIA Site will likely remain unchanged. Due to the vacant unmanaged nature of the EIA Site to date, it was observed during the updated 2024 habitat survey that

successional and opportunistic plant species were starting to colonise areas of unsealed surfaces. If the Proposed Development did not go ahead, it is expected that further colonisation of these species to form dense ruderal, ephemeral and scrub patches will occur. Buddleia, a non-native scrub species, will likely become the dominant plant species throughout the EIA Site as this is already evident from the 2024 survey.

Identification and Evaluation of Likely Significant Effects

12.78. A list of the receptors scoped into the assessment along with the level of ecological importance attributed to each, is provided in Table 12.5. Those of negligible importance, or which have been identified as unlikely to be significantly impacted by the Proposed Development are excluded from further assessment (CIEEM, 2018).

Table 12.5 Identified receptors, ecological importance and their equivalent EIA sensitivity

Receptor	Ecological Importance	Sensitivity
Designated sites		
Rochdale Canal SAC and/ or SSSI	International/ National	Major
Rochdale Canal, Stott's Lane - Ducie Street Basin SBI and Ashton Canal SBI	County/ Metropolitan	Moderate
Habitats		
River Medlock located within Mayfield Park (adjacent to Site)	County/ Metropolitan	Moderate
Priority deciduous woodland habitat and open mosaic habitat	Local	Low
Semi-natural habitats identified within Mayfield Park (adjacent to the EIA Site). a.	Local	Low
Scattered young trees on the EIA Site	Local	Low
Other neutral grassland on the EIA Site	Local	Low
Species		
Roosting bats	Local	Low
Commuting and foraging bats	Local	Low
Breeding birds	Local	Low

Construction Phase (Scenario 2 and 3)

12.79. Scenarios 2 and 3 relate to the construction of the Proposed Development. Scenario 2 considers the construction of Phase 1 only (Plot J) and Scenario 3 considers the construction of Phase 1 and 2 (Plots J & K).

12.80. As ecological impact assessments should consider the reasonable 'worst case' scenario effects of Proposed Developments. The assessment of the construction phase will be based on Scenario 3 as this represents the reasonable 'worst case' scenario of the Proposed Development during the construction phase.

12.81. It is anticipated that the following construction activities are relevant to ecological considerations:

- Clearance of the site prior to works including vegetation clearance;
- Ground works;
- Construction of two new buildings (Plot J & K), hardstanding and associated infrastructure;
- Post-development landscaping within the site; and
- Disturbance - construction lighting, plant/vehicle noise, vibration, movement and general activity.

12.82. The following section describes the potential effects of construction on the identified ecological receptors and their significance.

Designated sites

Statutory designated sites

12.83. The sections of the Rochdale Canal designated as an SAC and/ or SSSI are located far enough away from the Proposed Development with urban barriers buffering any potential impacts. Therefore, concluding that any potential effects caused by the Proposed Development on these statutory designated sites are negligible and are not considered further in this assessment.

Non-statutory designated sites

12.84. Neither of the two SBI's identified within the ZoI are linked directly to the EIA Site nor the River Medlock that runs adjacent to the EIA Site. There is also a significant amount of urban development between the SBIs and the EIA Site, and therefore potential direct or indirect effects from the Proposed Development on these SBIs are considered negligible and are not considered further in this assessment.

Habitats

Damage and disturbance of watercourses (River Medlock)

12.85. There is potential for polluting substances from the construction activities of the Proposed Development to affect the condition and quality of the adjacent River Medlock. Pollution could include spills from machinery or increased siltation due to run off carrying the disturbed sediment during periods of heavy rain. Pollution and siltation of rivers can change and/or reduce water quality and cause harm to the habitat and species present within it as well as impact use of the associated habitats by fauna. Therefore, without additional mitigation, there could be a temporary moderate adverse effect, which would be significant at the County/Metropolitan level.

Damage and disturbance to habitats

12.86. Existing habitats off-site in the nearby area are at risk of being affected by pollutants. Potential pollution impacts include air-borne dust, sediment, chemical/ oil and fuel spills. The semi-natural habitats most at risk of damage and/ or disturbance are those located in the adjacent Mayfield Park which include the wetland river mosaic, wildflower meadows, other neutral grassland, and urban trees. The priority deciduous woodland and open mosaic habitat further afield but within the ZoI are also at risk of being affected by these pollutants.

12.87. Vehicle movements, and ground-breaking could produce air-borne dust which could degrade nearby habitat reducing the suitability of the habitat for foraging wildlife.

12.88. Without mitigation, there would be a temporary minor adverse effect on the conservation status of the wetland river mosaic, wildflower meadows, other neutral grassland, and urban trees, as well as the priority deciduous woodland and open mosaic habitat, which would be significant at the local level.

Habitat Loss

12.89. Although the majority of the Site comprises habitat of very low ecological importance such as sealed hardstanding surfaces and artificial unvegetated surfaces, there are a number of small semi-natural vegetated parcels that will be cleared during construction. The ecologically important habitat set to be lost within the EIA Site includes:

- 0.039 ha of other neutral grassland
- Sixteen young self-established trees

12.90. Without mitigation, the direct loss of other neutral grassland and scattered trees on-site have the potential to have a permanent minor adverse impact on the conservation status of these habitats, which would be significant at a local level.

Species

Disturbance to commuting and foraging bats

12.91. Noise and vibration generated as a result of construction activities during the daytime could disturb or disrupt a number of bat species. At night, light spill from the site could disrupt bat foraging behaviour and commuting routes. Without mitigation in place, there could be a temporary minor adverse impact, which would be significant at local level.

Disturbance to roosting bats

12.92. A number of roosts have been confirmed within the wider SRF (see Figure 12.3) with additional potential roosting features provided within Mayfield Park such as the artificial bat roosting boxes installed as part of the mitigation and enhancement interventions for previous phases. Whilst these confirmed or potential roosting sites will be retained throughout the construction process, without mitigation or suitable measures in place, the roosts could be accidentally damaged or subject to disturbance from noise, vibrations and/ or lighting which may affect the suitability of the roosts and potentially lead bats to abandon them. Without mitigation in place, the impacts to roosting bats would result in a temporary minor adverse impact, which would be significant at the local level.

Killing and injury of birds and the destruction of active nests

12.93. Breeding birds, their nests and young are protected under Schedule 1 of the WCA, and any site clearance which takes place within the bird breeding season (i.e. between March and August, inclusive) could kill or injure adults, chicks or damage eggs or nests in the process of construction.

12.94. The removal of trees and scrub could lead to the accidental killing or injury of birds in active nests. Without mitigation, potential for direct impacts to breeding birds as a result of vegetation removal would be a temporary minor adverse impact, which would be significant at the local level.

Summary of Effects

12.95. The potential effects identified during the construction phase (scenario 2 and 3) of the Proposed Development are summarised in Table 12.6.

Table 12.6 Summary of (pre-mitigation) effects during construction

Receptor	Importance/ sensitivity	Description of effect	Magnitude of change/ impact	Effect significance
River Medlock	County/ Metropolitan	Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	Major adverse	Temporary major adverse (significant at the county/ metropolitan level)
Priority deciduous woodland habitat and open mosaic habitat	Local	Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	Minor adverse	Temporary minor adverse (significant at the local level)
Semi-natural habitats identified within Mayfield Park	Local	Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	Minor adverse	Temporary minor adverse (significant at the local level)
Scattered young trees on Site	Local	Habitat loss	Minor adverse	Permanent minor adverse (significant at the local level)
Other neutral grassland on Site	Local	Habitat loss	Minor adverse	Permanent minor adverse (significant at the local level)
Bats	Local	Disturbance to foraging and commuting bat	Minor adverse	Temporary minor adverse (significant at the local level)
		Disturbance to roosting bats	Minor adverse	Temporary minor adverse (significant at the local level)
Birds	Local	Killing and injury of birds by the destruction of active nests	Minor adverse	Temporary minor adverse (significant at the local level)

Operational Phase (Scenario 4)

12.96. Scenario 4 relates to the completed and operational phase of the Proposed Development.

12.97. Upon completion, the Proposed Development will incorporate new buildings, associated hard and soft landscaping and new lighting. Operational aspects of the scheme that have the potential to affect ecology include:

- Increased lighting; and

- Additional habitat and habitat management measures across the EIA Site based on the landscaping plans as presented in Appendix 12.2.

12.98. An assessment of the operational aspects of the Proposed Development at the completed development stage that have the potential result in significant effects on ecological features are provided below.

Increased lighting on Site

12.99. In order to facilitate safe movement of vehicles and people within the Proposed Development, as well as ensure security requirements, artificial lighting will be introduced to the site.

12.100. The introduction of new lighting associated with the road and footpaths as well as the potential for light spill from the new buildings have the potential to illuminate existing adjacent habitats or created habitats on the EIA Site for biodiversity value unless specifically designed and controlled with this design consideration in mind.

12.101. Receptors sensitive to additional lighting include:

- Mayfield Park's existing semi-natural habitats and the River Medlock - illumination of the Park's habitat(s) may prevent local wildlife such as birds and invertebrates from utilising them and create a barrier to connectivity between Mayfield Park and the EIA Site.

- Foraging and commuting bats – additional lighting caused by the Proposed Development can reduce the value of habitats for foraging bats and can cause severance to flight paths used by commuting bats. The adjacent Park's design has deliberately retained a sufficiently dark river corridor to ensure continued use by bats with the implementation of a sensitive lighting plan to ensure that light spill on to the river corridor is minimised while still maintaining health and safety requirements for public realm areas. Additional lighting from the Proposed Development may contradict the measures already in place to ensure mitigation of additional lighting effects on the river corridor and other adjacent semi-natural habitats.

12.102. Without mitigation, high levels of lighting, the use of tall lighting columns and the use of fixtures with high levels of light spill have the potential to have adverse effects on the above receptors specifically:

- A permanent moderate adverse effect significant at the county/ metropolitan level with regards to Mayfield Park and its associated habitats and River Medlock.

- A permanent moderate adverse effect, significant at the local level, with regards to foraging and commuting bats.

Creation and management of new habitats on Site

12.103. The Proposed Development will provide further habitat improvements through the creation of habitats with biodiversity value across the EIA Site. The landscaping vison involves extending the biodiverse Mayfield Park concept further south towards the Mancunian Way. Building on the Park's success, the Phase 1B Site landscaping was designed to complement the existing features of the Park, extending the ecological narrative throughout the Proposed Development.

12.104. These habitats will improve the connectivity of the Site and the habitats adjacent to the Site to the wider landscape. The habitat improvements proposed include:

- 0.047 ha herbaceous introduced shrub;

- 0.251 ha rain garden;

- 0.009 ha of dry rocky river landscaping;
- 0.116 ha of wildflower meadow planting;
- 0.271 ha of biodiverse green roof;
- 0.059 ha of other green roof; and
- 87 trees.

12.105. The Proposed Development will secure these habitats and provide necessary management for them to be maintained in a favourable condition for biodiversity for a minimum of thirty years. This will provide a significant benefit when compared to the baseline scenario, where the Site was previously cleared and is currently dominated by hardstanding and artificial unvegetated surfaces of very low ecological importance which has limited provision to support local wildlife. A Biodiversity Net Gain (BNG) assessment of the Site demonstrates the Site is achieving 115.98% net gain in biodiversity post-development. Further details on the BNG assessment can be found in the Mayfield Phase 1B Biodiversity Net Gain Assessment Report (Buro Happold, 2024).

12.106. The additional habitat creation and subsequent management of the Proposed Development will result in a moderate beneficial impact, significant at the local level.

Further enhancement measures during operation

12.107. In addition to the specific recommendations for the landscaping within the Site boundary a number of recommendations are made to enhance the ecological value delivered by the Proposed Development in line with planning policies and guidance. These are summarised below:

- Incorporate the use of native species and those of benefit to biodiversity (i.e. flowering/fruiting species) within landscaping;
- Incorporate features and select planting species to create additional opportunities for invertebrates (including pollinators) in order to provide nesting habitat, cover and foraging;
- The integration of these recommendations into the development will maximise the benefit of the formal soft landscaping for biodiversity.

12.108. Bat, bird and invertebrate boxes, as well as more semi-natural features such as log piles and standing deadwood will be incorporated within the created habitats across the site. These have the intention of providing further biodiversity features to support species of interest on the site.

12.109. Currently the number, location and type of boxes and features are undefined, but the proposed approach is outlined in the landscape strategy documents (Appendix 12.2), with example proposed features identified.

Summary of effects

12.110. The potential effects identified during the operational phase (scenario 4) of the Proposed Development are summarised in Table 12.7.

Table 12.7 Summary of (pre-mitigation) effects during operation

Receptor	Importance/ sensitivity	Description of effect	Magnitude of change/ impact	Effect significance
Mayfield Park's existing semi-natural habitats	County/ metropolitan	Increased lighting	Moderate adverse	Permanent moderate adverse (significant at

Receptor	Importance/ sensitivity	Description of effect	Magnitude of change/ impact	Effect significance
and the River Medlock				the county/ metropolitan level)
Foraging and commuting bats	Local	Increased lighting towards	Moderate adverse	Permanent moderate adverse (significant at the local level)
Creation and management of new habitat	Local	Increased habitat and biodiversity, beneficial to wildlife	Moderate beneficial	Permanent moderate beneficial (significant at the local level)

Cumulative Effects

12.111. A summary of the cumulative schemes considered relevant to terrestrial ecology within the sites urban setting are presented for Scenario 5 in Table 12.8.

Table 12.8 Summary of cumulative schemes relevant to terrestrial ecology

Application reference	Address	Proposal	Distance from Site	Status
Ref: 124972/FO/2019	Land Bounded By Mayfield Depot Building, Hoyle Street, Mancunian Way (A635), Baring Street, Buxton Street & Berry Street (inclusive) & McDonald Hotel Along With Associated Roads & Junctions Manchester M1 2AD	Mayfield multistorey car park (as amended by 132255/JO/2021)	100 m	Decided - Approved
Ref: 125248/FO/2019	Land Adjacent To Mancunian Way (former Mayfield Goods Yard) Baring Street Office 2 Manchester M1 2AD	Erection of 13 storey building (including ground and mezzanine) comprising office space (Use Class B1) above flexible uses at ground and mezzanine levels (Class A1 (Shop), A2 (Financial and Professional Services), A3 (Café and Restaurant), A4 (Drinking Establishment) /D1 (Art Gallery, Museum and Conference & Training Centre)/D2 (Cinema)/ Theatre (Sui Generis)) with rooftop amenity spaces and external terrace levels, internal ancillary storage spaces for waste, cycles, rooftop plant, back of house functions and	20 m	Decided - Approved

Application reference	Address	Proposal	Distance from Site	Status
		associated landscaping works (as amended by 137349/JO/2023)		
Ref: 137263/FO/2023	Land At Baring Street Adjacent To The River Medlock Manchester M1 2PY	Erection of 9 storey office development with mezzanine and plant level (Class E) with ground and basement floor retail, cafe and / or restaurant and / or gym (Use Class E) uses, rooftop amenity spaces and terrace levels, associated public realm and riverside walkway and associated works.	80 m	Decided - Approved
Ref: 135857/FO/2022	Land Bounded By Ardwick Green North, Cofter Street & Niven Street Manchester M12 6EY	Erection of 16 x 3 story townhouses (Class C3) with associated parking, landscaping and boundary treatment and new vehicular access from Cofter Street and associated works	195 m	Decided - Approved

12.112. All other schemes identified within 1km of the Site were scoped out of this assessment due to the distance between the proposed Site boundary and the cumulative schemes and the subsequent lack of tangible impact pathways.

Construction

Damage and disturbance to habitats and watercourses

12.113. Any construction activities within the locality of the Proposed Development would need to follow similar protocols with regards to the protection of on- and off-site habitats and designated sites, through implementing suitable environmental protection measures with a Construction Environmental Management Plan (CEMP). Therefore, the cumulative effects of the Proposed Developments on habitats and watercourses are considered negligible.

Protected and notable species

12.114. There is the potential for in combination construction effects during the construction period if any of the construction overlaps with the identified nearby projects. If there is an overlap in construction, the presence of construction disturbance in the wider area may alter species behaviour to move away from the area of disturbance, limiting the area they can move to.

12.115. However, as described in this Chapter, similar protocols with regards to the protection of species will need to be implemented to ensure suitable environmental protection measures are undertaken based on a Construction Environmental Management Plan (CEMP). Therefore, the cumulative effects of the Proposed Developments towards local protected and notable species are considered negligible.

Operational

Lighting

12.116. The majority of developments are likely to cause an increase in light during operation which could increase disturbance levels for species such as nesting birds and bats. However, the developments, including future applications and SRFs within the vicinity of the Proposed Development, are already located within a highly urbanised environment. The species occupying the sites are already subject to relatively high levels of disturbance and are likely to be tolerant of a level of disturbance typical of the urban development once operational. Therefore, the cumulative lighting effect is considered negligible.

Habitat creation and management

12.117. Potential minor beneficial effects are likely to arise for local fauna through the provision and incorporation of soft landscaping, habitats, and green infrastructure (i.e., green walls and green roofs) associated with the cumulative schemes in combination with the Proposed Development. Although this additional planting will be provided, it would not be to a scale that would generate an additional significant cumulative effect.

Mitigation Measures

12.118. The following sections (construction and operational phase) sets out the proposed mitigation for likely significant adverse effects identified in the previous sections as well as those measures which will be employed to further reduce non-significant (minor) adverse effects and ensure that relevant statutory requirements are met.

Construction Phase (Scenario 2 and 3)

Habitats

Habitat Loss

12.119. Habitat loss will occur throughout the construction phase with areas of grassland, scrub and young trees to be removed.

12.120. The on-site landscape strategy includes the provision of semi-natural habitats including species-rich wildflower meadow planting, introduced shrub, rain gardens, biodiverse green roofs and mix of native and ornamental tree species. The provision of new habitats seeks to improve and reinforce connectivity on the EIA Site to those adjacent within Mayfield Park. The provision of these new habitats on the EIA Site demonstrates over a 120% gain in BNG (see Mayfield Phase 1B BREEAM and BNG report) compared to the existing baseline conditions. Therefore, the incorporation of the proposed landscaping on the EIA Site will mitigate and compensate for the loss of the existing trees and other neutral grassland leading to a change from permanent minor adverse effect to negligible.

Damage and disturbance of habitats and watercourses (River Medlock)

12.121. A detailed Construction Environmental Management Plan (CEMP) will be secured by way of planning condition for the Proposed Development. The CEMP will detail how airborne dust, run-off and construction materials will be managed during the construction activities. Controls will follow national standards and best practice to ensure that these risks are minimised and that they do not affect adjacent habitats and species or habitats and species beyond the EIA Site boundary as identified.

12.122. Dust attenuation and suppression measures will be agreed and detailed in the CEMP which will avoid an impact on habitats which support species of conservation value adjacent to and off-site.

12.123. The CEMP will further detail the methods to control run-off to prevent the siltation and pollution of the watercourse adjacent to Site and reduce the risk of siltation events passing further downstream of the River

Medlock. This will include ensuring that cut from excavation works is not stockpiled in proximity to the watercourse, or in a position where the stockpiles are stored on a higher topography that the watercourse, where flow from rainfall events will likely wash sediment from the piles into the watercourse.

12.124. The CEMP will also detail how plant and associated chemicals will be stored on site throughout the construction phases to ensure that spills are isolated and that measures will be in place to prevent leakage from entering into the River Medlock. The CEMP will also detail how waste materials from ground works and storage of construction building materials will be managed to avoid damaging or contaminating adjacent habitats.

12.125. With the implementation of the CEMP, potential effects caused by indirect pollutants on nearby habitats (semi-natural habitats within Mayfield Park, priority deciduous woodland and priority open mosaic habitat) and watercourses (River Medlock) will be reduced to negligible.

Species

Disturbance to commuting and foraging bats

12.126. The CEMP will include provisions for minimising indirect impacts such as those caused by noise/ vibration and construction lighting on commuting and foraging bats. Particular consideration will be given to the northern boundary of the Site bordering the Mayfield Park. Use of hoarding and restricted working hours will aim to reduce the impact of noise.

12.127. Lighting for after-dark construction activities and/ or security requirements will seek to maintain a dark edge to the adjacent Mayfield Park to minimise impact on commuting and foraging bats. A construction lighting plan should be part of the CEMP planning condition to ensure that lighting requirements for the site after-dark do not detrimentally impact on bat's use of the retained surrounding habitat features.

12.128. With the implementation of the CEMP, potential effects on foraging and commuting bats caused by construction activities will be reduced to negligible.

Disturbance to roosting bats

12.129. The CEMP will include provisions for minimising indirect impacts such as those caused by noise/ vibration and construction lighting within Phase 1B Site, particularly areas bordering Mayfield Park where bat boxes are incorporated into the design and known roosts are present. Use of hoarding and restricted working hours will aim to reduce the impact of noise. With the implementation of the CEMP, effects of roosting bats will be reduced to negligible.

Killing and injury of birds by the destruction of active nests

12.130. Breeding birds, their nests and young are protected under Schedule 1 of the WCA, and any site clearance which takes place within the bird breeding season (i.e. between March and August, inclusive) could kill or injure adults, chicks or damage eggs or nests in the process of construction. Full details on the avoidance of killing and injury of birds, and avoidance of active nest destruction, will be included in and agreed on in the CEMP prior to works commencing.

12.131. Should active nests be identified during any pre-works checks, then the vegetation will be retained on site, with a suitable buffer to minimise disturbance, until the nest becomes inactive, and the chicks have fledged. The vegetation and buffer area will be clearly demarcated on site, and site personnel briefed of its presence and the requirement for the area to become a works exclusion zone until the ecologist can confirm that the nest is no longer in use.

12.132. With the implementation of these supplementary mitigation measures, the effect resulting from the potential killing and injury of birds by destruction of active nests will be reduced to negligible.

Table 12.9 Summary of construction mitigation measures

Adverse effect	Mitigation Measure	Responsibility/Mechanism for implementation	Timing
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills on the River Medlock	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Prior to, and during construction
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills on priority deciduous woodland habitat and open mosaic habitat	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Prior to, and during construction
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills on semi-natural habitats identified within Mayfield Park	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Prior to, and during construction
Habitat loss of scattered trees on the EIA Site	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company. Requirements of a LEMP/ HMMP required for management and maintenance of habitats.	Post-construction
Habitat loss of other neutral grassland on the EIA Site	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company. Requirements of a LEMP/ HMMP required for management and maintenance of habitats.	Post-construction

Adverse effect	Mitigation Measure	Responsibility/Mechanism for implementation	Timing
Disturbance to foraging and commuting bat	Noise, vibration and lighting will be managed in keeping with national and local guidelines, and will be detailed in the CEMP to avoid disturbance to foraging and commuting bats	CEMP to be secured through planning condition and implemented by contractor.	Prior to, and during construction
Disturbance to roosting bats	Noise, vibration and lighting will be managed in keeping with national and local guidelines, and will be detailed in the CEMP to avoid disturbance to roosting bats.	CEMP to be secured through planning condition and implemented by contractor.	Prior to, and during construction
Killing and injury of birds by the destruction of active nests	Avoidance of harm to birds, their nests and young to prevent an offence under legislation, will be ensured through following the recommendations outlined in this EcIA which will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Prior to, and during construction

Operational Phase (Scenario 4)

Increased lighting on Site

12.133. There is currently no external artificial lighting strategy proposed. However, to ensure mitigation of the adverse impacts of artificial lighting towards Mayfield Park, the River Medlock, bats, and other local fauna, a detailed lighting plan should be prepared and secured through planning condition.

12.134. If possible, dark corridors should be incorporated into the design of the Proposed Development, especially where key bat habitat is existing or proposed to be created such as the biodiverse green roof, wildflower meadow planting and existing retained wall along the southern boundary bordering the A635 road (the Mancunian Way).

12.135. Other artificial lighting considerations for minimizing impact on wildlife include:

- Appropriate luminaire specifications – for example, luminaires should lack UV elements, a warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component, and light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats. Further information on appropriate luminaire specifications is provided within Bats And Artificial Lighting At Night, Guidance Note 08/23 (BCT, 2023).

- Sensitive site configuration (location, orientation and height of newly built structures, and hard standing, relative to each other can have a considerable impact on light spill).

- Physical screening (if required, light spill can be successfully screened through landscaping and the installation of walls and fences, or even banks and bunds).

- Dimming and part-night lighting

- Glazing treatments on buildings

Table 12.10 Summary of operational mitigation measures

Adverse effect	Mitigation Measure	Responsibility/Mechanism for implementation	Timing
Increased lighting towards Mayfield Park existing habitats and River Medlock	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise impacts from external and obtrusive light spill.	Implementation of lighting plan within and adjacent to the EIA Site.	During construction and operation.
Increased lighting towards foraging and commuting bats	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise impacts from external and obtrusive light spill.	Implementation of lighting plan within and adjacent to the EIA Site.	During construction and operation.
Creation of habitats to compensate for loss of habitat during construction and to improve the overall Site for BNG and wildlife	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company.	Post-construction

Residual Effects

12.136. Table 12.11 summarises the residual effects during construction and Table 12.12 summarises the residual effects during operation of the Proposed Development.

Construction Phase (Scenario 2 and 3)

Table 12.11 Summary of residual effects during construction

Likely Significant Effect	Receptors	Pre-mitigation significance	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	River Medlock	Temporary major adverse (significant at the county/ metropolitan level)	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and	CEMP to be secured through planning condition and implemented by contractor.	Negligible

Likely Significant Effect	Receptors	Pre-mitigation significance	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
			will be detailed in the CEMP		
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	Priority deciduous woodland habitat and open mosaic habitat	Temporary minor adverse (significant at the local level)	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	Semi-natural habitats identified within Mayfield Park	Temporary minor adverse (significant at the local level)	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Habitat loss	Scattered young trees on Site	Permanent minor adverse (significant at the local level)	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company. Requirements of a LEMP/ HMMP required for management and maintenance of habitats.	Negligible

Likely Significant Effect	Receptors	Pre-mitigation significance	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Habitat loss	Other neutral grassland on Site	Permanent minor adverse (significant at the local level)	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company. Requirements of a LEMP/ HMMP required for management and maintenance of habitats.	Negligible
Disturbance to foraging and commuting bat	Bats	Temporary minor adverse (significant at the local level)	Noise, vibration, and lighting will be managed in keeping with national and local guidelines, and will be detailed in the CEMP to avoid disturbance to foraging and commuting bats	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Disturbance to roosting bats		Temporary minor adverse (significant at the local level)	Noise, vibration, and lighting will be managed in keeping with national and local guidelines and will be detailed in the CEMP to avoid disturbance to roosting bats.	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Killing and injury of birds by the destruction of active nests	Breeding birds	Temporary minor adverse (significant at the local level)	Avoidance of harm to birds, their nests and young to prevent an offence under legislation, will be ensured through following the recommendations outlined in this EIA which will be	CEMP to be secured through planning condition and implemented by contractor.	Negligible

Likely Significant Effect	Receptors	Pre-mitigation significance	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
			detailed in the CEMP		

Operational Phase (Scenario 4)

Table 12.11 Summary of residual effects during operation

Likely Significant Effect	Receptors)	Pre-mitigation significance	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/permanent)
Increased lighting on Site	Mayfield Park existing habitats and River Medlock	Permanent moderate adverse (significant at the county/ metropolitan level)	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise impacts from external and obtrusive light spill.	Implementation of lighting plan within and adjacent to the EIA Site.	Negligible
Increased lighting on Site	Foraging and commuting bats	Permanent moderate adverse (significant at the local level)	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise impacts from external and obtrusive light spill.	Implementation of lighting plan within and adjacent to the EIA Site.	Negligible
Creation of habitats to compensate for loss of habitat during construction and to improve the overall Site for	Creation and management of new habitat on Site	Permanent moderate beneficial (significant at the local level)	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise	Implementation of lighting plan within and adjacent to the EIA Site.	Minor beneficial, permanent

BNG and wildlife			impacts from external and obtrusive light spill.		

Monitoring

12.137. The 30-year post-development monitoring required for BNG will be covered by a Habitat Management and Monitoring Plan (HMMP) and will help ensure the habitats created and enhanced establish successfully and provide ecological benefits in the long-term.

12.138. An Ecological Clerk of Works (ECoW) may be required to oversee the mitigation methods for ecological receptors included within the CEMP. This is to warrant the methods are implemented and to monitor the impacts on ecology, ensuring works are undertaken in accordance with legislation and best practice during the construction process.

Reference List

12.139. This ES Chapter has been prepared in reference to the following:

- CIEEM (2020) Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. Chartered Institute of Ecology and Environmental Management (CIEEM) 43 Southgate Street, Winchester, Hampshire, SO23 9EH, UK
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, CIEEM, Winchester;
- CIRIA, CIEEM & IEMA (2016) Biodiversity net gain. Good practice principles for development;
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- Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London;
- Convention on Biological Diversity (2010) Convention on Biological Diversity, COP Decision X/2, Strategic Plan for Biodiversity 2011-2020. Available from: http://www.cbd.int/decision/cop/?id=12268;
- Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services;
- Defra (2018) A Green Future: Our 25 Year Plan to Improve the Environment; Available from https://www.gov.uk/government/publications/25-year-environment-plan;
- DEFRA (February 2024, updated July 2024) The Statutory Biodiversity Metric User Guide Date.
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- Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment. Institute of Environmental Assessment. E & FN Spon, London, England;
- JNCC on behalf of the Four Countries' Biodiversity Group. 2024. UK Biodiversity Framework. JNCC, Peterborough.
- JNCC (2011) UK Biodiversity Action Plan Priority Habitat Descriptions (Updated December 2011);

- Institute of Lighting Professionals (2018) Guidance Note 08/18: Bats and artificial lighting in the UK, Warwickshire.

- MAGIC. Available at http://magic.defra.gov.uk/MagicMap.aspx;

- Ministry of Housing, Communities and Local Government (MHCLG) (2012). The National Planning Policy Framework (NPPF) 2012. Available from: https://www.gov.uk/government/publications/national-planning-policy-framework--2;

- MHCLG, (2021) National Planning Policy Framework (NPPF) (2021). Available from: https://www.gov.uk/government/consultations/revised-national-planning-policy-framework;

- MHCLG, (2014) The National Planning Practice Guidance (NPPG). Available from: https://www.gov.uk/government/collections/planning-practice-guidance;

- MHCLG, (2019) Draft Planning Practice Guidance (PPG) 2019. Available from: https://www.gov.uk/government/consultations/draft-revised-national-planning-policy-framework;

- National Planning Policy Framework (2023) Available from: National Planning Policy Framework - GOV.UK (www.gov.uk);

- Office of the Deputy Prime Minister (2005) Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (ODPM 06/2005, Defra 01/2005);

- The Wildlife and Countryside Act 1981 (England and Wales), as amended. Available from: http://www.legislation.gov.uk/ukpga/1981/69/contents;

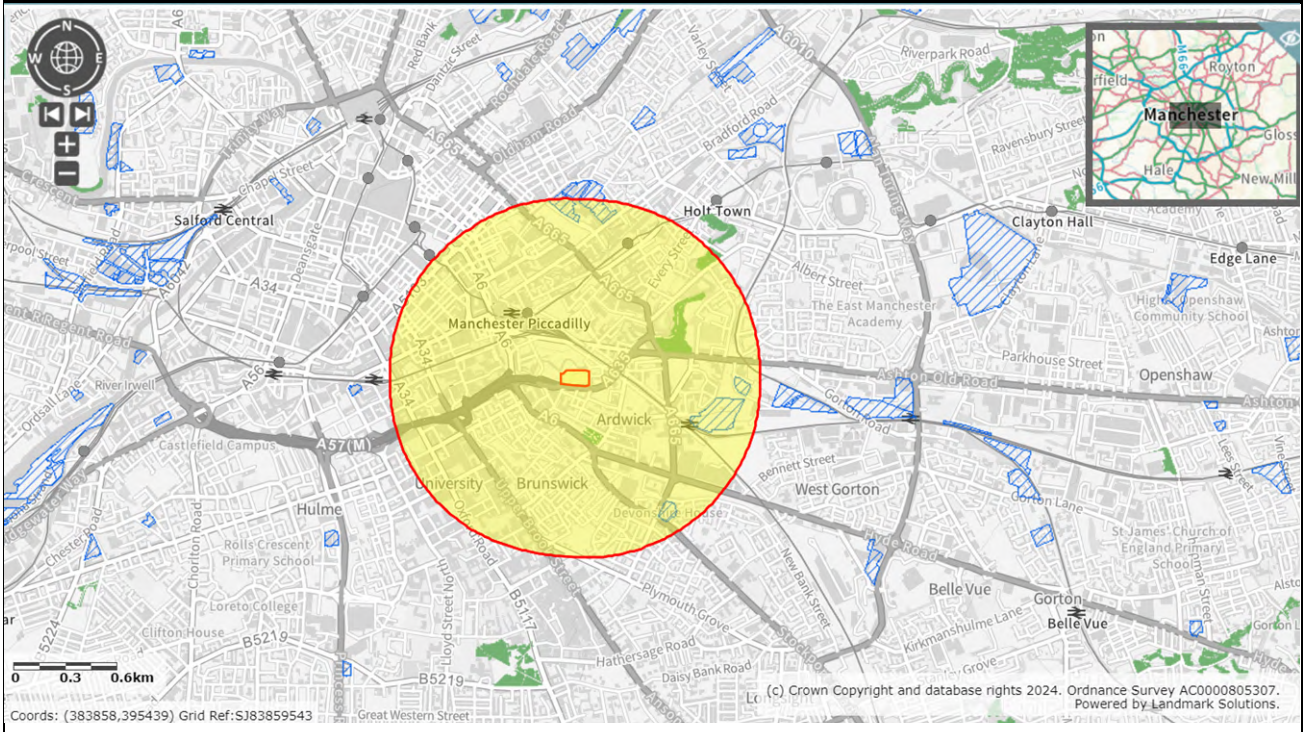
- The Countryside and Rights of Way Act 2000. Available from: http://www.legislation.gov.uk/ukpga/2000/37/contents;

- The Natural Environment and Rural Communities Act 2006. Available from: http://www.legislation.gov.uk/ukpga/2006/16/contents;

- The Conservation of Habitats and Species Regulations 2019 (as amended). Available from: https://www.legislation.gov.uk/ukdsi/2019/9780111176573;

- UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at http//www.ukhab.org/).

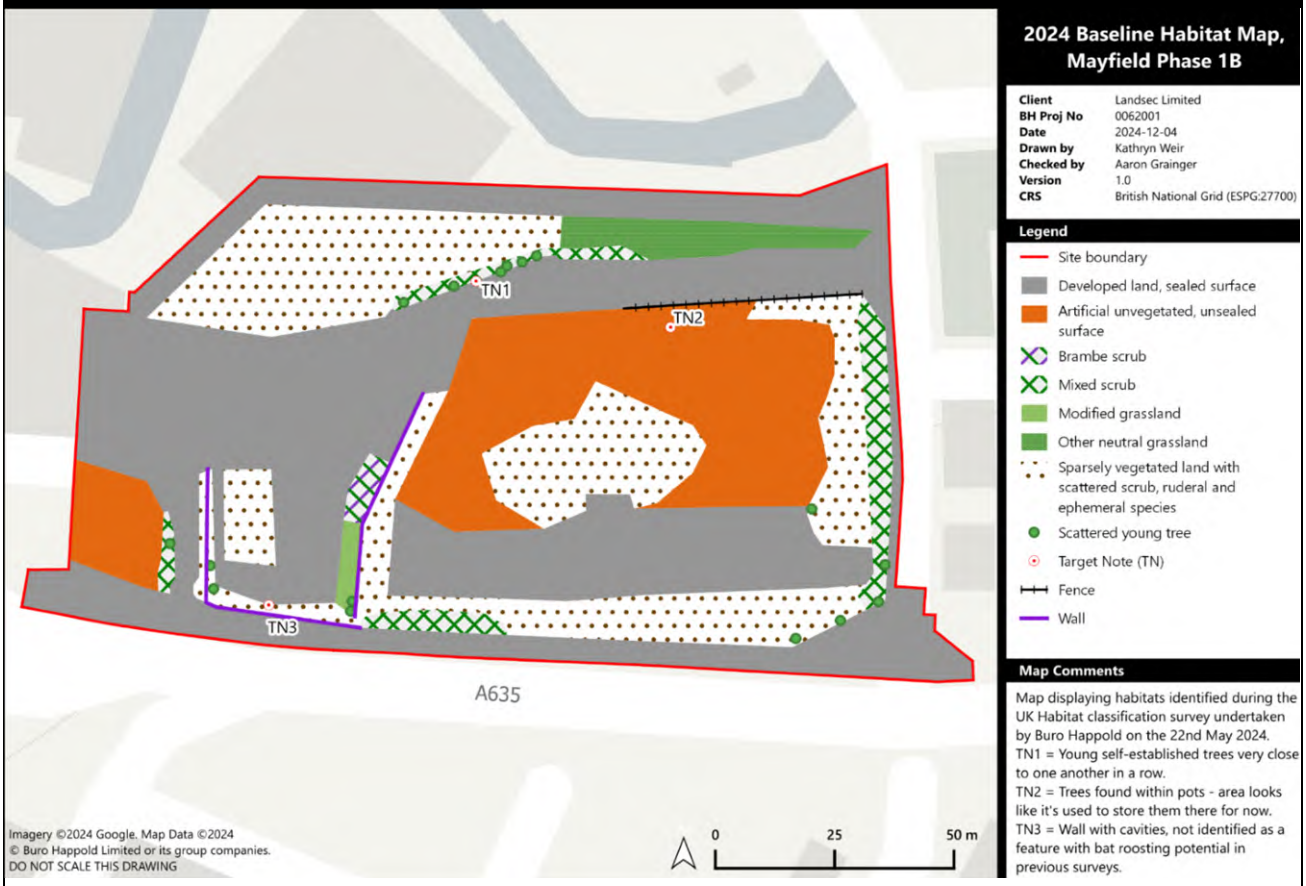
Figure 12.1



Priority habitats in proximity to site (MAGIC, 2024). Green polygons represent priority deciduous woodland and hatched blue polygons represent open mosaic habitat (draft)

	Date: 04/12/2024

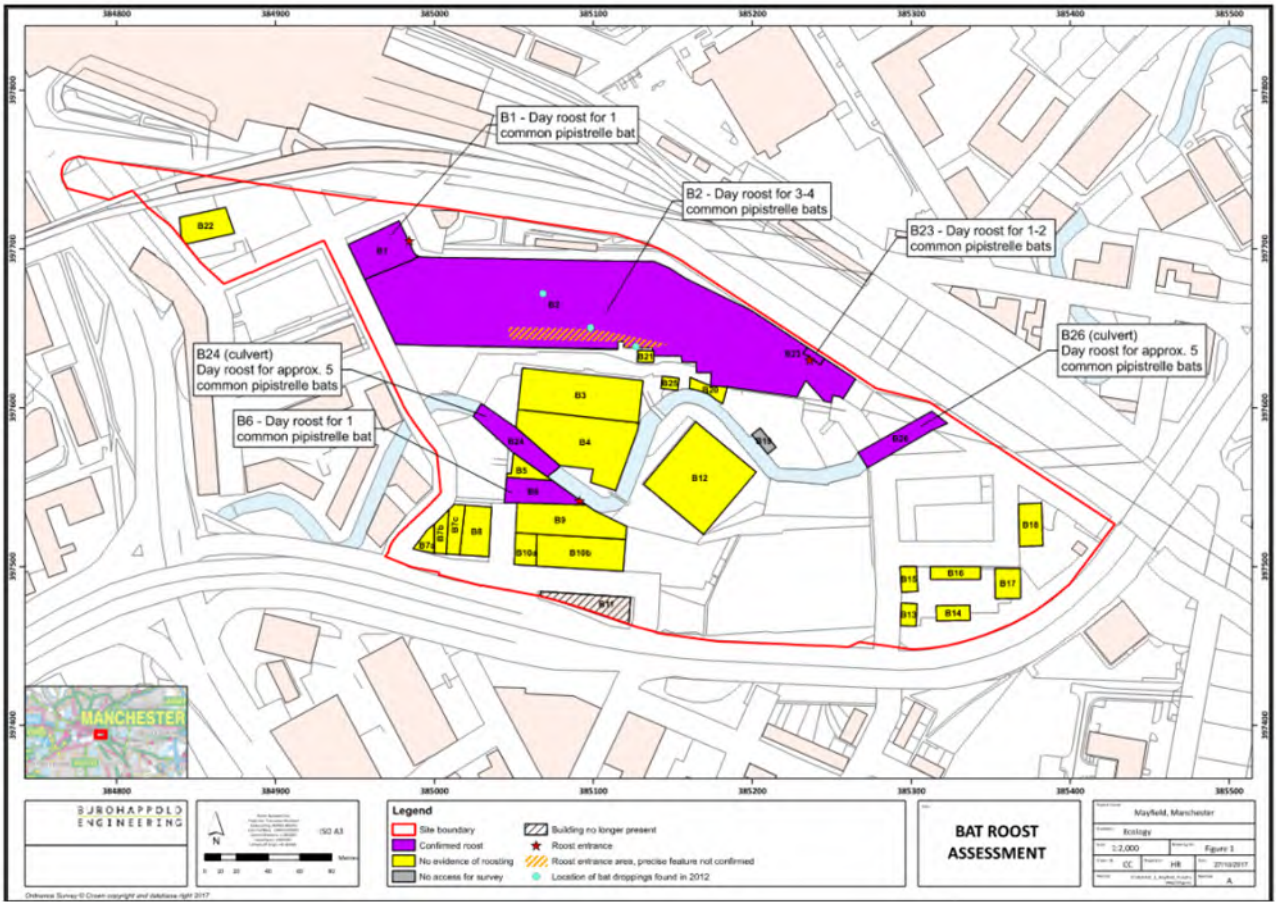
Figure 12.2



2024 baseline habitat map

	Date: 04/12/2024

Figure 12.3



The 2017 bat survey results plan of identified bat roosts within the wider Mayfield Development area.

	Date: 04/12/2024

13. Ground Conditions

Introduction

13.1. This Chapter of the ES has been prepared by Buro Happold and assesses the likely ground conditions' 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.

13.2. This Chapter is accompanied by the following appendices:

- Phase I Desk Study. Civic Earth. 2023 (Appendix 13.1)
- Supplementary Site Investigation Report. Civic Earth. 2024 (Appendix 13.2)
- Remediation Method Statement. Civic Earth. 2024 (Appendix 13.3)
- Technical Note. Civic Earth. 2024 (Appendix 13.4)

13.3. The authors of this Chapter have the following experiences.

Technical Competence in Ground Conditions and EIA		
	Lead Author	Reviewer
Name	Tom Beeson	Alison Nicholson
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	MGeo (Hons) in Geology with Physical Geography Fellow of the Geological Society (FGS)	MChem in Chemistry MSc in Soils and Environmental Pollution Chartered Water and Environment Manager (CIWEM) Specialist in Land Condition (SiLC)
Does the practitioner hold any IEMA qualification?	No	No
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	8 years	21 years
Number of EIA's delivered to date	<10	>25

Assumptions and Limitations

13.4. Beneficial or adverse effects to the relevant receptors during construction and operation are identified and assessed. Beneficial (or positive) effects are associated with the mitigation of risks associated with contamination (e.g. because of the breaking of a pollutant linkage). The adverse (or negative) effects are temporary during the construction phase and relate to the increased potential for contaminant exposure (e.g. from the generation of contaminated dusts) and are long-term from the use of the Site during the operational phase (e.g. associated with any residual contamination).

13.5. The significance of an effect also reflects the timescales involved, i.e. short-term (less than 3 years duration), medium-term (between 3- and 10-years duration) or long term (in excess of 10 years duration), the extent of the area affected and the nature of the effect (i.e. its permanency). The significance of a potential effect is derived by considering both sensitivity of the receptor and the magnitude of impact, as set out in Table 9.3.

13.6. Effects that are generated because of the enabling and construction works (i.e. those that last for this set period) are classed as 'temporary'. These may be further classified as either 'short term' or 'medium-term' effects depending on the duration of the enabling and construction works that generate the effect in question. Effects that result from the completed and operational Proposed Development are classed as 'permanent' or 'long-term' effects.

Legislative and Policy Context

Legislation

13.7. Land contamination is regulated under several regimes including: environmental protection, pollution prevention and control, waste management, planning and development control and health and safety legislation. The primary regulatory regimes under which contaminated land is managed in the UK are the planning process described in the National Planning Policy Framework (NPPF) (MHCLG, 2023) and associated Land Contamination Risk Management guidance (Environment Agency, 2023) and Part 2A of the Environmental Protection Act 1990 (as amended) (HM Government, 1990).

Policy

13.8. Within the National Planning Policy Framework (NPPF) 2024, reference to previously developed land/brownfield land is made within paragraphs 65, 89, 124, 125(c), 147, 148 and 154(g).

13.9. Paragraph 196(a) of the NPPF states that 'a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation)' and paragraph 196(b) states that 'after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990'.

13.10. Paragraph 198 of the NPPF states the need for 'the new development [to be] appropriate for its location [by] 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.''.

Local Planning Policy

13.11. Manchester's Core Strategy Development Plan Document (DPD) adopted in 2012 is the primary strategic planning document in the City's Local Development Framework. Reference to contaminated land has been made within the Core Strategy, Policy EN 17 Water Quality and Policy EN 18 Contaminated Land and Ground Stability, as follows:

- Policy EN 17 Water Quality: Development should minimise surface water run-off from development and associated roads, and maximise the use of appropriate sustainable drainage systems, to minimise groundwater contamination, and to avoid pollutants reaching watercourses.

- Policy EN 18 Contaminated Land and Ground Stability: The council will give priority for the remediation of contaminated land to strategic locations. Any proposal for development of contaminated land must be accompanied by a health risk assessment. All new development within former mining areas shall undertake an assessment of any associated risk to the Proposed Development and, if necessary incorporate appropriate mitigation measures to address them.

- Policy EN 18 refers to the extensive industrial past particularly in the east of Manchester which has left considerable levels of contamination. Manchester City Council recognise the potential of public safety hazards unless the risks associated with the contamination are fully considered and appropriate treatment/mitigation measures are incorporated within new developments in line with the NPPF.

13.12. The Council's target is for 90% of new development to be on previously developed land. This is in line with historical trends across Manchester and will ensure a sustainable approach is taken with regard to the use of land as a limited resource.

Guidance

13.13. The framework for the assessment of potential land contamination adopted in this assessment is based on current guidance documents regarding the implementation of the above regimes and the assessment of potentially contaminated land, with particular reference to: Land Contamination Risk Management (Environment Agency, 2023) and the relevant British Standard 10175 (British Standards Institute, 2017).

Assessment Methodology and Significance Criteria

Scenarios Tested

13.14. The assessment has considered the five baseline and development scenarios as set out in the associated scoping report. The effects will be assessed for construction and operation phases of development. It is understood that the construction period will be completed in two phases of development and the following scenarios will be assessed:

- Scenario 1: Baseline (existing Site, including developments currently under construction);

- Scenario 2: Baseline with Proposed Development Phase 1 construction;

- Scenario 3: Baseline with Proposed Development Phase 1 and Phase 2 construction (as above);

- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operational (as above); and

- Scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational (as above) and cumulative developments.

The Study Area

13.15. The baseline assessment covers the EIA Site and surrounding areas which may impact the Proposed Development or be susceptible to impact as a result of the Proposed Development. The EIA Site study area comprises the area within the red-line boundary of the site, in addition to Area A, Area B and Area C in Figure 13.1 (as presented in the Civic Technical Note).

13.16. Supporting documentation for this ES Chapter includes the Civic Desk Study, Supplementary Report and Remediation Strategy covering the red-line boundary, and the Civic Technical Note covering the remaining areas of the EIA Site i.e. Area A, Area B and Area C in Figure 13.1.

Source of Effect

13.17. A conceptual site model of the Site that describes its environmental features, together with the expected interaction of potential contamination sources with the environment, has been developed by undertaking a Source–Pathway–Receptor analysis of the Site in accordance with relevant good practice guidance.

13.18. These terms are defined here:

- Sources: potential or known sources of contamination associated with historic or recent/current land uses (e.g. disposal of wastes, spills and leaks);
- Pathways: mechanisms/systems through which exposure of a receptor to a contaminant could occur e.g. direct contact with contaminated soils, migration through air, over land or via permeable ground; and
- Receptors: receptors of varying sensitivity that could be adversely affected by contact (direct or indirect) with a contaminant e.g. residents, workers or visitors on the Site, groundwater and surface water bodies, and ecological resources (flora and fauna).

13.19. Where a source, relevant pathway, and receptor are present, a 'contaminant linkage' is created whereby there is a circumstance through which some level of environmental harm could occur which has to be assessed and mitigated as appropriate.

13.20. The methodology for impact prediction is based on assessing both the magnitude of change expected and the sensitivity of the receptor. Criteria for assessing the significance of potential human and environmental effects are based on a qualitative assessment of magnitude of the effect (or how far the impact deviates from the baseline condition) and the receptor sensitivity.

13.21. The resources/receptors and the main potential effects outlined in Table 13.1 below are considered in the assessment. It is not anticipated that all these resources/receptors will be significantly affected, but it is necessary to demonstrate that these important receptors have been considered.

Table 13.1 Receptors and potential effects

Receptor	Effect
Future Site users	Health effects due to the direct or indirect ingestion of contaminated soil and groundwater, dermal contact or inhalation of dusts and/or hazardous fibrous substances or vapours (volatile compounds). Exposure to hazardous gases.
Off-site occupiers / visitors of neighbouring land	Health effects due to inhalation of wind-borne contaminated dusts and/or hazardous fibrous substances (mainly during construction but also in operation). Health effects due to inhalation of vapours (volatile compounds) or hazardous gases that migrate via permeable strata and air.
Construction workers	Health effects due to dermal contact with or the direct or indirect ingestion of any residual contaminated soil, inhalation of contaminated dusts and/or hazardous fibrous substances, inhalation of vapours (volatile compounds). Exposure to hazardous gases.
Principal Aquifer (Chester Formation)	Contamination of Principal Aquifer by mobile contamination that migrates via surface water run-off or via permeable strata.
Secondary A Aquifer (Alluvium & Glacial Till)	Contamination of Secondary A Aquifer (Alluvium & Glacial Till) by mobile contamination that migrates via surface water run-off or via permeable strata.

Receptor	Effect
River Medlock	Contamination of River Medlock by mobile contamination that migrates via surface water run-off or via permeable strata.
Ecological receptors (fauna & flora)	Phytotoxic effects on plant health and growth. Indirect effects on aquatic flora and fauna via contamination of water resources.
Potable water supply pipework	Permeation of plastic water supply pipework by direct contact with contaminated soil.
Building structures (Concrete)	Loss of integrity of below ground concrete.

Assessment Methodology and Significance Criteria

13.22. The assessment of potential effects considers two criteria: the magnitude of impact upon a receptor, and the sensitivity of the receptor affected. These two criteria are considered together in a matrix to determine the overall significance of effect.

13.23. The criteria used to assess how far an effect deviates from the baseline condition, i.e. the magnitude of change, are described in Table 13.2 below. Specific criteria have been adopted as they are more applicable when assessing the magnitude of impact in relation to ground conditions.

Table 13.2 Methodology for Determining Impact Magnitude

Magnitude of impact	Criteria for assessing impact
Major	Short term (acute) or long term (chronic) adverse effects on human health, broadly equivalent to "significant harm" as defined by the Environmental Protection Act 1990 (HM Government, 1990). Persistent and extensive pollution of water resource or ecosystem equivalent to Category 1 pollution incident (major pollution release). Catastrophic damage to crops/building/infrastructure.
Moderate	Short term (acute) or long term (chronic) adverse effects on human health but not equivalent to "significant harm" as defined by the Environmental Protection Act 1990. Non-persistent pollution of water resource or ecosystem equivalent to Category 2 pollution incident (moderate pollution release). Significant damage to crops/buildings/infrastructure (on or off-site). Contamination of off-site soils.
Minor	Easily preventable, non-permanent health effects on humans. Minor, low-level, localised, temporary pollution of water resources or ecosystem. Easily repairable damage to crops/buildings/infrastructure.

Magnitude of impact	Criteria for assessing impact
	Easily preventable, permanent health effects on humans. Localised damage to buildings/infrastructure (on or off-site).
Negligible	No discernible adverse effects.

13.24. The criteria used to assess receptor sensitivity is described in Table 13.3.

Table 13.3 - Criteria for determining receptor sensitivity

Sensitivity	Examples of receptor
High	People (on-site or on neighbouring properties) occupying land in residential use with gardens, or using allotments, children's play areas etc. Construction workers engaged in extensive earthworks. Principal aquifer of regional importance used for potable water supply. Highly ecologically sensitive watercourse or water bodies. Nationally or internationally designated ecological sites. Buildings of high historic or local importance.
Moderate	People (on-site or on neighbouring properties) occupying land in residential use without gardens, or using public areas of soft landscaping/open spaces. Construction workers engaged in moderate earthworks. Secondary aquifer, local watercourse or non-designated water bodies not used for large scale human consumption which can be used for industrial purposes; may be important for local recreational purposes. Locally designated ecological sites. Buildings, including services and foundations.
Low	People (on-site or on neighbouring properties) occupying or using commercial or industrial buildings, car parking, hard landscaping. Construction workers site but with minimal disturbance to the ground. Non-potable water resources, water body of low recreational qualities. Sites of low ecological value and flora and fauna occupying non-designated open areas. Infrastructure (e.g. roads, highways and railways).
Negligible	Land with no access to people and no neighbouring properties. Construction workers on-site, but with no disturbance to the ground on site. Non-aquifer, no nearby watercourses or water bodies within 1km.

Sensitivity	Examples of receptor
	No sites of significant ecological value and no built development within 1km.

13.25. The significance of a potential effect is derived by considering both the sensitivity of the feature and the magnitude of change, as demonstrated in Table 13.4.

Table 13.4 Matrix for determining effect significance

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

13.26. Note that moderate and major effects are considered to be 'significant'. Those which are minor to moderate may be considered significant, based on a judgement made by the assessor in particular circumstances.

13.27. Effects can also be described, for example as:

- Beneficial or adverse;
- Permanent or reversible; and
- Short, medium or long term.

13.28. These designations are reached using professional judgement in accordance with the methodology provided in Section 13.4 and the Significance Matrix in Table 13.4 above.

Baseline Conditions

13.29. An initial understanding of the baseline was obtained from a review of the Phase I Desk Study Report (Appendix 13.1), the Supplementary Site Investigation Report (Appendix 9.2) and the Technical Note (Appendix 13.4) in 2024, all undertaken by Civic Earth, with associated documentation including publicly available published mapping and a site walkover conducted by Buro Happold on 7th November 2024. This current text is presented with the purpose of providing an initial appreciation of the baseline ground conditions but it must be recognised that this is subject to revision should any more detail become available.

13.30. The baseline conditions were assessed for the EIA Site boundary and for a distance of up to 250m beyond. This "halo" around the Site boundary considers the potential for off-site contamination sources and receptors.

13.31. The Civic reports provide information relating to existing geoenvironmental conditions at the Site in addition to an associated risk assessment with the aim of achieving suitable and safe conditions for the proposed end-use. Consideration has been given in this report to the Site's conceptual model developed by Civic including geology, hydrology, hydrogeology and the geoenvironmental conditions with respect to soil gas, soil and groundwater.

13.32. This assessment has considered the EIA Site and its environs as it is currently in 2024 (Scenario 1), how baseline conditions will be expected to change as a result of the Proposed Development (i.e. impacts associated with the design, construction and operation, Scenarios 2-5), as well as how baseline conditions would change if the Proposed Development did not come forward. It is noted that baseline conditions in terms of ground conditions are not expected to change significantly if the Proposed Development did not come forward.

13.33. The natural geology beneath the Site comprises sandstone of the Chester Formation, overlain by cohesive Alluvium and Glacial Till. Owing to the industrial past of the Site and the nature of redevelopments, the natural geological sequence is overlain by Made Ground (fill). This Made Ground is comprised of a range of material types from manufactured asphalt and sub-base, concrete to re-used natural superficial materials containing anthropogenic fragments of brick, concrete, metal, glass and plastic.

13.34. The River Medlock is located ~85m northwest of the Site flowing west/southwest. Discontinuous perched groundwater is present at the site within the Made Ground and cohesive superficial deposits and is located cross gradient from the river and is not considered to be in hydraulic continuity with the river. The discontinuous nature of the perched water, the cross hydraulic gradient location and presence of cohesive superficial deposits will limit the lateral and vertical migration of contaminants in perched groundwater to the underlying Principal Aquifer and River Medlock.

13.35. The Site history was reviewed with reference to the Civic Phase I Desk Study and Technical Note, associated historical mapping (dating back to 1851) and regulatory data. The recent and historic uses of the land at the Site (summarised below) are relevant to the likely location, nature and scale of any potential ground contamination.

13.36. The following summary is quoted from the Civic Desk Study relating to the red-line boundary area 'Earliest available historical mapping indicates that the northern and western areas of the site were predominantly occupied by industrial activities (Reservoir, Ardwick Dye Works, Ardwick Tannery, Chapelfield Works (India rubber) and Britannia Brewery) whilst the eastern and southern areas of the site were predominantly occupied by residential properties. By 1948, the majority of structures in the eastern area of the site were no longer indicated and two large industrial buildings were also indicated in the southwest and central areas of the site. A Works was subsequently constructed in the northeast of the site c.1964 and a Rubber & Plastic Works in the southeast of the site c.1968. By 1986, the structures in the west of the site were demolished and Tanks were recorded in the middle of the site and adjacent to the Works in the southeast of the site. The site remained predominantly unchanged in layout, with aerial photography indicating areas of the site as car parking, until c.2015 when the on-site structures were demolished. The site was used as a stockpiling and remediation storage area during the recent enabling works for the Mayfield Park and Phase 1A development areas.'

13.37. Between 1948 to 1954 the majority of the terraced housing was indicated to have been cleared following possible bombing during WWII; therefore, there is the potential for unexploded ordnance (UXO). The Civic Desk Study included a detailed UXO risk assessment carried out by Brimstone. This detailed UXO risk assessment considered the site (note: Area C was not assessed) to be a moderate risk from UXO, with the exception of the southwest corner which is considered to be a low risk from UXO.

13.38. Contamination testing was undertaken during a previous investigation by ROC in 2020 and in a recent investigation 'Supplementary Site Investigation' by Civic in 2024. Heavy metals and polyaromatic hydrocarbons (PAHs) were identified within the Made Ground and a 'Total Petroleum Hydrocarbon (TPH) hotspot' area was reported in the centre of the site considered by ROC to be associated with an above ground historical fuel storage tank.

13.39. Preliminary waste characterisation assessment was completed by Civic (Appendix 9.2), based on the results of their Supplementary Site Investigation. Most materials were classified as Non-Hazardous Waste, with some material considered by Civic to be acceptable as inert waste (based on Waste Acceptance Criteria (WAC) testing).

13.40. Asbestos was reported in soils across the site ranging between <0.001% and 0.465% in the ROC 2020 investigation and one out of 40 samples reporting asbestos >0.1% i.e. above Hazardous Waste concentrations in the 2024 investigation. Two samples were reported above the TPH Hazardous Waste concentrations. Notwithstanding this preliminary assessment, it is the earthwork contractor's responsibility, in association with the operator and / or owner of the landfill to classify the materials for disposal in line with current guidance. Landfill waste acceptance criteria (WAC), leachate testing and classification prior to disposal to landfill will be undertaken to confirm the waste classification of the natural soils.

13.41. Groundwater (perched and Principal Aquifer) and ground gas monitoring and sampling was undertaken by Civic in 2024. The discontinuous perched groundwater was observed with elevated contaminant concentrations during the Civic investigation. These elevated concentrations were not recorded in the deeper Principal Aquifer (regional flow anticipated southwest) that may be in hydraulic continuity with the River Medlock.

13.42. The ground gas regime was assessed as Characteristic Situation 1 (the lowest risk category for ground gas based on reported methane and carbon dioxide concentrations in ground gas and associated ground gas flow rates) whereby no ground gas mitigation measures were considered necessary. Therefore, ground gas is not considered further in this Ground Conditions chapter of the Environmental Statement.

13.43. The Civic Remediation Method Statement (Appendix 9.3) provides recommendations for the areas of identified contamination. The proposed remediation for the TPH hotspot is for impacted Made Ground and natural shallow deposits to be locally removed and replaced, and for the existing tank base and immediate infrastructure (5m buffer) to be grubbed out. The Remediation Method Statement also recommends a watching brief for the enabling works in case of unexpected contamination. A watching brief for the Tannery area is also recommended during the enabling and construction phase works including the visual inspection of soils for the presence of materials such as animal bones, carcasses and hides and for significant quantities of deleterious or organic rich materials or sludge. Monitoring wells from the previous phases of ground investigation were recommended to be decommissioned with headworks removed and backfilled with low-permeability material.

13.44. The following summary is quoted from the Civic Technical Note relating to Area A, 'It is understood that this area was remediated as part of the development of Mayfield Park'. For further details refer to the E3P report, 2021.

13.45. The following summary is quoted from the Civic Technical Note relating to Area B, '…historical mapping indicates that this area has predominantly comprised roads since the earliest available mapping dated 1851'.

13.46. The following summary is quoted from the Civic Technical Note relating to Area C, 'The area comprises the southern bellmouth and western pavement of Hoyle Street and a small area of soft/hand landscaping to the east of Hoyle Street. Historical mapping indicates that in the late 1800s/early 1900s the area comprised New York Street (which later became Hoyle Street) and residential housing to the east of New York Street. The residential housing is indicated to no longer be present by 1948 and the site is indicated to be in its current configuration by 1968. Mapping suggests the area to the east of Hoyle Street comprises of hard standing, but aerial photography suggests that part of this area is soft landscaping.

13.47. The Civic Technical Note refers to a ground cavity / sinkhole incident in 2016 on Mancunian Way approximately 80m southwest of the site. It was identified as 12m in diameter and 'opened in torrential downpours, possible former culvert collapse'. It is understood the road has since been repaired and the road is operational.

13.48. During the site walkover undertaken on 7th November, it was noted that the site conditions were in general agreement with the Civic Phase 1 Desk Study and Technical Note, with the exception of the western section of the site that was being used as a compound for a light show at the adjacent Mayfield Park and the vegetation within the southern and eastern site boundaries that was being removed during the Civic walkover earlier this year has mostly been removed but has re-grown slightly. It was noted all equipment was stored on the existing hardstanding.

13.49. By considering the baseline conditions (Scenarios 1), construction (Scenarios 2&3) and proposed future use (Scenarios 4&5), a number of potential receptors with respect to land contamination at the site have been identified. These are listed below:

- Future site users;
- Off-site occupiers/visitors of neighbouring land;
- Construction workers;
- Principal Aquifer (Chester Formation);
- Secondary A Aquifer (Alluvium and Glacial Till);
- River Medlock;
- Ecological receptors (flora);
- Potable water supply pipework; and
- Building structures (concrete).

Identification and Evaluation of Likely Significant Effects

Not Significant Construction Effects

13.50. The following construction effects (Scenarios 2&3) were considered not significant (i.e. are all considered to be negligible or minor adverse effects) and as a result were scoped out of further assessment in the EIA Scoping report. The justifications for these effects being not significant are provided in the text below:

- Off-site occupiers / visitors of neighbouring land (also reference the Chapter 5 (Construction):
    - During the construction of the Proposed Development (including remediation and earthworks) there is potential for adverse health effects due to inhalation of wind-borne contaminated dusts and/or hazardous fibrous substances and/or inhalation of vapours (volatile compounds) or hazardous gases that migrate via permeable strata and air.
    - Tertiary mitigation will comprise development of a Construction and Environmental Management Plan (CEMP) as provided in Chapter 5. The CEMP is considered to be a standard practice used to manage commonly occurring environmental effects and as such classified as tertiary mitigation i.e. actions that would occur with or without the EIA. which sets out the appropriate investigation and adoption of good construction practice to prevent dust generation.
    - It is proposed that the effect to off-site occupiers and visitors of surrounding land will be mitigated during remediation, earthworks and construction through adoption of a CEMP and good construction practice (tertiary mitigation).
    - Following the implementation of the Construction and Environmental Management Plan and good construction practice, the potential for adverse effects to off-site occupiers/visitors of neighbouring land would be negligible..
- Principal Aquifer (Chester Formation)
    - During the construction of the Proposed Development there is potential for the mobilisation of contamination following the removal of sealed surfaces and exposing of currently installed boreholes at the site. The construction of foundations and service trenches present the potential for preferential migration pathways.
    - The Principal Aquifer is located within the Chester Formation, beneath a thickness of low permeability Glacial Till, therefore vertical migration of potential contaminants is considered to be limited.
    - Primary mitigation of the potential risks can be achieved through appropriate risk assessment, and design. Tertiary mitigation will include measures that are required by planning conditions

such as remediation (with reference to the Civic Remediation Method Statement) to reduce the contaminant source and mitigate potential preferential pathways including decommissioning of existing boreholes and a Piling Risk Assessment. Furthermore a CEMP and good construction practices as provided in Chapter 5 will be implemented as additional tertiary mitigation.

    - Following the implementation of appropriate design, the Remediation Method Statement (based on the risk assessment undertaken by Civic in their Supplementary Site Assessment), a Piling Risk Assessment, CEMP and good construction practices, the potential for increased migration of contamination along preferential pathways would be negligible.

- Secondary A Aquifer (Alluvium and Glacial Till)

    - During the construction of the Proposed Development there is potential for the vertical and horizontal mobilisation of contamination following the removal of sealed surfaces and exposing of currently installed boreholes at the site. Furthermore, the construction of foundations and service trenches present the potential for preferential migration pathways.

    - The Secondary A Aquifer is located within the Alluvium and Glacial Till, typically of low permeability, therefore vertical and lateral migration of potential contaminants is considered to be limited.

    - Primary mitigation of the potential risks will be achieved through appropriate risk assessment and design. Tertiary mitigation will include measures that are required by planning conditions such as remediation (with reference to the Civic Remediation Method Statement) to reduce the contaminant source and mitigate potential preferential pathways including decommissioning of existing boreholes and a Piling Risk Assessment. Furthermore, a CEMP and good construction practices as provided in Chapter 5 will be implemented as additional tertiary mitigation.

    - Following the implementation of appropriate design, the Remediation Method Statement (based on the risk assessment undertaken by Civic in their Supplementary Site Assessment), a Piling Risk Assessment, CEMP and good construction practices, the potential for increased migration of contamination vertically, horizontally and along preferential pathways would be negligible.

- River Medlock

    - The River Medlock is located ~10m northwest of the Site at its nearest point. Owing to geological conditions (low permeability Alluvium and Glacial Till, discontinuous perched groundwater, distance and cross hydraulic location to the river), migration of mobilised contamination within the perched groundwater to the river is considered limited.

    - Primary mitigation of the potential risks will be achieved through appropriate risk assessment and design. Tertiary mitigation will include measures that are required by planning conditions such as remediation (with reference to the Civic Remediation Method Statement) to reduce the contaminant source and a Piling Risk Assessment. Furthermore, a CEMP and good construction practices such as minimizing surface water run-off as provided in Chapter 5 will be implemented as additional tertiary mitigation.

    - Following the implementation of appropriate design, the Remediation Method Statement (based on the risk assessment undertaken by Civic in their Supplementary Site Assessment), a Piling Risk Assessment, CEMP and good construction practices, the potential for increased migration of contamination via perched groundwater or surface water run-off to the River Medlock would be negligible.

- Ecological receptors (flora)

- A limited amount of vegetation is present following removal of dense vegetation on the southern and eastern extents of the site earlier this year as observed by Civic. Otherwise the site is derelict and covered with exposed Made Ground, tarmac, concrete or crushed material with limited areas of vegetation.

- The site will be subject to earthwork movements during site remediation, enabling works and earthworks during construction leading to some short term degradation of existing flora and fauna.

- Following the implementation of good construction practice and relevant control measures within the CEMP (i.e. tertiary mitigation measures), the potential for phytotoxic effects on existing flora will be negligible.

Significant Construction Effects

13.51. Construction workers are likely to be in contact with Made Ground soils and / or contaminated shallow perched groundwater during remediation, enabling works, earthworks and other below ground construction activities (Scenarios 2 & 3). Therefore, there is the potential for human uptake (via ingestion, inhalation and dermal contact) of contaminants. Effects are generally likely to be temporary (T) and short term (S-T); therefore, the main contaminants of concern are those of potentially acute hazards (e.g. asbestos, carcinogens).

13.52. The sensitivity of construction workers in these circumstances is moderate. The magnitude of potential impact is moderate resulting in a potential effect of moderate adverse significance prior to mitigation as shown in Table 13.5 below.

Table 13.5 Summary of effects during construction prior to mitigation

Receptor	Sensitivity	Description of effect	Magnitude of change / impact	Effect significance	Duration
Construction workers	Moderate	Potential for exposure to contaminated soils / dusts and contaminated shallow perched water during remediation, enabling works, earthworks and other below ground construction activities.	Moderate	Moderate adverse	T, S-T

Effects of Climate Change on Construction Scenarios

13.53. It is accepted that the climate is changing and that this will affect future weather patterns. Such changes to weather patterns in the UK may include: an increase in warmer weather; an increase in the frequency and intensity of rainfall events; and an increase in the duration or frequency of dry spells in the summer. Such events are also likely to become more extreme. There is the potential for these scenarios to impact upon potential contaminant migration pathways in particular during construction with respect to a potential increase in hazardous ground gas migration, increase in infiltration into groundwater and then surface water via permeable strata, and increase in surface water run-off of temporarily stockpiled material.

13.54. Increased temperatures and drier summers could, for example, cause a drop in groundwater levels. This could expose or enhance a pathway for the migration of hazardous ground gas. Increased rainfall will increase flood risk (fluvial or groundwater). This will influence the extent and duration of ground saturation accordingly, and also cause rise in groundwater levels. Such events may result in increased infiltration and therefore mobilisation of contamination, with potential to impact upon sensitive aquifers or surface waters. Changes to the degree of saturation in soils may also affect pathways for ground gas migration, for example, water may displace ground gas in soil pores, causing release at the ground surface with potential to accumulate within confined spaces.

Effects of Weather Events on Construction Scenarios

13.55. There is the potential for such weather events to affect the Proposed Development during construction. Significant rainfall events or flooding may overwhelm normal surface water controls, and lead to mobilisation of contamination within exposed soils (e.g. areas of temporarily stockpiled materials). Evidence of extreme weather events in the area include the ground cavity / sinkhole incident on Mancunian Way approximately 80m southwest of the site in 2016; it is understood the road has since been repaired and the road is operational.

13.56. Measures set out in "standard" Construction and Environmental Management Plans (CEMPs) are not likely to account for these extreme weather events. Accordingly, to mitigate the potential impact of such events, detailed incident management plans, including responses to extreme weather events, will be a part of the CEMP and Site management documents once a contractor is appointed for the development and these will remain live for the during of construction period.

Not Significant Operational Effects

13.57. The following operational effects (Scenarios 4&5) identified were all considered to be not significant (i.e. are all considered to be negligible or minor adverse effects) and as a result were scoped out of further assessment in the EIA Scoping report. The justifications for these effects being not significant are provided in the text below.

- Future Site users
    - During operation of the Proposed Development there is potential for adverse health effects to future site users due to the direct or indirect ingestion of contaminated soil and groundwater; dermal contact or inhalation of dusts and/or hazardous fibrous substances or vapours (volatile compounds); exposure to hazardous gases; and/or ingestion of contaminated water supplies from permeation of plastic water supply pipework by direct contact with contaminated soil.
    - Primary mitigation of the potential risks will be achieved through appropriate risk assessment (as undertaken in the Civic Supplementary Site Investigation Report) and design.
    - Implementation of remediation (see Civic Earth Remediation Strategy) during construction and then encapsulation as part of the building construction and hard landscaping areas (i.e. limiting the potential for dust generation) will be undertaken.
    - Any proposed soft landscaping is likely to be limited and, where present, isolated from existing Made Ground through a clean capping layer or within raised planters to mitigate the risk of contact with underlying contaminated materials. Imported materials will be suitable, meet importation requirements and will comply with the relevant British Standards for topsoil and subsoil (British Standards Institute 2015 & 2013) and meet horticultural requirements. Podium garden soils will comprise of suitable soils either site won or imported.
    - Barrier pipe will be used for potable water supply to reduce the potential for permeation of plastic pipework by direct contact with contaminated soil. United Utilities are to confirm this approach.
    - Tertiary mitigation will include measures that are required by planning conditions such as remediation (with reference to the Civic Remediation Method Statement) to reduce the contaminant source, associated validation plan and reports, CEMP and good construction practices.
    - Following the implementation of appropriate design, the Remediation Method Statement (based on the risk assessment undertaken by Civic in their Supplementary Site Assessment), CEMP and good construction practices, the potential for potential for adverse health effects to future site users is negligible.

- Effects on flora (root uptake from contaminated Made Ground materials)

    - During operation of the Proposed Development there is potential for phytotoxic effects on plant health and growth, in addition to indirect effects on aquatic flora and fauna via contamination of water resources.

    - Primary mitigation of the potential risks will be achieved through appropriate risk assessment (as undertaken in the Civic Supplementary Site Investigation Report) and design.

    - Any proposed soft landscaping is likely to be limited and, where present, isolated from existing Made Ground through a clean capping layer or within raised planters to mitigate the risk of contact with underlying contaminated materials. Imported materials will meet horticultural requirements and will comply with the relevant British Standards for topsoil and subsoil (British Standards Institute 2015 & 2013).

    - Tertiary mitigation will include measures that are required by planning conditions such as remediation (with reference to the Civic Remediation Method Statement) to reduce the contaminant source, CEMP and good construction practices.

    - Following the implementation of appropriate design, the Remediation Method Statement (based on the risk assessment undertaken by Civic in their Supplementary Site Assessment), landscaping requirements, CEMP and good construction practices, the potential for phytotoxic effects is negligible.

- Built Environment (pipes/concrete)

    - During operation of the Proposed Development there is potential for loss of integrity of below ground concrete from aggressive ground conditions (soil and groundwater) containing sulphates and low pH that can cause concrete deterioration. Also any potential contamination within the soils can also impact the built environment through permeation through pipework into the water supply network.

    - Primary mitigation will be carried out as part of the design including concrete classification for substructure design and the use of barrier pipe/ suitable imported materials where potable water supply pipes are laid.

    - Tertiary mitigation will include measures that are required by planning conditions such as remediation (with reference to the Civic Remediation Method Statement) to reduce the contaminant source, CEMP and good construction practices.

    - Following the implementation of appropriate design, the Remediation Method Statement (based on the risk assessment undertaken by Civic in their Supplementary Site Assessment), CEMP and good construction practices, the potential for loss of integrity of below ground concrete from aggressive ground or impact of the water supply network is negligible.

Significant Operational Effects

13.58. No significant operational effects (Scenarios 4&5) were identified as all were considered to be not significant (i.e. are all considered to be negligible or minor adverse effects). The justifications for these effects being not significant are provided in the text above.

- Effects of Climate Change on Operational Scenarios

    - During operation (Scenarios 4 and 5), the majority of the Site will be occupied by either hardstanding or new buildings associated with the Proposed Development. The effects of wetter winters, drier summers and extreme weather events is unlikely to affect the Proposed Development as groundwater will be significantly below ground and therefore relatively

protected against extreme heat or cold. Should groundwater levels rise temporarily during a flooding event it is unlikely that potentially impacted groundwater will affect below ground infrastructure over the likely short timescale.

- Design and implementation of an appropriate Drainage Strategy and Flood Risk Assessment (i.e. primary mitigation) will maximise the resilience of the Proposed Development to the effects of climate change and extreme weather events.

Cumulative Effects

13.59. There are four cumulative schemes within 500m of the site, with three located immediately to the west of the site boundary:

- Land to the immediate west of the site (137350/JO/2023) – planning permission for an MSCP and Highways works (remaining phases);
- Land to the immediate west of the site (137263/FO/2023) – a commercial office building planning permission;
- Land to the immediate west of the site (137349/JO/2023) – a commercial office building planning permission; and
- Land 490m northwest of the site (136874/FO/2023) – a residential led planning application.

13.60. Construction of the Proposed Development and those developments in the surrounding area will accord with the relevant planning permissions and consents. On land where contamination may be present, there will be a requirement to undertake intrusive investigation, carry out risk assessment and devise an appropriate Remediation Strategy to meet standard planning conditions. Associated with such a strategy, the relevant planning authority would require a site-specific CEMP which secures mitigation measures to avoid detrimental effects to sensitive receptors.

13.61. Where significant pollutant linkages are identified for a site, the implementation of the appropriate and agreed Remediation Strategy will result in a minor beneficial effect on ground conditions in the area. There will be a requirement to demonstrate successful remediation by the publication of a Verification Report, which will be required to discharge planning conditions. On this basis, no cumulative effects are anticipated during the construction phase related to ground conditions.

13.62. In operation, as described above and considering the Proposed Development and surrounding land uses, no cumulative effects are anticipated relating to ground conditions after mitigation measures are implemented. All new developments are required to meet these criteria; the cumulative impact of site-specific remediation will improve general ground conditions at the local scale, leading to a negligible to minor beneficial cumulative effect following completion and operation of the Proposed Development.

Mitigation Measures

13.63. The mitigation measures necessary to mitigate the potential risks previously described (both potentially significant and otherwise) are presented below for both the construction (Scenarios 2 and 3) and operational phases (Scenarios 4 and 5).

13.64. During construction, mitigation measures will be set out within the Civic Remediation Method Statement (Appendix 13.3), Piling Risk Assessment, and remediation strategy (as necessary) developed for Area C in due course. Based on the Civic Technical Note, remediation associated with Area C is likely to comprise similar remediation measures to those identified within the red-line boundary. These activities will be managed appropriately in line with CEMP, the Code of Construction Practice (CoCP), standard good practice and in line with current waste management guidance.

13.65. A summary of the construction mitigation measures anticipated to form part of the Proposed Development are shown in Table 13.6.

Table 13.6 Mitigation measures during construction phase

Adverse effect	Mitigation measure	Responsibility/ Mechanism for implementation	Timing
Potential for exposure of construction workers to contaminated soils / dusts and contaminated shallow perched water	Watching briefs during enabling and construction works, decommissioning of existing boreholes, removal or remediation of hotspots and appropriate materials and waste management, in particular within the TPH hotspot area and with respect to asbestos. Implementation of appropriate health, safety and hygiene regime (to include PPE and welfare provisions) and good construction practice, including UXO mitigation measures as provided in the detailed UXO risk assessment appended to the Civic Desk Study.	Tertiary mitigation measures implementation: Civic Remediation Method Statement (based on risk assessment within Civic Supplementary Site Investigation Report). Remediation strategy (as necessary) developed for Area C in due course. Standard good practice to be implemented by contractor, as outlined within their CEMP and CoCP.	Prior to and during construction
Potential for exposure of neighbours to dust emissions during construction	Implementation of dust suppression measures (e.g. dampening, wheel washing, site vehicle speed and route control, control of drop height for spoil loading etc.).	Tertiary mitigation measures implementation: Civic Remediation Method Statement (based on risk assessment within Civic Supplementary Site Investigation Report). Remediation strategy (as necessary) developed for Area C in due course. Standard good practice to be implemented by contractor, as outlined within their CEMP and CoCP.	Prior to and during construction
Increased infiltration / mobilisation and migration of contamination to neighbouring properties/ infrastructure/River Medlock/Principal Aquifer.	Implementation of good construction practice and relevant control measures.	Tertiary mitigation measures implementation: Civic Remediation Method Statement (based on risk assessment within Civic Supplementary Site Investigation Report). Remediation strategy (as necessary) developed for Area C in due course.	Prior to and during construction

Adverse effect	Mitigation measure	Responsibility/ Mechanism for implementation	Timing
		Standard good practice to be implemented by contractor, as outlined within their CEMP and CoCP and Piling Risk Assessment	
Flora and Fauna	Good construction practice and relevant control measures	Tertiary mitigation measures implementation: CEMP and good construction practices	Prior to and during construction

13.66. During operation, mitigation measures will be set out within the specification of the foundation design and Civic Remediation Method Statement.

13.67. A summary of the operational mitigation measures anticipated to form part of the Proposed Development are shown in Table 13.7.

Table 13.7 Mitigation measures during operational phase

Adverse effect	Mitigation measure	Responsibility/ Mechanism for implementation	Timing
Contact with underlying contaminated materials	Design has mostly hard landscaping with limited soft landscaping. Clean capping layer within soft landscaped areas or clean material within raised planters. Imported materials will be suitable, meet importation requirements, will comply with the relevant British Standard for topsoil and subsoil (British Standards Institute 2015 & 2013) and meet horticultural requirements. Podium garden soils will comprise of suitable soils either site won or imported.	Primary mitigation measures: Capping layer and horticultural requirements specified in landscape design. Tertiary mitigation measures implementation: Importation criteria to meet chemical suitability criteria and sampling frequency specified within Remediation Method Statement. Capping layer and importation/disposal records presented in Verification Report.	During construction
Aggressive attack on below ground concrete	Design to meet requirements of ground conditions and BRE recommendations	Primary mitigation measures: Below ground concrete specified in foundation design.	During construction
Permeation of water supply pipes	Design to meet requirements of ground conditions and recommendations of United Utilities	Primary mitigation measures: Appropriate barrier pipes / imported materials to be used where supply pipes are laid in	During construction

		direct contact with existing Made Ground.	
Flora and fauna	Landscape design to meet horticultural requirements	Primary mitigation measures: Detailed landscaping designs and management to be submitted to maintain landscaping and habitats.	Prior to operation

Residual Effects

Construction Phase

13.68. There are limited potential risks to people and the environment associated with the Proposed Development and the ground conditions on-site during the construction phase (Scenarios 2 and 3). Mitigation measures, implemented as part of the Remediation Method Statement and any subsequent remediation strategy for Area C (as required) and the contractor's Construction and Environment Management Plan will ensure appropriate design and construction during development.

13.69. On completion of the Proposed Development, all potential operational effects are assessed to be negligible, and no supplementary measures are therefore considered necessary.

Table 13.8 Summary of residual risks

Likely Significant Effect	Receptor(s)	Mitigation Measure(s)	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Direct contact (direct and indirect) of contaminated ground	Construction Workers	Implementation of appropriate health, safety and hygiene regime (to include PPE and welfare provisions). Implementation of good construction practice.	All detailed in the CoCP and CEMP.	Negligible

Operational Phase

13.70. No residual effects to people or the environment are anticipated relating to ground conditions during operation.

Monitoring

13.71. No monitoring is anticipated relating to ground conditions during operation.

Reference List

13.72. This ES Chapter has been prepared in reference to the following:

- Ministry of Housing, Communities & Local Government (2012); 'Environmental Protection Act 1990: Part 2A, Contaminated Land Statutory Guidance'
- Ministry of Housing, Communities & Local Government (2023); 'National Planning Policy Framework (NPPF)'
- Environment Agency, EA (2020); 'Land Contamination Risk Management (LCRM)'
- Environment Agency, EA (2010); 'Guiding Principles for Land Contamination'
- British Standards, BS (2017); 'BS10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of Practice'
- Civic Earth (2023); 'Phase I Desk Study and Data Review'
- Civic Earth (2024); 'Supplementary Site Investigation Report'
- Civic Earth (2024); 'Remediation Method Statement'
- Civic Earth (2024); 'Technical Note'
- E3P (2021); Mayfield Parks and Plots M, N and O. Validation Report. Reference 14-575-R1-Rev 1. November 2021

Figure 13.1



Areas identified in relation to the ground conditions studies undertaken

To Scale 1:2500	Date: 09/12/24

14. Water Resources

Introduction

14.1. This Chapter of the ES has been prepared by Buro Happold and assesses the likely water resources, flood risk and drainage impacts and effects of the proposals upon the EIA Site and surrounding area. This chapter also describes the methods used to assess these impacts and effects, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant adverse effects and the likely residual effects after these methods have been adopted.

14.2. This Chapter is accompanied by the following appendices:

- Appendix 14.1 Flood Risk Assessment. Produced by Buro Happold
- Appendix 14.2 Drainage Strategy. Produced by Civic Engineers

14.3. The authors of this Chapter have the following experience:

Technical Competence		
	Lead Author	**Reviewer**
Name	Anna Whiter	Mark Crowther
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	BSc Environmental Geoscience, MSc Environmental Assessment and Management, MSc Environmental Technology	BSc Environmental Geology, MSc Catchments Dynamics and Management
Does the practitioner hold any IEMA qualification?	AIEMA	MIEMA
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	4 in water resources, 7 in EIA overall	14
Number of EIAs delivered to date	~15 relating to water resources and flood risk	70+ relating to water resources and flood risk

Assumptions and Limitations

14.4. The water environment is well understood for the purpose of this assessment.

14.5. The understanding with regard to flood risk, foul water drainage and surface water drainage has been informed through a number of good practice modelling techniques, to produce the baseline and future scenario. The accuracy of this assessment can be expected to be of a high confidence level, although it is always reinforced through sound judgement and professional experience.

Relevant Legislation, Policy and Guidance

Legislation

14.6. The following legislation is relevant to this chapter:

- The Environment Act (1995);
- The Environment Act (2021);
- The Water Resources Act (1991);
- The Water Act (2003);
- The Environmental Protection Act (1990);
- Flood and Water Management Act (2010);
- The Anti-Pollution Works Regulations (1999);
- The Water Supply (Water Quality) Regulations (2018);
- The Control of Pollution (Oil Storage) (England) Regulations (2001);
- The Water Resources (Environmental Impact Assessment (EIA)) (England and Wales) Regulations (2003);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations (2017);
- The Environmental Damage (Prevention and Remediation) (England) Regulations (2015); and
- The Environmental Permitting (England and Wales) (Amendment) (No. 2) Regulations (2016).

National Policy

14.7. The National Planning Policy Framework (NPPF) (MHCLG, formerly DLUHC, 2024) is relevant to water resources, flood risk and drainage. Relevant national planning policies are included within the Flood Risk Assessment Addendum (Appendix 14.1).

Regional Policy

14.8. For the purpose of river basin management, England is divided into 10 river basin districts. The EIA Site is located within the North West river basin district and the Irwell Management Catchment. The River Medlock is the closest main river to the EIA Site. Relevant regional plans, policy and guidance is described below.

North West River Basin District River Basin Management Plan (EA, 2022)

14.9. Prepared in conjunction with wider stakeholders, the Environment Agency's (EA)'s North West River Basin District (NWRBD) River Basin Management Plan (RBMP) aims to protect and improve the water environment and inform planning decisions and policy making. RBMPs include objectives for each water body and a summary of the measures necessary to meet those objectives. The intention is for all water bodies to achieve good status as originally defined by the European Water Framework Directive (WFD).

14.10. RBMPs are updated every six years. The most recent RBMP for the NWRBD was published in September 2022 and updated in December 2022.

14.11. The 2022 document describes the current state of the water environment within the NWRBD, including pressures affecting it. Significant water management issues identified within the region include physical

modifications to water bodies, changes to the natural flow and level of water, and pollution from wastewater, towns, cities, transport, and rural areas.

14.12. Subsequently, the NWRBD RBMP identifies a number of measures to address these issues and improve water quality for water bodies and protected areas within the region. Measures include habitat and river restoration, pollution control initiatives, and the timing of or relocation of abstraction.

North West River Basin District Flood Risk Management Plan (EA, 2022)

14.13. The EA's NWRBD Flood Risk Management Plan (FRMP) considers all types of inland flooding, related to rivers, ground water, surface water and tidal. The document outlines the EA's preferred plan for sustainable flood risk management via a number of 'measures', over the 6-year period of 2021 to 2027.

14.14. The FRMP indicates the EIA Site is not within an area of significant flood risk from surface water or rivers and the sea. However, general improvement and mitigation measures are outlined in the FRMP, applicable across the North West region:

- 'estimating the level of flood risk on the river network both now and into the future';
- 'providing a flood warning service to alert people that flooding could occur';
- 'maintaining river channels free from obstructions'; and
- 'planning, designing and construction works with communities to reduce the risk of flooding'.

14.15. Flood Risk Management Plans are reviewed every six years. The next publication is expected in 2028 for the period of 2027-2033.

Irwell Catchment Flood Management Plan (EA, 2009)

14.16. The Irwell Catchment Flood Management Plan (FMP) document sets out the EA's long-term vision and plan for sustainable flood risk management over the next 50 to 100 years for the Irwell Catchment. The document considers likely impacts of climate change, the effects of land use and management, and how areas could be developed to sustainably meet present day needs.

14.17. The Irwell catchment covers over 700 km2 and is home to over 2 million people. It is characterised by heavily modified watercourses and several heritage sites (as well as 13 Sites of Special Scientific Interest), and it is one of the least naturally wooded areas in the Northwest. A large proportion of the catchment's geology is relatively impermeable.

14.18. The FMP divides the Irwell catchment into sub-areas; the EIA site falls within the Bradford and Deansgate Flood Risk Area.

14.19. The Bradford and Deansgate Flood Risk Area is thought to have a low historic flood risk. However, the scale of flood risk is not well understood due to limited information, and the EA have identified it on this basis as an area of moderate to high flood risk where further action can be taken to reduce flood risk.

Local Policy

14.20. Local Development Plan:

- Manchester Core Strategy (2012);
- Manchester Proposals Map (2012);
- Places for Everyone (PfE) Joint Development Plan (2024); and

- Saved Policies of the Manchester Unitary Development Plan (2005).

14.21. Other material considerations:

- Mayfield Strategic Regeneration Framework (2018);
- Guide to Development in Manchester SPD (2007);
- Manchester Residential Quality Guide (2017);
- Manchester Housing Strategy 2022 – 2023 (2022);
- Our Manchester Strategy – Forward to 2025 (2022);
- Manchester Climate Change Framework 2020-25;
- Manchester City Centre Transport Strategy 2040 (2021);
- Biodiversity Strategy and Action Plan 2022-2030 – the City of Manchester's Nature Recovery; and
- Great Outdoors: A Green and Blue Infrastructure Strategy for Manchester 2015-2025.

Guidance

14.22. The following guidance is relevant to this chapter:

- National Planning Practice Guidance – Water Supply, Wastewater and Water Quality (MHCLG, formerly DLUHC, 2015) (Updated 2019);
- National Planning Practice Guidance – Flood Risk and Coastal Change (MHCLG, formerly DLUHC, 2014) (Updated 2022);
- Flood Risk Assessments: Climate Change Allowances (EA, 2016) (Updated 2022);
- Pollution Prevention Guidance (EA, 2015) (Now withdrawn); and,
- Construction Industry Research and Information Association Guidance.

14.22. Relevant local planning policy is included in the Flood Risk Assessment Addendum (Appendix 14.1).

Assessment Methodology and Significance Criteria

Scenarios Tested

14.23. The assessment of water resources and flood risk effects will consider the following scenarios:

- Scenario 1: Baseline (existing site, including developments currently under construction))
- Scenario 2: Baseline with Proposed Development Phase 1 under construction
- Scenario 3: Baseline with Proposed Development Phase 1 and Phase 2 under construction
- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operational
- Scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational, and cumulative developments

14.24. The scenarios align with different stages of the construction and operational timeline. It is anticipated construction will take approximately 5 years with Phase 1 (Plot J) starting in mid 2026, and Phase 2 (Plot K) starting at the end of 2026. Both phases are expected to be completed in 2030.

14.25. For the purpose of this assessment, the following clarifications are made:

- Scenario 1 is described in the 'Current Baseline' section of this ES chapter and considers the EIA Site's environment and relevant nearby receptors during the assessment year (2024). Unlike other topic assessments within this ES, the current baseline for the purposes of this assessment does not include all identified developments currently under construction., as listed in Appendix 2.1 of this ES. Only those currently constructed sites within a material distance of the EIA Site, or those with or next to a waterbody hydrologically connected to the EIA Site are considered. None of the identified developments in Appendix 2.1 meet these criteria and are therefore not considered within the current baseline.

- Scenarios 2 and 3 relate to the construction phase, where Scenario 3 represents worst case conditions due to a larger quantum and footprint of development (both Plots J and K); therefore, greater anticipated potential for construction effects. These scenarios are considered in the 'Identification and Evaluation of Likely Significant Effects – Construction Phase' section of this ES chapter.

- Scenario 4 relates to the operation of the Proposed Development following completion in 2030. This scenario is considered in the 'Identification and Evaluation of Likely Significant Effects – Operation Phase' section of this ES chapter.

- Scenario 5 relates to the operation of the Proposed Development in conjunction with identified cumulative development. This scenario is considered in the 'Cumulative Effects' section of this ES chapter.

The Study Area

14.26. The baseline assessment covers the EIA Site and surrounding areas which may affect the Proposed Development or be susceptible to impact as a result of the Proposed Development. This includes water bodies within a material distance of the EIA Site, with apparent hydrological connectivity to the EIA Site area, as deemed by the assessment author.

Source of Effect

14.27. Identified receptors are potentially vulnerable to the construction and operation of the Proposed Development. A variety of potential effects are relevant to the water environment. For instance:

- Water quality in rivers and other surface water bodies may be affected by contaminated runoff or spills;

- Surface water capacity and surface water flood risk may be affected if flow rates and discharge volumes are not appropriately managed;

- Utility demand should be considered with increased foul drainage and demand for potable water supply.

Significance Criteria

14.28. The assessment of potential effects considers two criteria: the magnitude of impact upon a receptor and the sensitivity of the receptor affected. These two criteria are considered together in a matrix to determine the overall significance of effect. The following tables detail the approach:

14.29. The criteria used to assess how far an effect deviates from the baseline condition, i.e. the magnitude of change, are described in Table 14.1.

Table 14.1 Criteria for determining magnitude of change or impact

Magnitude of Impact	Criteria
Major	• Wholesale changes to the watercourse channel, route, or hydrology. • Significant changes to soil erosion or sedimentation patterns. • Major changes to the water chemistry of surface run-off. • Changes to site resulting in an increase in discharge/run-off with flood/sewerage exceedance potential. • A large increase to flood risk of water bodies and areas downstream. • A large risk of flooding to site infrastructure and users, as determined by an on-site FRA in accordance with NPPF.
Moderate	• Some fundamental changes to the watercourse and hydrology. • Moderate changes to soil erosion or sedimentation patterns. • Moderate changes to the water chemistry of surface run-off in an increase in discharge/run-off within system capacity. • A medium increase to flood risk of water bodies and areas downstream. • A medium risk of flooding to site infrastructure and users, as determined by an onsite FRA in accordance with NPPF.
Minor	• Minor changes to the watercourse. • Minor changes to soil erosion or sedimentation patterns. • Minor changes to the water chemistry of surface run-off. • Changes to site resulting in slight increase in discharge/run-off well within drainage system capacity. • A small increase to flood risk of water bodies and areas downstream. • A small risk of flooding to site infrastructure and users, as determined by an onsite FRA in accordance with NPFF.
Negligible	• Very minor or no change to the watercourse, run-off and soil erosion and sedimentation patterns and water chemistry. • Very minor or no change to discharge run-off and increased pressure on sewer capacity. • No change to, or very minor increased flood risk to water bodies and areas downstream. Very minor risk of flooding to site infrastructure and users, as determined by an onsite FRA in accordance with NPPF.

14.30. The sensitivity of a receptor is based on the relative importance of the receptor using the scale in Table 14.2.

Table 14.2 Criteria for determining receptor sensitivity

Sensitivity	Criteria
High	• Water body of high amenity value, including areas of bathing and where water sports are regularly practiced. • Water body subject to the requirements of the Water Framework Directive. • Designated bathing waters, shellfish, and salmonid fisheries. • A source used for public water supply or designated as a source protection zone. • Areas which are highly vulnerable. With reference to flood risk, these can include essential infrastructure, individuals on-site or downstream, emergency services and basement dwellings. • Essential infrastructure which is already operating at capacity and will require capacity improvements to manage demand.
Moderate	• Water body of moderate amenity value including public parks, boating, non-contact sports, popular footpaths adjacent to water courses, or water courses running through housing developments/town centres. • Water body of nature conservation importance at the regional level or a moderately sensitive aquatic ecosystem e.g., Site of Nature Conservation Interest (SNCI). • Areas which are more vulnerable. With reference to flood risk, these can include hospitals, homes, educational facilities, and waste management sites. • Essential infrastructure which is not yet operating at capacity but could either reach capacity with the construction and operation of the Proposed Development, or potentially require capacity improvements to manage demand.
Low	• Water body of poor ecological status. A source in close proximity to a source protection zone or abstraction point. • Low sensitivity aquatic ecosystem. • Water body of only local social/cultural/educational interest. Water body of low or no amenity value with only casual access, e.g., along a road or bridge in a rural area. Could be in a remote or inaccessible area. • Areas which are less vulnerable. With reference to flood risk, these can include retail, commercial and general industrial units, agricultural/forestry sites, and water/sewage treatment plants.

Sensitivity	Criteria
	• Areas which are considered to be water compatible. With reference to flood risk, these can include flood control infrastructure, docks/marinas, pumping stations and recreational/landscape areas. • Essential infrastructure which is not operating at capacity and is not anticipated to require capacity improvements to manage demand.

14.31. The significance of a potential effect is derived by considering both the sensitivity of the feature and the magnitude of change, as demonstrated in Table 14.3. The determined effect can be adverse, beneficial, or negligible.

Table 14.3 Matrix for determining effect significance

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

14.32. Moderate and major effects are considered to be 'significant'.

14.33. Effects can also be described, for example, as:

- Beneficial or adverse;
- Permanent or reversible;
- Short (days), medium (months) or long term (years); and
- Significant (major or substantial) or insignificant (indiscernible or minor).

Baseline Conditions

Current Baseline (Scenario 1)

14.34. This section presents the existing baseline conditions in the EIA Site and within the surrounding area during the assessment year (2024). It also provides local context where relevant to the assessment of water resources and flood risk effects.

Existing Land Use

14.35. ES chapter 4, Site and Development Description, provides a full description of the EIA Site's current use, comprising previously developed land which has been mostly cleared, with a mix of hard landscaping, areas of made ground and the remains of material piles.

Existing Site Levels

14.36. The EIA Site is relatively flat, with a drop in ground levels of approximately 5.9m from southeast to northwest, sloping towards the River Medlock.

Existing Drainage Network

14.37. A description and drawings of the existing drainage infrastructure is provided in the Drainage Strategy, which forms Appendix 14.2. For the purpose of this ES chapter a brief summary is provided below. The wider Mayfield Strategic Regeneration Framework area is served by a network of private drainage networks and public combined sewers beneath roads such as Baring Street, Chapelfield Road and Mancunian Way.

14.38. Drainage infrastructure within the vicinity of the EIA Site includes:

- An abandoned combined sewer is situated to the south of the EIA Site, under Mancunian Way. It is understood this sewer has been filled with concrete and is therefore no longer accommodating surface water drainage.

- A combined surface water and foul water sewer is situated under Hoyle Street at the eastern boundary of the EIA Site.

14.39. Surface water run-off from the EIA Site follows the topographical slope northwards, draining to the River Medlock

Existing Surface Water Features

14.40. The nearest main river is the River Medlock, located approximately 20-60 metres to the north of the EIA Site. The River Medlock is upstream of the River Irwell, which is located to the west, near Manchester city centre. The location of the River Medlock to the EIA Site can be seen in Figure 14.1.

14.41. No other surface water features have been identified on or in the immediate vicinity of the EIA Site, or that have an apparent hydrological connectivity with the EIA Site from surface water run off.

Water Quality

14.42. The European Water Framework Directive (WFD) was originally transposed into national law through the Water Environment WFD (England and Wales) Regulations 2003 (Statutory Instrument 2003 No. 3242). These regulations have since been revoked, and now fall under the Water Environment (Water Framework Directive) (England and Wales) Regulations (2017).

14.43. The aim of these regulations is to provide an integrated, Europe-wide approach to the management of water resources, particularly water quality. As part of the original WFD, River Basin Management Plans were established for rivers throughout England and Wales.

14.44. The EIA Site falls within the North West River Basin District and the Irwell Management Catchment. The associated River Basin Management Plan establishes a number of requirements that must be met to comply with the WFD.

14.45. The River Medlock at its location north of the EIA Site is heavily modified, with a low gradient, a deepened channel, and paved and artificially drained areas. The ecological and chemical classifications of the river were last assessed in 2022 (see Table 14.4). The ecological status of the River Medlock was classified as 'moderate'.

14.46. Chemical status considers polluting substances listed within the European Union Dangerous Substances Directive (and daughter directives) and Annex X of the European Union WFD – Priority List Substances. The chemical status of the River Medlock was not assessed in 2022, however it was classified as 'fail' in the last assessment in 2019 due to the presence of mercury and its compounds, perfluoroctane sulphonate,

polybrominated diphenyl ethers, and cypermethrin at failure level concentrations. The remaining chemical priority substances assessed achieved a 'good' rating.

14.47. Based on it being subject to the requirements of the WFD process, the river is considered a high sensitivity receptor.

Table 14.4 Medlock (Lumb Brook to Irwell) WFD Classification between 2015-2022

Classification Item	2015	2016	2019	2022
Ecological	Moderate	Moderate	Moderate	Moderate
Chemical	Good	Good	Fail	Does not require assessment

Flood Risk

14.48. A detailed assessment of existing flood risk to the EIA Site is provided in the FRA (Appendix 14.1). A summary is provided below:

Fluvial

14.49. Fluvial flooding occurs when sustained or intense rainfall events increase the flow in rivers causing the water level to rise above the level of the banks and into the surrounding areas.

14.50. The nearest watercourse is the River Medlock, approximately 20-60 metres to the north of the EIA Site. The EA's Flood Map for Planning, (Figure 14.2), shows that the majority of the Proposed Development area lies within Flood Zone 1. Flood Zone 1 is defined as an area with an annual probability of flooding from rivers of less than 0.1%. The risk of flooding from rivers in Flood Zone 1 is therefore classified as low.

14.51. The EA Flood Map for Planning also indicates that the northwest side of the EIA Site falls within Flood Zone 2 and Flood Zone 3, characterised with annual probabilities of river flooding of 0.1-1% and >1% respectively. These zones encroach into the area designated for Plot K. However, as the FRA explains, the EA Flood Map for Planning has not yet been updated to reflect the recently completed Mayfield Park works to the north, which involved the deculverting of the River Medlock to create a naturalised open channel, reducing flood risk within the Mayfield Strategic Regeneration Framework area. Hydraulic modelling of the as-built condition of Mayfield Park (Figure 14.3) shows that whilst the EIA Site still includes areas along the northern boundary at risk of flooding in a 1 in 100 year +35% event, Plots K and J are no longer within the area and are within Flood Zone 1.

14.52. The overall risk of fluvial flooding is considered to be low.

Surface water

14.53. Surface water flooding occurs when intense rainfall is unable to naturally soak into the ground due to impermeable ground covering such as concrete or tarmac, or low permeability ground conditions preventing infiltration. This excess surface water can flow through built-up areas and open space and pond in lower-lying areas causing localised flooding.

14.54. The surface water flood map produced in the FRA (Figure 14.4) indicates that the majority of the EIA Site is classified as having very low probability of surface water flooding. However, parts of the northwest side of the EIA Site are shown to be at a low (0.1-1% chance each year) and medium (1-3.3%) risk of surface water flooding.

14.55. The EIA site area is situated within the Conurbation Core Critical Drainage Area, which itself is situated predominantly within the Irwell Management Catchment. The Irwell Catchment FMP considers surface water flooding to be one of the primary occurrences in the Irwell Catchment, although it is stated to usually cause 'a low level of risk'. Surface water flooding is not identified in the FMP as a particular issue for the Bradford and Deansgate area the EIA Site falls within, although the proximity of urban developments to the watercourse is stated to have the potential to cause future issues with surface water flooding. The overall risk of surface water flooding is considered to be low.

Groundwater

14.56. Groundwater flooding generally occurs in low-lying areas above permeable rock aquifers where the water table meets, and rises above, the ground surface.

14.57. The EIA Site is underlain by a Chester Sandstone Formation as a principal aquifer and superficial deposits of Alluvium and Till as secondary undifferentiated aquifers.

14.58. Groundwater flow direction is anticipated to be northwest, towards the River Medlock.

14.59. The EIA Site is not located within a Source Protection Zone.

14.60. The Irwell Catchment FMP does not consider the Irwell Catchment to have a major issue of groundwater flooding, however it notes a lack of information surrounding groundwater flood risk. Additionally, the Greater Manchester sub-regional SFRA reports no known instances of groundwater flooding in the Manchester City Council area. Therefore, the overall risk of groundwater flooding at the EIA Site is considered to be low.

Sewers

14.61. The Site is in proximity to a network of public combined sewers, situated beneath the surrounding roads (Hoyle Street, Mancunian Way) which convey foul and surface water. These sewers are owned and managed by United Utilities. The SFRA shows no recorded incidents of sewer flooding on the EIA Site, and the baseline risk of sewer flooding is therefore considered to be low.

Reservoirs

14.62. In 2014, Manchester City Council produced a map with combined information on canals, ponds, and reservoirs smaller than 25,000 m^3. The Ashton Canal is identified as the closest to the EIA Site, ~500m to the north. The Ashton Canal is considered to have some risk of overtopping from high inflows exceeding its capacity during flood conditions, however, no canals are identified to impose flood risk to the EIA Site.

14.63. A map showing the risk of flooding from reservoirs produced by the EA (Figure 14.5) indicates that the northwest of the EIA Site is located within the maximum extent of flooding that would occur if an upstream reservoir were to fail. However, due to the low probability of a reservoir failing, the associated risk of flooding is considered to be low and mitigation is not required.

Water Supply

14.64. The Proposed Development will create an additional demand for water supply. UU supplies water in this location, and the EIA Site is situated within UU's 'Strategic Resource Zone' (SRZ). More than 90% of UU's water supply is derived from rivers and reservoirs, with the remainder from groundwater.

14.65. UU published their current Water Resource Management Plan in August 2019 (WRMP19). The WRMP19 covers the 25-year period from 2020 to 2045 and sets out their strategy to achieve a long-term, best value and sustainable plan for water supplied in the Northwest, ensuring that they have an adequate supply to meet demand.

14.66. The WRMP19 forecasts a supply surplus over the 20 years from 2020 to 2024, therefore including the current baseline year, 2024. The EA has not identified the area UU serve as one under serious water stress. Their 'Water Stressed Areas – Final Classification' report (2021) finds the region to be classified as 'not serious'. Therefore, under current baseline conditions, water supply is considered a low sensitivity receptor.

Future Baseline

14.67. The future baseline year refers to the year in which the Proposed Development is expected to be operational. For this assessment, the future baseline year is 2030. This has been included to help assess the sensitivity of the reciter for the purpose of the EIA.

14.68. In the absence of development on-site, the land use and EIA Site levels will likely remain unchanged. The nature of the identified surface water features, ground water conditions and flood risk from varying sources is likely to be unchanged in terms of sensitivity to that of the current baseline.

14.69. It is expected the area surrounding the EIA Site, and the wider Manchester region will continue to develop as planning applications come forward and schemes are built out. This includes the 'baseline' developments identified in Appendix 2.1, which by 2030 will be in an advanced stage of construction, or complete and operational.

Water quality

14.70. Under currently policy commitments, the River Medlock will need to continue to work towards achieving the requirements of the WFD. Once the requirements are met, they will need to be maintained. The river will therefore retain its classification as highly sensitive.

Surface water drainage and sewer network capacity

14.71. It is not known if the surface water sewer or foul water sewer networks in the local area will see infrastructure and / or capacity improvements in the future. A review of United Utilities' published documentation, which covers the operator's plans for the future, does not suggest the company has plans to increase the sewerage network capacity within the surrounding vicinity of the EIA Site in the future, including by 2030. On this basis it is assumed the future baseline with respect to surface water drainage and wastewater and foul sewerage infrastructure will remain unchanged in terms of sensitivity to that of the current baseline.

Flood Risk

14.72. In the absence of development, the flood risk to the site is anticipated to remain unchanged, and a low overall risk. However, the sensitivity of the EIA Site's users with respect to health and safety will remain high.

Water supply

14.73. The future baseline for water supply is anticipated to change in terms of sensitivity compared to the current baseline. UU's WRMP19 is due to be replaced in 2024 by the revised Draft Water Resources Management Plan 2024 (DWRMP24), which covers the 25 year period from 2025 to 2050.

14.74. The WRMP19 forecasts a supply surplus in 2030, continuing until 2040, at which point a 'very small' deficit from 2041 to 2045 is expected within the SRZ. However, the DWRMP24 indicates that in the absence of mitigation, the SRZ would potentially face an increasing supply deficit at a much earlier timeframe. The baseline forecast deficit is calculated at 32.7Ml/d in 2025 and 2026, increasing to 51.9 Ml/d in 2030 and 318.5Ml/d by 2050. The change in forecast between WRMP19 and DWRMP24 is primarily due to updated hydrological data and model parameters.

14.75. The DWRMP24 states that the deficit forecast for the SRZ will be resolved through their demand management strategy and drought plan. However, it is considered that the future baseline sensitivity for the

potable water supply is highly sensitive. This is due to the calculated baseline supply deficit, indicating a system operating over capacity in the absence of mitigation.

Identified Receptors and their Sensitivity

14.76. Potential receptors have been identified through the assessment of baseline conditions. Sensitivities have been applied as indicated in Table 14.5.

Table 14.5 Identified receptors and their sensitivity

Receptor		Sensitivity	Justification
Construction Phase			
River Medlock	Water quality	High	Failing to meet the quality standards of the Water Framework Directive.
Surface water drainage network	Capacity	Moderate	On-site temporary drainage infrastructure should be appropriately sized. The EIA Site contains some areas at low to medium risk of surface water flooding.
Potable water services	Supply	High	Whilst current baseline conditions described in the WRMP19 predict a surplus of water supply in 2024, by the time construction starts in 2025, and continuing to when the Proposed Development is operational, UU, in their DWRMP24, predict a water supply deficit.
Site users	Human health and safety	High	Flood risk to site workers during construction.
Operational Phase			
River Medlock	Water quality	High	The River Medlock has the potential to fail in meeting the quality standards of the WFD in 2030. It therefore remains classified as a high sensitivity receptor.
Surface water drainage network	Capacity	Moderate	On-site drainage infrastructure should be appropriately sized.
Foul drainage infrastructure	Capacity	Moderate	Foul drainage infrastructure should be appropriately sized.
Potable water services	Supply	High	UU predict a water supply deficit in 2030.
Site users	Human health and safety	High	Flood risk to residents and other site users during operation.

Identification and Evaluation of Likely Significant Effects

Construction Phase (Scenarios 2 and 3)

14.77. Scenarios 2 and 3 relate to the construction of the Proposed Development. Scenario 2 considers the construction of Phase 1, which contains:

- Plot J: two buildings on top of a two-storey podium level, with J1 being part 7 and part 18 storeys and J2 being part 10 and part 24 storeys.
- Public realm and estate road development associated with Plot J.

14.78. Scenario 3 considers Phase 1 and Phase 2 together, and therefore contains:

- Plot J: two buildings on top of a two-storey podium level, with J1 being part 7 and part 18 storeys and J2 being part 10 and part 24 storeys.
- Public realm and estate road development associated with Plot J
- Plot K: two buildings on top of a podium level, with K1 being part 7, part 28 storeys and K2 being part 9 and part 20 storeys.
- Public realm development associated with Plot K

14.79. It is anticipated construction will take approximately 4 years, with Phase 1 starting in mid-2025, and Phase 2 starting at the end of 2025 or early 2026. Both phases are expected to be complete by mid-2030.

14.80. Scenario 3 represents the 'worst case' construction scenario in EIA terms (e.g. greater extent and quantum of development has a great potential to affect the water resources environment). The consideration of construction effects will therefore be based on Scenario 3, where Phase 1 and Phase 2 are constructed concurrently.

Potential Effects of Construction and their Significance

Increased sediment loads

14.81. Run-off from the Proposed Development containing elevated suspended sediment levels can result from land clearance, excavation, dewatering of excavation, stockpiling, bunding, wheel washing and movement of materials to and from the EIA Site. Run-off with high sediment loads can have adverse effects on water bodies through increasing turbidity (thus reducing light penetration and reducing plant growth), and by smothering vegetation and bed substrates (thus impacting upon animal communities through the destruction of feeding areas, refuges, and breeding/spawning areas).

14.82. The existing surface water receptors, i.e. the River Medlock and the surface water drainage network, are most likely to be affected by elevated sediment loads through clogging/blocking or localised flooding. Any sediment carried from the EIA Site during the construction phase could lead to sediment build up and a reduction in flow capacity. The magnitude of change to the surface water network capacity is considered to be moderate without effective management of sediment loads during construction. The effect significance is therefore moderate adverse and therefore significant.

14.83. Water quality with respect to sediment load in the River Medlock could be influenced if construction site drainage is discharged to the surface water network and conveyed into the watercourse. The magnitude of change is anticipated to be minor, as sediment loads are conveyed and dispersed downstream. When considering the receptor sensitivities, the overall significant effect is considered to be moderate adverse for water quality in the River Medlock and therefore significant.

Accidental release of hydrocarbons and oils

14.84. The release of hydrocarbons and oils into the on-site drainage system is a common form of pollution within development areas. There is a risk such pollution will increase during construction due to trackout, with greater numbers of vehicles accessing the EIA Site. This increase will likely include a significant number of heavy vehicles. Increased vehicle movements result in a greater likelihood of leakage from oil/fuel storage tanks and accidental spillages. Oils and fuels that are washed from surfaces into the on-site drainage system are likely to discharge to the drains.

14.85. Hydrocarbons form a film on the surface of water bodies, deplete oxygen levels and can be toxic to freshwater fish. Even at very low concentrations the film can negatively affect the visual appearance of the water body. The effect would be temporary, and water quality within the affected water body would improve over time as pollutants disperse and are treated by natural processes.

14.86. The River Medlock could be influenced by hydrocarbons indirectly if construction site drainage and dewatering is discharged to the surface water network and conveyed into the watercourse. When considering receptor sensitivity, the overall significant effect is considered to be moderate adverse for water quality in the River Medlock and therefore significant.

Accidental leaks of and use of hazardous materials

14.87. The use of concrete and cement products on-site can present a pollution risk because of the potential for uncontrolled release of wash-down and surface water run-off. If these activities are not carried out in designated areas, wastewater may enter a water body and adversely affect the sewerage and aquatic environment. Concrete products are highly alkaline and corrosive, fish can be physically damaged, and their gills blocked, and both vegetation and the bed of the water body can be smothered.

14.88. During construction there is an elevated risk of potential leaks or accidental spillage of hazardous chemicals infiltrating to groundwater or migrating to surface water bodies. However, it is only when large quantities of hazardous substances are spilled, or the spillage is directly into the water body, that a significant risk of acute toxicity will arise in the receiving water body. The magnitude of any change will depend on the scale and nature of any potential incident and thus is difficult to predict. For the most part, effects are likely to be temporary. Water quality within the affected water body will improve over time as pollutants are dispersed and diluted.

14.89. Water quality in the River Medlock could be influenced if EIA Site construction drainage is discharged to the surface water network and conveyed into the watercourse. Considering any spillage is very unlikely to be direct and the likely nature of chemicals used on this EIA Site, the magnitude of change is likely to be minor and the overall significant effect is considered to be moderate adverse for water quality in the River Medlock and therefore significant.

Dust and debris

14.90. Demolition and construction activities located on-site have the potential to release dust and debris that may be blown into adjacent water bodies. Increased dust levels in water bodies may reduce the levels of light reaching aquatic plant and animal species. Debris blown into water bodies can decrease the recreational and aesthetic quality of the water body. Effects will however be temporary; water quality within the affected water body will improve over time as dust and debris settle or are trapped by vegetation.

14.91. The effect of dust blowing directly into water bodies will depend on the distance between site and receptor. It will also depend upon the site practices and mitigation measures employed, for instance the use of dust suppression techniques. Given the short distance of the River Medlock from the EIA Site, the river is vulnerable to windblown dust and debris. A minor magnitude of impact is anticipated, resulting in a moderate adverse effect for the River Medlock and therefore significant.

Leak or breakage of the temporary sewerage system

14.92. Leaks and breakages of sewers from the temporary toilet facilities on-site during demolition and construction works may result in crude sewage infiltrating groundwater or being washed into the EIA Site drainage system. Sewage contains high levels of nutrients, organic matter, coliforms and suspended solids. These can result in nutrient enrichment and eutrophication, smothering of bottom-dwelling organisms and plants, and significantly reduced oxygen levels. The effect would be temporary however, as water quality within the affected water body would improve over time as organic matter is dispersed and treated by natural processes.

14.93. The River Medlock could be influenced indirectly by a leakage or breakage of the temporary sewerage system, with sewage migrating into the surface water drainage network. There is potential for a minor magnitude of impact. When considering the receptor sensitivity, the overall significance of effect is considered to be moderate adverse for water quality in the River Medlock and therefore significant.

Increased water demand

14.94. Processes during site preparation and construction phase of the Proposed Development may require significant volumes of water supply including sanitary facilities for Proposed Development staff, and water supply for wheel washing and washing down of construction areas. The magnitude of change on potable water supplies will be minor. This results in a likely moderate adverse short-term effect on potable water supplies and therefore significant.

Flood risk to workers and construction plant

14.95. Whilst the EIA Site is primarily situated in flood zone 1, there is the potential for areas of localised surface water flooding in the north of the EIA Site, classified as flood zones 2 and 3. Without appropriate mitigation to protect demolition and construction workers from possible fluvial flooding risks to the EIA Site, the magnitude of change on the construction workers and plant is likely to be moderate and the significance of effect is considered to be major adverse and therefore significant.

Climate change and adaptation

14.96. The construction period is planned to last until 2030. Although climate forecasts show that because of climate change, the UK is likely to experience slightly wetter winters and drier summers, this timeframe is not significant and current climatic conditions are considered representative of the climate during the construction period.

14.97. Therefore, based on the current climatic forecasts during the construction period and the construction timeframe, there is not a need for specific adaptation measures to reduce the risk from climatic effects during construction. As there may be an increased risk of extreme weather events, construction work should allow for flexibility in approach bearing in mind the local climate forecasts. Specifying adaptation measures at this stage is not deemed necessary.

Table 14.6 Summary of effects during construction

Receptor	Sensitivity	Description of Effect	Magnitude of change / impact	Effect significance
River Medlock water quality	High	Increased sediment loads	Minor	Moderate adverse
		Accidental release of hydrocarbons and oils	Minor	Moderate adverse

Receptor	Sensitivity	Description of Effect	Magnitude of change / impact	Effect significance
		Accidental leaks and use of hazardous materials	Minor	Moderate adverse
		Dust and debris	Minor	Moderate adverse
		Leak or breakage of the temporary sewerage system	Minor	Moderate adverse
Surface water drainage network	Moderate	Capacity change from increased sediment loads	Moderate	Moderate adverse
Potable water services	High	Increased potable water demand	Minor	Moderate adverse
Site users	High	Flood risk to site workers	Moderate	Major adverse significant

Operational Phase (Scenario 4)

14.98. The following commitments, made through the FRA and Drainage Strategy (Appendices 14.1, 14.2) for the planning application, are considered to form designed-in and embedded mitigation. The subsequent assessment assumes that the design measures specified in these documents are implemented to appropriately mitigate significant effects.

Flood Risk

14.99. As described in the Flood Risk Assessment, the Proposed Development has been designed such that the land uses at the lower ground level are of low flood risk vulnerability, such as commercial space for retail, cafes or restaurants, and leisure space. More vulnerable uses, such as residential, are not found on the lower (or upper) ground levels and are instead at high elevations within the buildings.

14.100. In addition to the proposed uses of the lower ground levels, the chosen finished floor levels for the buildings have considered flood risk and depth. Buro Happold hydraulic modelling, presented in the FRA, indicates that the buildings of the Proposed Development are not at risk of flooding in the 1 in 100 year +35% climate change event, which shows a flood level of 35.85mAOD. A minimum 300mm freeboard is provided between water levels and proposed finished floor levels in all locations, resulting in a low flood risk to the buildings that is considered negligible and not significant.

Surface Water Drainage

14.101. The Drainage Strategy includes detailed proposals for surface water drainage and associated demands from the Proposed Development. As such, it is expected that the resulting effect is considered negligible. A summary of the proposals is provided below. For further details, see Appendix 14.2, Drainage Strategy.

Surface Water Quality

14.102. Surface water from the Proposed Development will be captured by the proposed SuDS components, which will be designed to adequately intercept, filter and cleanse pollutants such as suspended solids, metals and oils.

14.103. Spillages during operation are identified to pose very low risk to the Proposed Development, however the Drainage Strategy recommends that an appropriate clean-up regime including prompt containment is implemented to prevent pollutants entering the surface water drainage system.

Surface Water Storage

14.104. Roof runoff will be attenuated at-source in green and blue-green roofs, while other surface water flows will be conveyed to rain gardens, tree pits and permeable paving. A minimum of 562m^3 of attenuation storage is required across the EIA Site. The proposed drainage strategy will accommodate this, and provides 585.7m^3 of storage.

14.105. Both plots will primarily convey surface water into nearby permeable sub-bases, discharging into below ground pipework. Runoff will flow through a series of rain gardens to the EIA Site's low point, where it will be retained in a small detention basin prior to discharge into the River Medlock.

14.106. An attenuation tank is not currently considered to be necessary, however an indicative location under the detention basin has been proposed if future circumstances require greater storage requirements.

14.107. The Proposed Development's surface water drainage network will connect to the surface water drainage system outlined in the Mayfield Park Phase 1 Drainage Strategy, consisting of several surface water drains running beneath the footpath bordering the northern edge of the EIA Site and connecting to the River Medlock.

14.108. SuDS components are intended to appropriately restrict runoff rates and volumes, and sufficiently provide storage for most storm events, while additional attenuation will be provided in downstream components for extreme storm events.

14.109. The strategy restricts peak rates up to the 1 in 100 year storm event, whereby as a minimum, the peak runoff rate is limited to 128.22 l/s, in accordance with SFRA requirements. Further studies will be undertaken in the future to explore the feasibility of SuDS opportunities.

Foul Water Drainage

14.110. The Drainage Strategy includes detailed proposals for foul water drainage and associated demands from the Proposed Development. A summary of the proposals is provided below. For further details, see Appendix 14.2, Drainage Strategy.

14.111. The proposed foul water drainage network will be a separate piped gravity network, agreed by UU to have a connection within Hoyle Street to UU's public sewer network. The receiving sewer is understood to be a 620 x 710mm combined brick sewer.

14.112. Currently, the design has been developed for the main external drainage runs, and coordination will be required for the above ground drainage designs.

14.113. To minimise the risk of blockages, the following design considerations will be employed where possible:

- Points of upstream rodding access for all drainage runs, via internal downpipes within the building, inspection chambers, rodding eyes or manholes;
- Junction design will avoid bends; and

- Junctions between foul drainage pipes may be formed using oblique angles.

14.114. In response to a pre-development enquiry, UU did not raise concerns about the feasibility of connection at Hoyle Street or raise any concerns regarding the capacity of the foul network to accommodate the load.

14.115. With the proposed foul water drainage strategy in place, the risk of combined sewer flooding is considered to be low as the Proposed Development will not increase the risk of surcharging.

Potential Effects of Development and their Significance

Pollutants contained in surface water

14.116. Pollutants, such as silts and hydrocarbons resulting from activities on-site such as vehicle storage, vehicle washing, and oil/fuel leaks would be discharged to the proposed surface water drainage network through surface water run-off. This can increase water turbidity, deplete oxygen levels and be toxic to the aquatic environment.

14.117. The magnitude of change will depend on the activities present and their occurrence. The effect is considered permanent (as an on-going effect), although certain activities such as accidental spillages would be temporary. It is envisaged that the magnitude of operational effects on the River Medlock will be negligible due to the commitments made in the drainage strategy. The overall significance of the effect upon water quality is therefore negligible and therefore not significant.

Potable water demand

14.118. The Proposed Development will increase water demand upon a high sensitivity resource, placing pressure on existing infrastructure and capacity for water supply. However, considering the quantum of the Proposed Development (879 residential homes) in the wider context of development across Manchester and the northwest UK, the magnitude of change is minor and the significance of effect upon strategic water supply is considered to be minor adverse without further mitigation and therefore not significant.

Foul water drainage

14.119. The Proposed Development will increase foul water compared with baseline rates, placing an increased demand on existing infrastructure. United Utilities have a duty to connect the Proposed Development to foul water infrastructure where available. Where new foul connections are poorly timed or made to areas with limited capacity, the building of new developments can cause complications as pollution can accumulate in another location along the sewerage catchment. Abstraction locations can be affected, and the local combined sewer network can discharge prematurely, or the wastewater treatment works that serve the area may not meet the required limits that prevent pollution in that location.

14.120. There will be an increase in foul water drainage volumes from the EIA Site, especially with an increased population on-site. However, through the embedded mitigation measures proposed in the foul water drainage strategy (Appendix 14.2), the risk of combined sewer flooding is considered to be low, and the magnitude of change is expected to be minor. The effect significance to the capacity of the sewer network will be minor adverse with regard to increased foul water flows and therefore not significant.

Changes to flood risk

14.121. On-site. With the implementation of the measures in the FRA and drainage strategy, the magnitude of change in relation to risk on-site from flooding from all sources is considered to be negligible, resulting in negligible effect upon site users.

14.122. Off-site. Surface water drainage will be ultimately discharged to the River Medlock through the use of ample storage and attenuation features such as tree pits and permeable paving. The proposed surface water drainage strategy will integrate with the drainage system outlined in the Mayfield Park Phase 1 application.

The magnitude of change with regard to runoff is likely to be minor and the effect significance minor beneficial to surface water drainage capacity.

Climate change and adaptation

14.123. The Proposed Development is expected to be completed by the end of 2030. Climate forecasts looking beyond this time predict that by the 2080s, the north-west of England will likely experience approximately 30% more precipitation during the winter and 10% less precipitation during summers.

14.124. The increase in precipitation during winter will increase the risk of flooding from surface water flow, fluvial flooding and overflowing storm water sewers, particularly during heavy rainfall events which could cause flash flooding. However, the Proposed Development is already well safeguarded against flood events and the mitigation measures mentioned will decrease the risk further.

Table 14.7 Summary of effects during operation

Receptor	Sensitivity	Description of Effect	Magnitude of change / impact	Effect significance
River Medlock water quality	High	Pollutants contained in surface water	Negligible	Negligible
Surface water drainage network	Moderate	Surface water storage capacity	Minor	Minor beneficial
Foul water drainage network	Moderate	Increased foul water drainage demand	Minor	Minor adverse
Potable water services	High	Increased potable water demand	Minor	Minor adverse
Site users	High	Flood risk to site workers	Negligible	Negligible

Cumulative Effects (Scenario 5)

14.125. Cumulative effects can be in-combination effects or interaction effects. In-combination effects are defined as the combination of predicted effects from adjacent or nearby scheme(s) together with those predicted for the Proposed Development. Interaction effects are defined as the accumulation of different predicted effects generated by the Proposed Development upon the same sensitive receptors. The assessment of interaction effects is provided in Chapter 20.

In-combination effects

14.126. Possible in-combination cumulative effects include changes to the capacity of the surface water and foul water networks, potential changes to off-site / local area flood risk, demands on water supply and changes in water quality downstream. All the developments listed will have the potential to contribute towards a cumulative effect with the Proposed Development.

Construction

14.127. There is potential for cumulative effects during construction with pollutant loading from unmitigated sites potentially affecting the River Medlock.

14.128. However, with CEMP compliance and implementation of the mitigation outlined within the 'Mitigation Measures' section of this chapter, the cumulative effect is expected to be not significant, as the residual negligible effects from the Proposed Development will not contribute to a cumulative effect.

14.129. Furthermore, it can be reasonably assumed that effects from cumulative schemes would equally be mitigated via respective construction environmental management plans as per their own planning approval requirements.

14.130. Following the implementation of construction environmental management measures for the Proposed Development, it is anticipated there will be no residual significant cumulative construction effects as a result of the Proposed Development.

Operation

14.131. It is expected that cumulative schemes will embed their own mitigation through the implementation their own drainage strategies and flood risk assessments to best practicable standards. Surface water drainage on a number of the cumulative development sites will likely drain to the 'over ground' water network, including the River Medlock. However, as seen in city centre urbanised areas, other developments may drain to surface water and combined water sewers, with agreement from UU. The development of the cumulative sites will see drainage implemented in line with the requirements of the NPPF, the Environment Agency (EA) and any requirements MCC and UU request.

14.132. Developments delivering the requirements of the aforementioned policy documents and statutory bodies will result in the management of surface water to abate flood risk and pollution, and potentially aid a reduction in runoff discharge rates for each development. Therefore, it is likely that any cumulative effect to surface water run-off and flood risk within the drainage network and downstream will be beneficial, and at local scale may result in a moderate beneficial effect.

14.133. The flood risk and drainage strategies implemented in line with the NPPF will in turn support the improvement of water quality and help the River Medlock improve its ecological and chemical status, however this is not expected to be a significant cumulative effect.

14.134. The flood risk to users of the EIA Site itself, including human health, is not anticipated to interact cumulatively with other sites.

14.135. Finally, the Proposed Development will contribute to a cumulative demand upon foul drainage infrastructure and potable water supply, both services provided by UU. However, it is expected that cumulative schemes will implement their own water efficiency and consumption management measures to reduce potable demand and minimise the volume of foul drainage to the sewer network. In the context of development across UU's operation in the North West, the cumulative effect is considered negligible and not significant.

Mitigation Measures

Construction Phase

14.136. The Principal Contractors will develop a Construction Environmental Management Plan (CEMP) to cover the construction works for Phase 1 and 2, further to the details set out in Chapter 5. This will include mitigation measures to protect the water environment. The CEMP will set out how construction activities will be undertaken in accordance with good practice guidance, including the Pollution Prevention Guidelines (PPG) formerly published by the EA (and now available in the National Archives), particularly 'PPG1 General guide to the prevention of water pollution', 'PPG2 Above ground oil storage tanks', 'PPG5 Works in, near or liable to affect watercourses', and 'PPG6 Working at construction and demolition sites', and other good construction guidance such as CIRIA 'Guidance C532 - Control of water pollution from construction sites'. Table 14.8 summarises proposed supplementary construction mitigation to be implemented via CEMP.

Table 14.8 summarises proposed supplementary construction mitigation to be implemented via CEMP.

Adverse effect	Mitigation measure	Responsibility/Mechanism for implementation
Increased water demand upon water supply	All relevant contractors should investigate opportunities to minimise and reduce the use of water, such as: • Selection and specification of water efficient equipment; • Implementation of staff-based initiatives such as turning off taps, plant and equipment when not in use both onsite and within site offices; • Use of recycling water systems such as wheel washes, site toilets handwash; and • Use of a rainwater harvesting system for use in equipment and vehicle washing.	CEMP to be secured through planning condition.
Elevated sediment loads in surface water	Development and implementation of CEMP that considers the following measures: • Minimise exposed surface areas by only removing vegetation and hard-standing when necessary and keep gradients of soil as shallow as possible to prevent large amounts of earth being washed away during periods of heavy rainfall. Areas which are exposed should be reseeded or surfaced as soon as practicable. • Enforce tight control of the EIA Site's boundaries including minimal land clearance and restrictions on the use of machinery adjacent to water bodies. Where possible, do not locate stockpiles within 10m of water bodies or drainage lines. • Wheel wash facilities should be provided at all entry and exits points. Water from wheel wash facilities must not be discharged into water bodies or the on-site surface water sewerage network. • Capture run off from site in perimeter cut off ditches, settlement lagoons and/or settlement tanks where possible. Any dewatering required from site excavations should be pumped into a settlement tank or lagoon and not discharge direct to a water body or the on-site surface water sewerage network. • Sediment should be removed from water pumped during any extractions required. Sediment should be removed prior to discharges to the surface water	CEMP to be secured through planning condition.

Adverse effect	Mitigation measure	Responsibility/Mechanism for implementation
	network through the use of a baffle tank system or equivalent. • If there is a requirement for discharge to the sewer system, this should be throttled to a flow rate that is agreed with UU prior to commencement of work.	
Dust and debris blowing into water bodies	• CEMP to include dust suppression measures such as dampening, and wheel washing. • Implement good site practice, perimeter fences and tight control of materials and waste to minimise the risk of debris entering water bodies.	CEMP to be secured through planning condition.
Accidental release of hydrocarbons and oils into the on-site drainage system or directly to water body	Development and implementation of CEMP that considers the following measures: • Incorporation of interceptors where appropriate into the EIA Site's drainage system at high-risk areas, such as parking, unloading and refuelling areas, to remove hydrocarbons and oils from surface water prior to discharge. • Other measures including drip trays under equipment such as generators, and wheel washing facilities should also be implemented to minimise the risk of pollutants infiltrating groundwater or the surface water drainage network.	CEMP to be secured through planning condition.
Accidental leaks and spillages of significant amounts of hazardous materials migrating into the on-site drainage system or directly to water body	Development and implementation of CEMP that considers the following measures: • Provision of storage facilities and tanks and conduct refuelling of machinery within bunded areas, which should not be located within 10m of water bodies or drainage lines. • Storage and bunded areas to be constructed of impervious floors and walls with the capacity for the contents of the storage tank and an additional ten per cent safety margin. • As a remedial measure, spill containment equipment such as absorbent materials should be stored on-site. • Mixing of construction materials, such as cement, will be conducted in designated areas located away from drainage lines.	CEMP to be secured through planning condition.
Flood risk to site workers (human	• Contractor to prepare a flood emergency and contingency plan including arrangements to make	CEMP to be secured through planning condition.

Adverse effect	Mitigation measure	Responsibility/Mechanism for implementation
health and safety) during construction	safe any static plant, move any mobile plant, and to evacuate site operatives in a flood risk emergency. • Construction workers should be made aware of risks associated with excess surface water caused by overland flows and standing water. For example, risks to deep excavations and damage to plant. • To minimise any potential risk from groundwater flooding during excavation of the site, cut levels should be limited to at least 0.5m above the groundwater level. Where this is not possible, dewatering and other groundwater control measures should be employed. Any such groundwater control measures will also require pollution control measures in accordance with EA guidance.	

Operational Phase

14.137. As described under section 'Operational Phase (Scenario 4), Relevant Aspects of the Proposed Development', the commitments made through the surface water and foul drainage strategies for the Proposed Development are considered to form embedded mitigation.

14.138. Whilst no significant effects have been identified for the operational phase, supplementary mitigation measures are proposed to address the potential minor adverse effects upon water demand and foul water drainage, as summarised in Table 14.9.

Table 14.9 - Construction Phase Mitigation Measures

Adverse effect	Mitigation measure	Responsibility/ Mechanism for implementation
Water demand and foul water drainage	Early engagement with UU on the potable water needs for the Proposed Development and any current restrictions and the need for any upgrades. Water efficiency measures that will reduce potable demand and subsequent foul flows including one or more of the following: o Low flow fittings: low flush toilets, spray taps and low flow showers; o Efficient water supply: Leak detection, smart meters and pressure reduction; and o Water from alternative sources: for instance, greywater recycling and rainwater harvesting. The advantage of demand management is not only for reducing supply but also for minimising the volume of the foul drainage to the sewer.	Through detailed design / further development of utilities strategy. To be enforced via planning condition.

Residual Effects

Construction Phase

14.139. Once the supplementary mitigation measures are implemented, along with good site practices, the residual construction effects to the water environment are considered to be negligible upon all receptors and temporary for the duration of the construction period.

Table 14.10 - Construction Residual Effects

Receptor	Likely Significant Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
River Medlock water quality	Increased sediment loads	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Accidental release of hydrocarbons and oils	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Accidental leaks and use of hazardous materials	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Dust and debris	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Leak or breakage of the temporary sewerage system	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
Surface water drainage network	Capacity change from increased sediment loads	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
Potable water services	Increased potable water demand	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
Site users	Flood risk to site workers	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary

Operational Phase

14.140. If the designed-in mitigation measures outlined are implemented during operation, and supplemented by the proposed additional mitigation where required, then residual adverse effects are likely to be negligible, and a minor beneficial effect is anticipated for surface water drainage capacity, which is not significant.

Table 14.11 – Operation Residual Effects

Receptor	Likely Significant Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
River Medlock water quality	Pollutants contained in surface water	None required	N/A	Negligible
Surface water drainage network	Surface water storage capacity	None required	N/A	Minor beneficial
Foul water drainage network	Increased foul water drainage demand	Water efficiency measures for demand management	Detailed design development and planning condition	Negligible
Potable water services	Increased potable water demand	Water efficiency measures for demand management	Detailed design development and planning condition	Negligible
Site users	Flood risk to site workers	None required	N/A	Negligible

Monitoring

14.141. Monitoring is not required.

Reference List

14.142. This ES Chapter has been prepared in reference to the following:

- 1995) The Environment Act. https://www.legislation.gov.uk/ukpga/1995/25/contents
- (2021) The Environment Act. https://www.legislation.gov.uk/ukpga/2021/30/contents
- (1991) The Water Resources Act. https://www.legislation.gov.uk/ukpga/1991/57/contents
- (2003) The Water Act. https://www.legislation.gov.uk/ukpga/2003/37/contents
- (1990) The Environmental Protection Act. https://www.legislation.gov.uk/ukpga/1990/43/contents
- (2010) Flood and Water Management Act. https://www.legislation.gov.uk/ukpga/2010/29/contents
- (1999) The Anti-Pollution Works Regulations. https://www.legislation.gov.uk/uksi/1999/1006/contents/made

- (2018) The Water Supply (Water Quality) Regulations. https://www.legislation.gov.uk/wsi/2018/647/contents

- (2001) The Control of Pollution (Oil Storage) (England) Regulations. https://www.legislation.gov.uk/uksi/2001/2954/contents

- (2003) The Water Resources (Environmental Impact Assessment) (England and Wales) Regulations. https://www.legislation.gov.uk/uksi/2003/164/contents/made

- (2017) The Water Environment (Water Framework Directive) (England and Wales) Regulations. https://www.legislation.gov.uk/uksi/2017/407/contents

- (2015) The Environmental Damage (Prevention and Remediation) (England) Regulations. https://www.legislation.gov.uk/uksi/2015/810/contents

- (2016) The Environmental Permitting (England and Wales) (Amendment) (No.2) Regulations. https://www.legislation.gov.uk/uksi/2016/1154/contents

- Ministry of Housing, Communities and Local Government (MHCLG) (formerly DLUHC, 2012) (Updated 2024) The National Planning Policy Framework. https://www.gov.uk/guidance/national-planning-policy-framework

- Environment Agency (EA) (2022) North West River Basin District River Basin Management Plan. https://www.gov.uk/guidance/north-west-river-basin-district-river-basin-management-plan-updated-2022

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- EA (2009) Irwell Catchment Flood Management Plan. https://www.gov.uk/government/publications/irwell-catchment-flood-management-plan

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

- MCC (2012) Manchester Proposals Map. https://www.manchester.gov.uk/info/200074/planning/3301/core_strategy/2

- Greater Manchester Combined Authority (GMCA) (2024) Places for Everyone (PfE) Joint Development Plan. https://www.greatermanchester-ca.gov.uk/what-we-do/planning-and-housing/places-for-everyone/pfe-adoption

- MCC (2005) Manchester Unitary Development Plan. https://www.manchester.gov.uk/info/500207/planning_and_regeneration/2148/unitary_development_plan_udp

- MCC (2018) Mayfield Strategic Regeneration Framework. https://www.manchester.gov.uk/downloads/download/6851/mayfield_strategic_regeneration_framework

- MCC (2007) Guide to Development in Manchester SPD. https://www.manchester.gov.uk/info/200074/planning/1528/the_guide_to_development_in_manchester

- MCC (2017) Manchester Residential Quality Guide. https://www.manchester.gov.uk/downloads/download/6682/residential_quality_guide

- MCC (2022) Manchester Housing Strategy 2022-2023. https://www.manchester.gov.uk/downloads/download/7463/manchester_housing_strategy_2022-2032

- MCC (2022) Our Manchester Strategy – Forward to 2025. https://www.manchester.gov.uk/info/100004/the_council_and_democracy/8148/our_manchester_strategy_%E2%80%93_forward_to_2025.

- Manchester Climate Change Partnership and Agency (MCCPA) (2020) Manchester Climate Change Framework 2020-25.

- MCC (2021) Manchester City Centre Transport Strategy 2040. https://www.manchester.gov.uk/info/500344/roads_and_transport/8162/city_centre_transport_strategy_for_2040

- MCC (2022) Biodiversity Strategy and Action Plan 2022-2030 – the City of Manchester's Nature Recovery. https://democracy.manchester.gov.uk/documents/s35928/Appendix%201%20Biodiversity%20Strategy.pdf

- MCC (2015) (Updated 2022) Great Outdoors: A Green and Blue Infrastructure Strategy for Manchester 2015-2025. https://www.manchester.gov.uk/info/500002/council_policies_and_strategies/7061/green_and_blue_infrastructure.

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- MHCLG (formerly DLUHC, 2014) (Updated 2022) National Planning Practice Guidance – Flood Risk and Coastal Change. https://www.gov.uk/guidance/flood-risk-and-coastal-change

- EA (2016) (Updated 2022) Flood Risk Assessments: Climate Change Allowances. https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

- EA (2015) (Now withdrawn) Pollution Prevention Guidance. https://webarchive.nationalarchives.gov.uk/ukgwa/20140328090931/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx

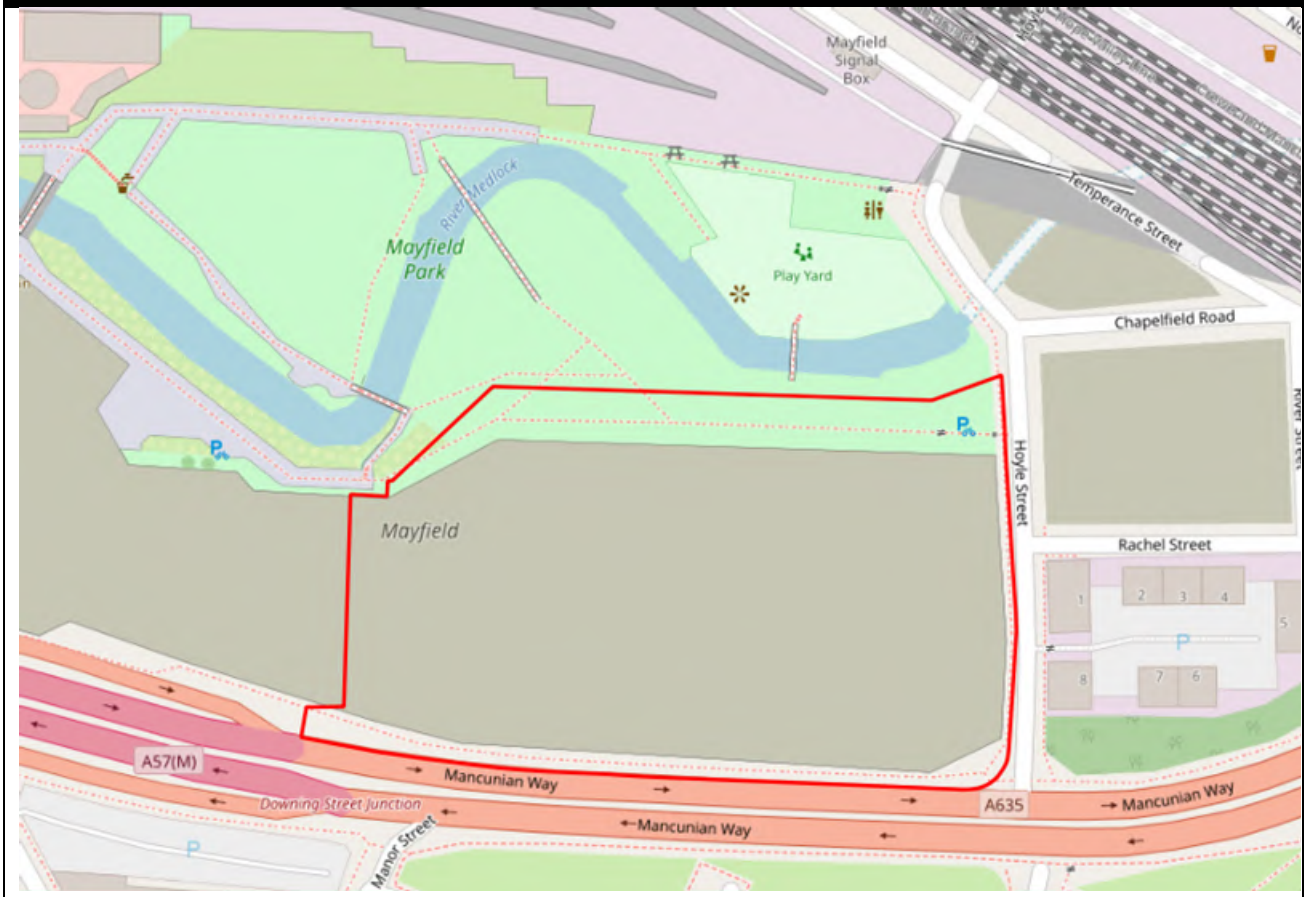
- United Utilities (UU) (2019) Water Resource Management Plan. https://www.unitedutilities.com/corporate/about-us/our-future-plans/water-resources/water-resources-management-plan/

- UU (2024) Draft Water Resources Management Plan. https://www.unitedutilities.com/corporate/about-us/our-future-plans/water-resources/developing-our-water-resources-management-plan/

- EA (2021) Water Stressed Areas – Final Classification. https://www.gov.uk/government/publications/water-stressed-areas-2021-classification.

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Figure 14.1



Location of the River Medlock to the EIA Site.

To Scale 1:2500	Date: 09/12/24

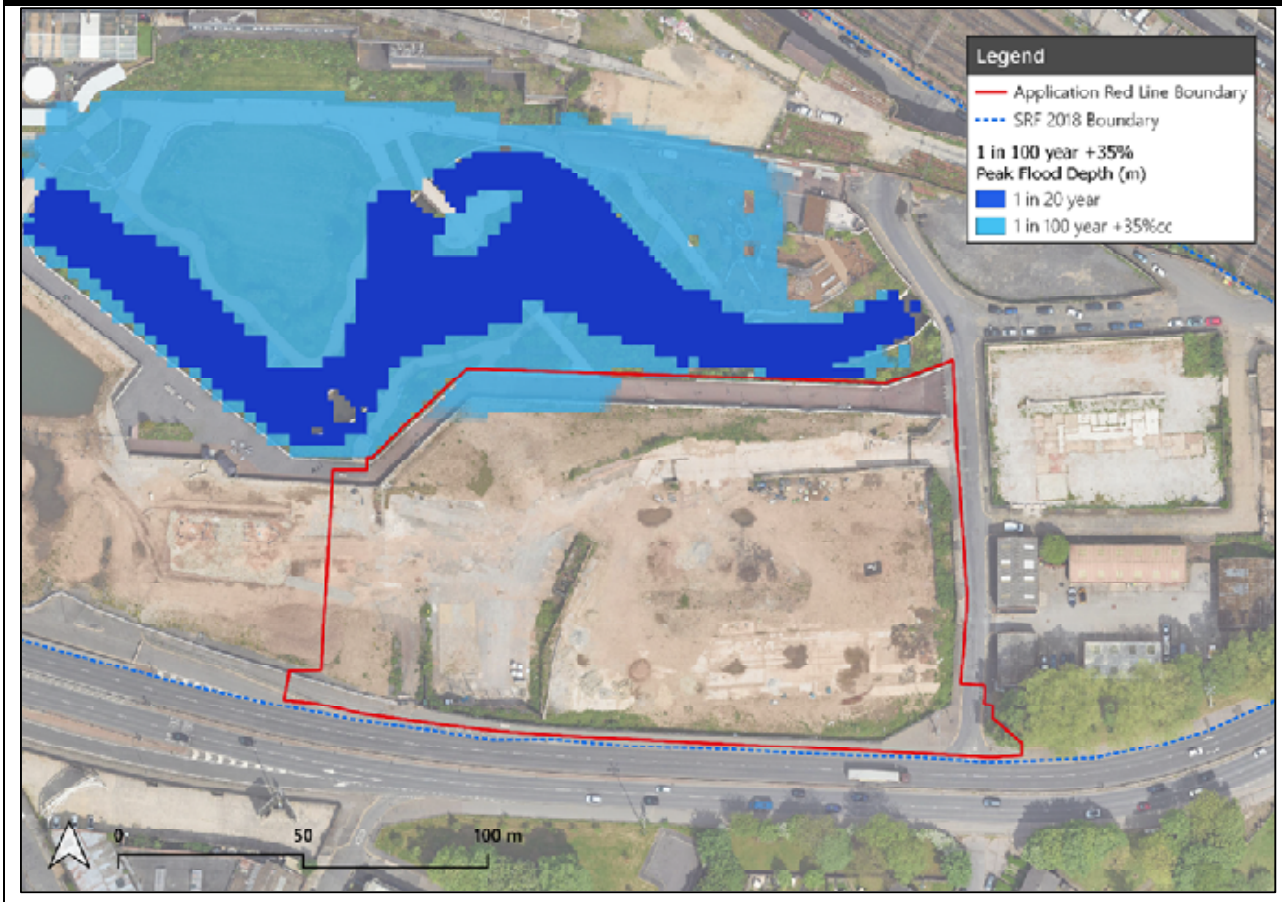
Figure 14.2



Fluvial flood zones to the EIA Site and building plot locations. (EA Flood Map for Planning)

To Scale	Date: 9/12/24

Figure 14.3



2023 'Wildscape As-Built' hydraulic model results, showing flood extents for the 1 in 20 year and 1 in 100 year +35% return period.

To Scale	Date: 9/12/24

Figure 14.4



Flood risk from surface water to the EIA Site and building plots.

To Scale	Date: 9/12/24

Figure 14.5



Flood risk from reservoir failure to the EIA Site and building plots for wet day and dry day scenarios.

To Scale	Date: 9/12/24

15. Air Quality

Introduction

15.1. This Chapter of the ES has been prepared by Buro Happold and assesses the likely significant impacts of the Proposed Development with respect to air quality upon the EIA Site and surrounding area. This Chapter also describes the assessment methodology, existing baseline conditions at the EIA Site, proposed mitigation measures required to prevent, reduce or offset any significant negative impacts, and likely residual impacts (if any) after these methods have been adopted.

15.2. This Chapter is accompanied by the following appendices:

- Appendix 15.1 $PM_{2.5}$ Target Interim Guidance;
- Appendix 15.2 Construction Dust Risk Assessment;
- Appendix 15.3 Traffic Data;
- Appendix 15.4 Air Quality Dispersion Modelling Methodology;
- Appendix 15.5 Model Verification;
- Appendix 15.6 Modelled Receptor Locations;
- Appendix 15.7 Air Quality Dispersion Modelled Results;
- Appendix 15.8 Glossary of Terms; and
- Appendix 15.9 Figures.

15.3. The authors of this Chapter have the following qualifications and experience.

Table 15.1 – Technical competence of Chapter Authors

Technical Competence in organisation	Lead Author	Reviewer
Name	Kit Benjamin	Kathryn Woolley
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	MMet AMIAQM	BSc MIAQM
Does the practitioner hold any IEMA qualification?	No	No
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	3.5	10

Technical Competence in organisation		
	Lead Author	Reviewer
Number of EIA's delivered to date	9	Over 100

Assumptions and Limitations

15.4. There is always some uncertainty regarding the prediction of air quality. This is associated with both the difficulty in simulating mathematically the very complex atmospheric processes that affect pollutant concentrations and the uncertainties in the model input data. However, the professional judgement and experience of the consultants preparing this Air Quality ES Chapter have been used, and the method for assessing air quality agreed to produce a robust assessment.

15.5. There are a number of factors that will contribute to uncertainty in the air quality dispersion modelling predictions, including the traffic and emissions data model inputs which will have inherent uncertainty associated with them. There is also additional uncertainty owing to the model simplifying real-world conditions into a series of algorithms.

15.6. To reduce this uncertainty, model verification was carried out for the assessment by comparing modelled and monitored concentrations, which will ensure a good degree of confidence in modelled results for the existing baseline year. Further details of modelling, verification and meteorological factors which could affect the precision and accuracy of the results are found in Appendix 15.4 and 15.5.

Relevant Legislation, Policy and Guidance

Legislation

Air Quality Standards Regulations (2010)

15.7. This UK legislation implemented the requirements of the ambient air quality directive and set legally binding limit values for air quality with respect to human health and vegetation. The Air Quality Standard Regulation 2010 (HM Government, 2010) transposes 2008 Ambient Air Quality Directive 2008/50/EC (EU, 2008). It consolidates and replaces previous ambient air quality legislation. The Regulations were subsequently updated in 2016 (The Air Quality Standards (Amendment) Regulations 2016).

Environment Act

15.8. Part IV of the Environment Act 1995, as amended by the Environment Act 2021, places a duty on the Secretary of State for the Environment to develop, implement and maintain an Air Quality Strategy (AQS) with the aim of reducing atmospheric emissions and improving air quality. The Environment Act 2021 requires the AQS to be reviewed at least every five years and create a progress report annually.

15.9. The latest AQS for England, Scotland, Wales, and Northern Ireland was published in 2023 (Defra, 2023), provides the framework for ensuring the air quality limit values are complied with based on a combination of international, national and local measures to reduce emissions and improve air quality. This includes the statutory duty, also under Part IV of the Environment Act 1995, for local authorities to undergo a Local Air Quality Management (LAQM) process. This requires local authorities to regularly and systematically review and assess air quality within their boundaries against these objectives and appraise development and transport plans against these assessments.

15.10. In areas where air quality objectives are not likely to be met by the relevant target date, local authorities are required to declare an Air Quality Management Area (AQMA) and develop an air quality action plan (AQAP)

in pursuit of the air quality objectives. The national air quality objectives (AQO) relevant to this assessment, as defined by the Air Quality (England) Regulations 2000, are detailed in Table 15.2 (HM Government, 2000).

15.11. In areas where air quality objectives are not likely to be met by the relevant target date, local authorities are required to declare an Air Quality Management Area (AQMA) and develop an air quality action plan in pursuit of the air quality objectives.

15.12. The Environment Act was amended in 2021, requiring the government to set new targets for fine particulate matter ($PM_{2.5}$). The subsequent Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (HM Government, 2023) set the following targets:

- Annual mean $PM_{2.5}$ concentration of 10 µg/m³ by 2040; and
- At least a 35% reduction in population exposure of $PM_{2.5}$ by the end of 2040.

15.13. The Environment Act 2021 requires the publication of an Environmental Improvement Plan every five years, with progress against the set targets reported on annually. The Environmental Improvement Plan 2023 (Defra, 2023) sets the following interim target for $PM_{2.5}$:

- Annual mean $PM_{2.5}$ concentration of 12 µg/m³ by 2028; and
- At least a 22% reduction in population exposure of $PM_{2.5}$ by the end of 2028.

15.14. The $PM_{2.5}$ Targets: Interim Guidance was published in 2024 (Department for Environment Food & Rural Affairs, 2024) and outlines some actions to be taken by applicants and local authorities in addressing the new $PM_{2.5}$ target. Air quality assessment reports would need to include evidence of identifying key pollution sources within their schemes and proof of actions taken to minimise $PM_{2.5}$ emissions.

15.15. This report outlines qualitative actions taken to address the interim guidance in Appendix 15.1.

Air quality objectives

15.16. This air quality assessment is conducted to assess compliance with UK air quality objectives (AQO). The air quality objectives relevant to this assessment are presented in Table 15.2. It should be noted that air quality objectives are numerically the same as the 2008 EU limit values detailed within the Air Quality Standards Regulations, however, differ in terms of compliance dates, locations where the limit values apply, and the legal responsibility for ensuring compliance.

Table 15.2 National Air Quality Objectives relevant to the assessment

Pollutant	Concentration (µg/m³)	Averaging Period	Number of allowable exceedances per calendar year
Nitrogen dioxide (NO_2)	40	Annual mean	N/A
	200	Hourly mean	18
Particulates <10µm in diameter (PM_{10})	40	Annual mean	N/A
	50	Daily mean	35
Particulates <2.5µm in diameter ($PM_{2.5}$)	20	Annual mean	N/A

Policy

National Planning Policy

National Planning Policy Framework

15.17. The National Planning Policy Framework (NPPF) (DLUHC, 2024) sets out the Government's planning policy for England. The legislation mandates that most new development should provide net gains for biodiversity, prevent waste and pollution, and take proactive action in mitigating and adapting to climate change.

15.18. With particular regard to air quality management, Section 9 of the NPPF notes that the environmental impact of transport and traffic should be identified and assessed, while mitigating adverse effects to bring about net environmental gains. The guidance states that the planning system should actively manage patterns of growth, offering a choice of transport modes to reduce air pollution.

15.19. Further to this, Section 15 of the NPPF notes that planning policies should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of AQMAs and Clean Air Zones (CAZ), and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Additionally, the NPPF states that planning decisions should ensure that any new development in AQMAs and CAZs is consistent with the local air quality action plan.

Planning Practice Guidance

15.20. Planning Practice Guidance (PPG) (DLUHC, 2019) provides guiding principles on how the planning process can consider the impact of new development on air quality. The guidance outlines when air quality considerations could be relevant to the development management process.

Local Development Plan

Manchester Core Strategy (2012)

15.21. The Manchester Core Strategy Development Plan (MCC, 2012) is the primary strategic planning document in the City's Local Development Framework. It outlines the council's vision for Manchester from 2012 to 2027 and sets out planning policies that aim to help the city achieve the Local Development Framework's vision.

15.22. The Manchester Core Strategy Development Plan has adopted a number of policies relevant to air quality, including the following:

- Policy EN 16 (Air Quality)

  The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plants.

  When assessing the appropriateness of locations for new development, the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas.'

- Policy EN 7 (Energy Infrastructure opportunities)

Policy EN 7 sets out a general presumption in favour of low and zero carbon decentralised energy schemes, subject to a number of considerations.

- Policy DM 1 (Development Management)

  Policy DM 1 outlines the key parameters that should be addressed as part of the planning proposal, those relevant to Air Quality include:

  - '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.
  - Design for health
  - Vehicular access and parking
  - Effects relating to biodiversity, landscape, archaeological or built heritage.
  - Green infrastructure including open space, both public and private.'

Places for Everyone Joint Development Plan Document (2024)

15.23. The Greater Manchester Combined Authority (GMCA) launched the Places for Everyone Joint Development Plan Document (PfE) (GMCA, 2024) to create a comprehensive, long-term strategy for sustainable growth across nine Greater Manchester districts: Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, and Wigan. This plan aims to promote sustainable development, support infrastructure development, provide housing and employment and protect environmental assets. The Manchester Core Strategy was updated in March 2024 to align with the Places for Everyone Plan. This ensures that local policies in Manchester are consistent with the regional strategy.

Addendum to Manchester Core Strategy (2024)

15.24. Amendments in Manchester Core Strategy that are relevant to Air Quality include:

CS Policy EN16 Air Quality

Section to be replaced:

', and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport' from the first sentence:

Replaced by PfE Policy JP-S5: Clean Air

- 'Policy JP-S5: Clean Air A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:
- Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution;
- Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;

- Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;

- Restricting developments that would generate significant point source pollution such as some types of industrial activity and energy generation;

- Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments; 6. Implementing the Clean Air Plan and associated measures;

- Facilitating the more sustainable distribution of goods within the urban area, including through accommodating urban consolidation centres and urban distribution centres that use ultra-low-emission vehicles, and local delivery facilities to reduce repeat delivery attempts;

- Designing streets to avoid trapping air pollution at ground level, including through the appropriate location and scale of buildings and trees;

- Controlling traffic and parking within and around schools, early years sites and other locations that are particularly sensitive to air quality;

- Promoting actions that help remove pollutants from the air, such as enhancing the green infrastructure network and using innovative building materials that capture air pollutants; and

- Development should be located in areas that maximise the use of sustainable travel modes and be designed to minimise exposure to high levels of air pollution, particularly for vulnerable users.'

The Greater Manchester Strategy

15.25. The Greater Manchester Strategy 2021-2027 (GMCA, 2021) is the GMCA's plan for recovery and renewal following the pandemic. It provides a clear direction of travel for the city-region, focused on those areas where all parts of the conurbation need to work together to achieve the shared vision of Good Lives for All: that Greater Manchester is a great place to grow up, get on and grow old; a great place to invest, do business, visit and study.

15.26. With regards to improving the environmental conditions of GM, particularly air quality, the following statement is made in the strategy:

Greater Manchester's system-wide priorities:

'We will create a carbon neutral Greater Manchester by 2038, with better air quality and natural environment.'

Greater Manchester Transport Strategy 2040 (TfGM, 2021a) and Our Five-Year Transport Delivery Plan 2021-2026

15.27. Greater Manchester Transport Strategy 2040 (TfGM, 2021b) sets out a commitment to provide a transport system which:

- Supports sustainable economic growth and the efficient and effective movement of people and goods;

- Improves the quality of life for all by being integrated, affordable and reliable;

- Protects environment; and

- Supports the net zero target as well as improving air quality.

15.28. The Transport Strategy has adopted a number of policies relevant to air quality, including the following:

- Policy 3: 'We will maintain a programme of interventions encouraging people to make sustainable journeys. We will support this programme through journey planning tools, and information to encourage travel behaviour change and mode shift, in order to make the most efficient use of available capacity (particularly during peak periods).'

- Policy 9: 'We will work with partners and key stakeholders to bring nitrogen dioxide (NO_2) levels on local roads within legal limits, and to reduce levels of particulate matter.'

- Policy 16: 'We will work with partners to support a rapid transition towards low-emission vehicles in Greater Manchester, including developing a clear strategy on the Electric Vehicle Charging Infrastructure network required to provide greater confidence to residents and businesses to invest in electric vehicles.'

15.29. To achieve long-term ambitions as set out in the Transport Strategy, the Our Five Year Transport Delivery Plan is published to respond to the transport opportunities and challenges facing Greater Manchester, in parallel with the spatial planning processes over 2021-2026. The aim is to provide an integrated approach to transport and land use planning by identifying the strategic transport interventions required to deliver the scale of growth envisaged across GM.

15.30. Improving air quality is one of the key areas for GMCA's investment and intervention in the 5-year plan. To do so, GMCA pledged to deliver:

'a package of interventions forming the Clean Air Plan that are reasonably expected to reduce NO_2 *concentrations to legal levels and have wider air quality benefits'*

GMCA 5-year Environment Plan 2025-2030

15.31. The 5-Year Environment Plan (GMCA, 2024) sets out the long-term vision and immediate actions for the environment. The plan sets out that improving air quality and thereby enhancing health, wellbeing and quality of life is one of GMCA's eight aims. The plan also outlined key priorities for improving air quality and reducing emissions caused by travel, including reducing the necessary travelling distance, increasing public transport and active travel, phasing out fossil fuelled vehicles, establishing a zero-emission bus fleet and decarbonising road freight transport.

GMCA Air Quality Action Plan

15.32. An air quality management area (AQMA) has been declared across the City of Manchester and encompasses all major roads within GM owing to exceedances of the annual mean Air Quality Objective for NO_2. Thereby an Air Quality Action Plan (AQAP) has been produced by the GMCA, which outlines the mitigation measures and strategic approach to improve air quality within the city and surrounding boroughs (GMCA / TfGM, 2016). The seven targeted actions aimed at improving air quality, and specific mitigation measures, are outlined below:

- Actions for Managing New Development: Creation and management of a database of significant planning application and related air quality assessments.

- Actions for Freight Vehicles: Locations for potential distribution centres will be identified in the Greater Manchester Spatial Framework.

- Actions for Buses: Consideration and trial of a range-extender bus or other ultra-low emission vehicles, which can be implemented to the wider public transport strategy.

- Actions for Cycling: Improvement to the cycle networks focusing on safe green routes, away from areas of high pollution.

- Actions for Travel Choices: Appraisal of existing car sharing schemes and their impacts on modal shift. Use this information to expand existing schemes and inform future areas of focus.

- Actions for Car: Continual expansion of EV charging points through the Plugged-in-Places programme.

- Actions for Information and Resources: More resource and investment to the Great Air Manchester website.

15.33. To report on the LAQM monitoring results and the progress of actions within the AQAP, an Annual Status Report (ASR) is produced in each calendar year in fulfilment of the statutory duties placed on local authorities under the Environment Act 1995.

GM Clean Air Plan

15.34. The ten GM local authorities have been instructed by the government to bring NO_2 pollution levels within legal limits through a Clean Air Plan (CAP) (GMCA, 2023).

15.35. Since 2018, GM has carried out a separate air quality monitoring survey for the launch of the CAP. Together with LAQM monitoring, the two monitoring schemes provide a more thorough picture of the air quality condition across GM.

Guidance

IAQM land-use planning & development control: planning for air quality

15.36. This document from EPUK and the Institute of Air Quality Management (IAQM) provides detail on the consideration of air quality within the land-use planning and development control processes (IAQM , 2017). The guidance provides an approach to determining significance of air quality impacts, which takes account of the percentage change in concentrations relative to the relevant air quality objective. The guidance also provides a screening approach to determine whether emissions from road traffic generated by a development have the potential for significant air quality impacts.

Defra Local Air Quality Management Technical Guidance ('TG22')

15.37. The Local Air Quality Management Technical Guidance (TG22) (Defra, 2022) is designed to support local authorities and air quality professions in carrying out their duties under the Environment Act 1995 as amended by the Environment Act 2021. The guidance sets out what local authorities should do and the legal duties they must comply with to improve local air quality. It supports evidence-based action planning for public health and well-being by updating existing air quality tools and measures, outlining detailed air quality assessment methodology, and adding new products and supporting material to help assess the impact of measures (Manchester City Council, 2022).

MCC Air Quality and Planning Technical Guidance

15.38. One of the actions outlined in the GM air quality action plan is to develop air quality and planning guidance. The guidance document (MCC, 2022) aims to encourage developers to follow good practice and to mitigate impacts. It outlines the expectations of MCC with regards to air quality in the planning context for both the construction and operation of a development.

15.39. The guidance recommends following IAQM and EPUK guidance when assessing impacts associated with both construction and demolition. It also recommends usage of Defra's damage cost calculations (for additional

pollutant population exposure emissions costs) for major developments and/or where there may be a cumulative impact.

Assessment Methodology and Significance Criteria

Scenarios Tested

15.40. The following scenarios are assessed in this ES chapter. These differ slightly from the scenarios presented in Chapter 1 of the ES. This is to allow for the impact of the construction and operation of the Proposed Development to be isolated by comparing the future baseline to the future baseline with the Proposed Development. This is in line with IAQM/EPUK guidance on land use planning and development control (IAQM, 2017).

15.41. The general scenarios tested in the ES are outlined in Chapter 1 of the ES. Where the scenarios tested in this Air Quality chapter correspond with the scenarios in Chapter 1 of the ES, these are stated below. Scenario 3 is a more worst-case construction scenario than Scenario 2 as it includes traffic generated by the construction of both Plots J and K. Therefore, only Scenario 3 has been assessed for construction impacts. Scenario 5 is a more worst-case operational scenario than Scenario 4 as it includes traffic from cumulative developments. Therefore, only Scenario 5 has been assessed for operational impacts:

- 2023 Baseline Scenario (corresponds to Scenario 1 outlined in ES chapter 1): Establish existing baseline conditions and for model verification;
- 2026 peak construction year Do Minimum ('DM'): future baseline traffic flows for the peak construction year, with cumulative developments only;
- 2026 peak construction year Do Something ('DS') (corresponds to Scenario 3 outlined in ES chapter 1): future baseline traffic flows for the peak construction year, with cumulative developments and traffic flows associated with the construction activities (with Proposed Development Phase 1 and Phase 2 construction);
- 2030 earliest operational year DM: future baseline traffic flows for the earliest opening year, with cumulative developments only; and
- 2030 earliest operational year DS: traffic flows for the earliest opening year with cumulative developments and traffic generated by the operation of the Proposed Development.

The Study Area

15.42. The study area of this assessment includes the EIA Site and the area that can potentially experience air quality impacts from the construction and operational phases of the Proposed Development.

15.43. The study area has been determined by the scale of traffic generated by the operation and construction of the Proposed Development. Air quality impacts were assessed in proximity to any road links on which there is an increase in traffic volume resulting from the Proposed Development that exceeds the criteria outlined in IAQM/EPUK guidance on land-use planning and development control (IAQM , 2017). The Study Area is shown in Figure 14.1.

15.44. Worst-case existing sensitive receptors within 200 m of the roads above have been identified, in line with EPUK/IAQM guidance and are presented in Table 6F.1, Table 6F.2 and Table 6F.3 of Appendix 6F. It should be noted that this is not an exhaustive list and there may be other locations within the vicinity of that EIA Site which may experience air quality impacts as a result of traffic generated by the Proposed Development that have not been individually assessed. A visual representation of the modelled existing sensitive receptors is provided in Figure 6F.1 with further details provided in Appendix 6F.

15.45. On-site receptors are modelled at regular intervals up building facades of the Proposed Development.

Source of Effect

15.46. The source of effects scoped-in to the assessment are emissions from vehicles associated with the Proposed Development during both the construction and operational phases.

15.47. The effect of construction dust on dust soiling and human health impacts are scoped out of the ES. The IAQM guidance on the assessment of dust from demolition and construction (IAQM, 2024) recommends that significance criteria are only assigned to the identified risk of dust impacts occurring from a construction activity with appropriate mitigation measures in place. The reason for this is that for almost all construction activities, the application of effective mitigation should prevent any Significant effects from occurring to existing sensitive receptors, and therefore the residual effect will normally be Negligible.

15.48. A construction dust risk assessment has been carried out to inform the appropriate mitigation measures. The assessment, alongside the mitigation measures are presented in Appendix 6B.

Method of Baseline Data Collection

15.49. A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the EIA Site. This baseline study was undertaken using the following sources:

- Air quality data for MCC and GMCA, including a review of the most recent MCC air quality annual status report and Clean Air Plan monitoring data (GMCA, 2024);
- Background pollution maps from Defra's Local Air Quality Management (LAQM) website (Defra, 2024);
- Environment Agency Pollution Inventory (Environmental Agency, 2024); and
- Aerial photography from Google Maps (Google, 2024).

Vehicle Emissions

15.50. Full details of the Vehicle Emissions assessment methodology are provided in Appendix 15.4.

15.51. Detailed air dispersion modelling has been undertaken using the Cambridge Environmental Research Consultants (CERC) ADMS Roads v5 air dispersion model, following guidance provided in LAQM.TG(22) to predict annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ for the various scenarios.

15.52. The risk of exceedance of the short-term AQOs and compliance with 1-hour mean NO_2 and 24-hour mean PM_{10} AQOs has been assessed following LAQM.TG(22). This guidance states that:

"Authorities may assume that exceedances of the 1-hour mean objective for NO_2 *are only likely to occur where annual mean concentrations are 60 µg/m3 or above".*

15.53. The risk of exceeding the PM_{10} 24-hour mean AQO has been assessed according to the guidance in LAQM.TG(22). This guidance provides the calculation below to determine compliance:

"No. 24-hour mean exceedances = -18.5 + 0.00145 × annual mean^3 *+ (206/annual mean)".*

15.54. Vehicle emissions have been calculated based on vehicle flow, fleet composition and speed using Defra's Emission Factor Toolkit (EFT) Version 12.0 (Defra, 2024). Emission factor projections show reductions in pollutant emissions year on year owing to improvements in vehicle emission standards and emission abatement technology. Emission factors for 2026 have been used for the peak construction year and 2030 have been used for the earliest opening year scenarios.

15.55. To consider the uncertainty associated with future improvements in background air quality, the approach to the assessment has been to assume no change in background concentrations from the existing baseline year

(2023). As background concentrations are predicted to decrease in future years, this is a worst case assumption.

15.56. Full details of the modelling methodology and model input parameters are provided in Appendix 15.4.

Significance Criteria

15.57. For this assessment the approach in the EPUK/IAQM guidance has been used to describe the effects at individual existing sensitive receptors. This is based on the percentage change in concentration (magnitude of change) relative to the AQO and with the total long-term average concentration with the Proposed Development as shown in Table 6.3.

15.58. The magnitude of change is determined quantitatively by establishing the change in pollutant concentration at each existing sensitive receptor as predicted by the dispersion modelling. There is no distinction in the sensitivity of different human receptors to air quality and all existing sensitive receptors are considered high sensitivity.

15.59. The impact significance with regards to exposure of future site users to air pollution is determined by comparing the predicted pollutant concentrations to the relevant AQO.

Table 15.3 IAQM Air quality impact significance descriptors

Long-term average concentration at receptor in assessment year	Change in concentration relative to AQO				
	0%	1%	2-5%	6-10%	>10%
75% or less of AQO	Negligible	Negligible	Negligible	Slight	Moderate
7694% of AQO	Negligible	Negligible	Slight	Moderate	Moderate
95102% of AQO	Negligible	Slight	Moderate	Moderate	Substantial
103109% of AQO	Negligible	Moderate	Moderate	Substantial	Substantial
110% or more of AQO	Negligible	Moderate	Substantial	Substantial	Substantial

* Throughout the rest of the chapters, 'Slight' is equal to 'Minor' and 'Substantial' is equal to 'Major' in this ES methodology.

15.60. For each effect, a statement has been made as to whether the level of effect is 'Significant' or 'Not Significant'. In line with the EPUK/IAQM guidance, when considering the overall significance of the effect 'Moderate' or 'Major' ('Substantial') impacts will generally give rise to a Significant effect and requires mitigation. 'Negligible' or 'Minor' ('Slight') impacts will generally not have a Significant effect and do not usually require mitigation, but this depends on a number of other factors including:

- Existing and future air quality in the absence of the Proposed Development;
- The extent of current and future population exposure to the impacts;
- The assumptions adopted when predicting impacts; and hence the likelihood of the identified impacts occurring; and
- The likely duration of impacts.

15.61. Additionally, the air quality impact with regards to exposure of future site users is determined by comparing the predicted pollutant concentrations to the relevant AQO.

15.62. IAQM/EPUK guidance states the following:

"Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means. For people working at new developments in this situation, the same will not be true as occupational exposure standards are different, although any assessment may wish to draw attention to the undesirability of the exposure."

15.63. The determination of the significance of the likely effects includes elements of professional judgement and the professional experience of the consultants preparing this chapter is set out in Table 15.1.

Baseline Conditions

Existing Baseline

15.64. An Air Quality Management Area (AQMA) has been declared across Manchester city centre and surrounding arterial roads owing to consistent exceedances of the AQO for the annual average concentration of NO_2. These exceedances are predominantly due to pollution from road transport, which accounts for 65% of the total NO_2 emission within Greater Manchester (GMCA , 2019). The entirety of the EIA Site is within the AQMA.

15.65. GMCA has established an extensive monitoring network for LAQM purposes and to support the Greater Manchester Clean Air Plan (GM CAP). According to the latest ASR, GMCA has deployed 20 automatic monitoring sites and 368 non-automatic (diffusion tube) monitoring sites for LAQM. In addition, 503 non-automatic roadside monitoring sites have been operated for monitoring and evaluation purposes of GM CAP.

15.66. Monitoring data from 2023 is considered the most appropriate year for determining baseline air quality conditions in the aftermath of the COVID-19 pandemic. The latest update (v1.1) of the IAQM position statement on the use of 2020 and 2021 monitoring datasets states that 2022 (or later) monitoring data should be used for model verification, as it represents a typical post-pandemic year (IAQM, 2023).

15.67. Figure 15.3 and Figure 15.4 present the CAP and LAQM monitoring sites in proximity to the EIA Site . Monitoring data from the recent five years are presented in Table 15.4 and Table 15.5, respectively. The CAP monitoring sites are mainly deployed along A635 Mancunian Way and A6 Downing Street. In 2023, annual mean NO_2 concentrations at the majority of the monitoring sites are within 24-36 µg/m^3, below the AQO level of 40 µg/m^3. Two of the closest monitoring sites to the EIA Site, site 039 and site 040, measured NO_2 annual average concentrations of 35.3 µg/m^3 and 33.4 µg/m^3 in 2023, within the AQO level of 40 µg/m^3.

15.68. LAQM monitoring sites in the wider area provide context to the monitored concentrations at the EIA Site in comparison to central Manchester. These monitoring sites in the wider area are shown in Figure 6.2. The highest pollution concentrations are observed at the MA29ANO site, where the annual average NO_2 concentration was measured to be 49.6 µg/m^3. Elevated pollution concentrations are also observed at the triplicated site MA82-84NO, with the 2022 annual mean NO_2 concentration of 41.1µg/m^3, above the AQO level of 40 µg/m^3.

15.69. The lowest NO_2 annual average concentrations were measured at MA112BNO, at 19.8 µg/m^3.

Table 15.4 Monitoring results from CAP monitoring sites in proximity to the EIA Site.

Site ID	Distance from the Site	Site Type	Annual average NO_2 concentration (µg/m^3)				
			2019	2020	2021	2022	2023
040	4	Roadside	41.6	31.3	37.8	38.6	33.4
036	14	Roadside	39.2	29	31.7	32.9	-

Site ID	Distance from the Site	Site Type	Annual average NO_2 concentration (µg/m^3)				
			2019	2020	2021	2022	2023
039	26	Roadside	43.9	33.5	37.3	37.7	35.3
037	75	Roadside	36.2	27.1	29.3	31.9	-
038	121	Roadside	37.7	26.5	30.6	32.3	-
167	221	Roadside	-	-	-	48.1	49.1
166	222	Roadside	-	-	-	38.6	37.1
003	224	Roadside	51.6	29.8	33.7	35.7	34.8
165	236	Roadside	-	-	-	33.7	-
164	259	Roadside	-	-	-	34.6	-
004	281	Roadside	46.9	28.4	31.2	33.4	33
168	287	Roadside	-	-	-	41.9	44.3
022	300	Roadside	49.5	32.9	32.7	35.5	33.3
029	333	Roadside	50.2	32.9	37.3	38.6	36.3
028	336	Roadside	-	36	37.6	43.2	37.9
006	343	Roadside	42.7	26.9	29.9	30.8	25.6
020	360	Roadside	-	22.1	25.6	26.2	-

Notes:

* Figures in bold indicate an exceedance of the long-term air quality objective (40 µg/m^3).

* Owing to the influence of lockdown measures implemented in response to the COVID-19 pandemic, monitoring data from 2020 and 2021 should be treated with caution as it may not represent typical conditions.

Table 15.5 Monitoring results from LAQM monitoring sites in proximity to the EIA Site.

Site ID	Distance from the Site	Site Type	Annual average NO_2 concentration (µg/m^3)				
			2019	2020	2021	2022	2023
040	4	Roadside	41.6	31.3	37.8	38.6	33.4
036	14	Roadside	39.2	29	31.7	32.9	-
039	26	Roadside	43.9	33.5	37.3	37.7	35.3
037	75	Roadside	36.2	27.1	29.3	31.9	-

Site ID	Distance from the Site	Site Type	Annual average NO_2 concentration (μg/m^3)				
			2019	2020	2021	2022	2023
038	121	Roadside	37.7	26.5	30.6	32.3	-
167	221	Roadside	-	-	-	48.1	49.1
166	222	Roadside	-	-	-	38.6	37.1
003	224	Roadside	51.6	29.8	33.7	35.7	34.8
165	236	Roadside	-	-	-	33.7	-
164	259	Roadside	-	-	-	34.6	-
004	281	Roadside	46.9	28.4	31.2	33.4	33
168	287	Roadside	-	-	-	41.9	44.3
022	300	Roadside	49.5	32.9	32.7	35.5	33.3
029	333	Roadside	50.2	32.9	37.3	38.6	36.3
028	336	Roadside	-	36	37.6	43.2	37.9
006	343	Roadside	42.7	26.9	29.9	30.8	25.6
020	360	Roadside	-	22.1	25.6	26.2	-

Notes:

*Figures in bold indicate an exceedance of the long-term air quality objective (40 μg/m^3).

*Owing to the influence of lockdown measures implemented in response to the COVID-19 pandemic, monitoring data from 2020 and 2021 should be treated with caution as it may not represent typical conditions.

15.70. The Manchester Oxford Road site (MAN1) is the closest automatic monitoring site to the EIA Site, approximately 900m to the southwest of the EIA Site. The annual average NO_2 levels at the MAN1 were above the AQO level of 40 μg/m^3 in the past five years, except for 2020, in which traffic flows were reduced considerably due to policies in response to the COVID-19 pandemic, as shown in Table 15.3.

15.71. The 1-hour averages at the MAN1 exceeded the 200 μg/m^3 threshold for no more than three times in each of the past years, in compliance with the permitted 18 allowable exceedances outlined in the AQO (Table 6.6).

15.72. The Manchester Piccadilly (MAN3) site is about 1.1 km away from the EIA Site. Annual average NO_2 concentrations measured at MAN3 have constantly achieved the AQO level of 40 μg/m^3, and no short-term exceedance were recorded in the past five years.

15.73. Table 15.7 demonstrates the annual average NO_2 concentrations at all nearby monitoring sites during 2018-2023. Overall, pollution concentrations have decreased over the five years. Among all monitoring sites that began operating before 2020, the lowest concentrations were recorded in 2020, attributed to behavioural changes during the COVID-19 pandemic. Slight concentration increases are observed in 2021 and 2022. Despite the increases, 2023 annual average NO_2 concentrations at all sites remain lower than the 2019 level.

15.74. Similar to NO_2, the MAN1 site recorded higher annual average PM_{10} concentrations and greater number of short-term exceedances, compared to the MAN3 site (Table 15.7). Despite this, long-term and short-term AQOs for PM_{10} have been achieved at both sites since 2018, and a general decrease in annual average concentration has been observed in the recent five years.

15.75. MAN3 is the only nearby automatic monitoring site that monitors $PM_{2.5}$. This has not exceeded the annual average $PM_{2.5}$ AQO (20 µg/m3) since 2018 (Table 15.8).

Table 15.6 Monitored annual average NO_2 and exceedances of short term (1-hour) NO2 objective (18 allowable exceedances) at automatic monitoring sites in the vicinity of the EIA Site.

Site ID	Site Name	Site Type	Distance from the development (m)	Annual average NO_2 concentration (µg/m³)					Number of exceedances of 1-hour NO_2 AQO (> 200 µg/m³)				
				2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
MAN1	Manchester Oxford Rd	Kerbside	900	59	36	44	43	41	1	0	0	3	0
MAN3	Manchester Piccadilly	Urban Centre	1152	36	27	30	29	27	0	0	0	0	0

Table 15.7 Monitored annual average PM_{10} and exceedances of short term (24-hour) PM_{10} objective (35 allowable exceedances) at automatic monitoring sites in the vicinity of the EIA Site

Site ID	Site Name	Site Type	Distance from the development (m)	Annual average PM_{10} concentration (µg/m³)					Number of exceedances of 24-hour PM_{10} AQO (> 50 µg/m³)				
				2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
MAN1	Manchester Oxford Rd	Kerbside	900	26	18	18	18	18	18	5	2	8	4
MAN3	Manchester Piccadilly	Urban Centre	1152	20	15	15	17	15	7	1	2	4	1

Table 15.8 Annual average $PM_{2.5}$ at automatic monitoring sites in the vicinity of the EIA Site.

Site ID	Site Name	Site Type	Distance from the development (m)	Annual average $PM_{2.5}$ concentration (µg/m³)				
				2019	2020	2021	2022	2023
MAN3	Manchester Piccadilly	Urban Centre	1152	12	8	9	10	9

Industrial Pollution Sources

15.76. There are no UK pollutant release and transfer register (PRTR) registered emission sources (Defra, 2012), National Atmospheric Emission Inventory (NAEI) (NAEI, 2024), or Defra registered Part A1 air pollution emission sources (Environmental Agency, 2024) within 500m from the EIA Site.

15.77. There are no UK pollutant release and transfer register (PRTR) registered emission sources (Defra, 2012), National Atmospheric Emission Inventory (NAEI) (NAEI, 2024), or Defra registered Part A1 air pollution emission sources (Environmental Agency, 2024) within 500m from the EIA Site. The nearest facilities registered under Part B Environmental Permits (Manchester City Council, 2024) are more than 300m away and therefore will not have a significant impact on air quality at the EIA Site, so have been scoped out.

Defra Predicted Concentrations

15.78. Defra model grid background concentrations across the UK on 1km x 1km grid squares, utilising a base year of 2021 (Defra, 2024). Defra modelling shows that in future years, background pollutant concentrations will decrease owing to improvements in emission control measures and policies aimed at improving air quality. Estimated pollutant concentrations for the existing baseline year 2023, the peak construction year (2026) and the earliest operational year (2030) in the OS grid square in which the EIA Site lies (centred at 385500,397500) are shown in Table 15.9.

Table 15.9 Defra modelled background concentrations for the baseline year, peak construction year and earliest operational year.

Year	Defra modelled annual average background concentration (μg/m^3) (Grid square: 385500,397500)			
	NO_2	NOx	PM_{10}	$PM_{2.5}$
2023	20.8	30.0	13.9	8.0
2026	18.8	26.6	13.8	7.8
2030	16.7	23.2	13.6	7.6

Summary of Baseline

15.79. The baseline assessment has shown that monitored baseline concentrations at monitoring locations along the Mancunian Way, adjacent to the EIA Site, are in compliance with the UK NO_2 AQO. Whilst the majority of monitoring locations are in compliance with the annual average AQO, there are several roadside locations in the wider area that are in exceedance of the annual average NO_2 AQO. The nearest automatic monitoring sites have all been in compliance with the PM_{10} and $PM_{2.5}$ AQOs in recent years.

15.80. Furthermore, the Defra predicted background concentrations for NO_2, PM_{10} and $PM_{2.5}$ are predicted to be in compliance with the relevant air quality objectives at the EIA Site in 2023.

Future Baseline

15.81. When determining the future baseline, the EIA Regulations focuses on the 'likely evolution' of the baseline in the absence of the Proposed Development as far as natural changes from the baseline scenario can be assessed on the basis of available environmental information and scientific knowledge. From an air quality perspective there is limited 'natural' aspects that would influence the change in the baseline and changes are largely considered to be derived from human activities/interventions. As such, for the purposes of this section, some judgement has been applied to discuss a likely evaluation on the baseline based on current existing information.

15.82. Air quality is generally expected to improve with time with the increased uptake of cleaner vehicles and with newer vehicles having more stringent emission standards.

15.83. In order to give an indication of potential future baseline concentrations, the predicted background concentrations for NO_2, PM_{10} and $PM_{2.5}$ for the grid squares covering the EIA Site are provided in Table 15.9 for the 2026 peak construction year and the 2030 operational year.

15.84. It can be seen from Table 15.9 that background concentrations at the EIA Site are anticipated to reduce over time, with an improvement in concentrations predicted when compared against the background concentrations for 2023.

15.85. However, it is important to note that these future baseline concentrations are only predictions and there remains some uncertainty regarding future concentrations of NO_2 as emissions from diesel vehicles have not declined as expected. Therefore, the future background concentrations are provided for information only and have not been incorporated into the air quality assessment.

15.86. Future baseline conditions have been modelled and assessed for both the 2026 construction scenario and the 2030 operational scenario. However, 2023 background concentrations have been used to represent a worst-case scenario.

Identification and Evaluation of Likely Significant Effects

Construction Phase Impacts

15.87. Existing receptor locations to construction vehicle emission impacts are presented in Figure 15.1 (Appendix 15.6). Changes in NO_2, PM_{10} and $PM_{2.5}$ concentrations due to the construction of the Proposed Development have been predicted at each location.

15.88. The modelled results of the change in pollutant concentration due to the construction of the Proposed Development are presented in Tables 1, 2 and 3 (Appendix 15.7).

15.89. The predicted increases in annual mean NO2 concentrations as a result of the construction of the Proposed Development at CR1 and CR2 is 0.1 µg/m^3, which is less than 1% of the annual average NO2 AQO (40 µg/m3). The annual average NO_2 concentration will be 57.7-63.3% of the AQO and therefore the impact is deemed negligible in line with the EPUK/IAQM guidance (Table 15.3). Annual average PM_{10} and $PM_{2.5}$ concentrations were predicted between 39.5 - 48.3% of the AQO and the change in concentration due to the Proposed Development is less than 1% of the AQOs, so the impact is also deemed negligible in line with the EPUK/IAQM guidance and therefore is not significant.

15.90. An annual mean NO_2 concentration of 60 µg/m^3 has been used to determine whether an exceedance of the 1-hour mean NO_2 AQO is likely. The maximum NO_2 concentration is modelled at existing sensitive receptor location CR1 with an annual mean NO_2 concentration of 25.2 µg/m3 for the DM scenario and 25.3 µg/m3 for the DS scenario. This is below the 60 µg/m3 indicative criteria. Therefore, in accordance with LAQM.TG(22) guidance, exceedance of the 1-hour mean NO_2 AQO is considered unlikely since the Proposed Development will not lead to any exceedance of the 60 µg/m3 threshold.

15.91. A maximum PM_{10} concentration of 17.0 µg/m3 is predicted to occur at existing sensitive receptor location CR1 for the DM scenario and 17.1 µg/m3 for the DS scenario. Based upon the maximum predicted annual mean PM_{10} concentration, this equates to less than 1 day when 24-hour mean PM_{10} concentrations are greater than 50 µg/m3 (when following the methodology in section 6.53). Additionally, the Proposed Development has not led to an increase in the number of days of exceedance of the 24-hour mean AQO. The number of exceedances is within the 35-day compliance limit of the 24-hour mean AQO and therefore no exceedance of the 24-hour mean AQO is considered likely.

15.92. As such, the overall significance of construction vehicle emission impacts from the Proposed Development on NO_2 PM_{10} and $PM_{2.5}$ concentrations is determined not to be significant in line with EPUK and IAQM guidance.

Operational Phase Impacts

Off-site Existing Receptors

15.93. Existing receptor locations to operational vehicle emission impacts are presented in Figure 1 (Appendix 15.6). NO_2, PM_{10} and $PM_{2.5}$ concentrations have been predicted at each location.

15.94. The modelled results of the change in pollutant concentration due to the operation of the Proposed Development are presented in Tables 4, 5 and 6 (Appendix 15.7).

15.95. The biggest predicted increase in annual mean NO_2 concentrations as a result of the operation of the Proposed Development is at OR3, at 0.6 µg/m^3. This is 1.6% of the annual average NO2 AQO (40 µg/m^3). The maximum annual average NO_2 concentration, measured at OR4, will be 58.5% of the AQO and therefore the impact is deemed negligible in line with EPUK/IAQM guidance. PM_{10} and $PM_{2.5}$ concentrations will remain below 50% of the AQOs and the change in concentrations due to the Proposed Development is less than 1.3%. Therefore, the impact is negligible in line with EPUK/IAQM guidance..

15.96. An annual mean NO_2 concentration of 60 µg/m3 has been used to determine whether an exceedance of the 1-hour mean NO_2 AQO is likely. The maximum NO_2 concentration is expected to occur at existing sensitive receptor location OR4 with an annual mean NO_2 concentration of 23.3 µg/m^3 for the DM scenario and 23.4 µg/m^3 for the DS scenario. This is below the 60 µg/m3 indicative criteria. Therefore, in accordance with LAQM.TG(22) guidance, exceedance of the 1-hour mean NO_2 AQO is considered unlikely since the Proposed Development will not lead to any exceedance of the 60 µg/m3 threshold.

15.97. A maximum PM_{10} concentration of 17.0 µg/m3 is predicted to occur at existing sensitive receptor location OR4 for both the DS and DM scenarios (the magnitude of change due to the Proposed Development is less than 0.1 µg/m3). Based upon the maximum predicted annual mean PM_{10} concentration, this equates to less than 1 day when 24-hour mean PM_{10} concentrations are greater than 50 µg/m3 (when following the methodology in section in this Chapter). Additionally, the Proposed Development has not led to an increase in the number of days of exceedance of the 24-hour mean AQO. The number of exceedances is within the 35-day compliance limit of the 24-hour mean AQO and therefore no exceedance of the 24-hour mean AQO is considered likely.

15.98. As such, the overall significance of operational vehicle emission impacts from the Proposed Development on NO_2, PM_{10} and $PM_{2.5}$ is determined not to be significant in line with EPUK and IAQM guidance.

On-site Future Receptors

15.99. Dispersion modelling has been used to predict NO_2, PM_{10} and $PM_{2.5}$ at receptors on-site. The location of on-site receptors is presented in Figure 1 (Appendix 16.6). The modelled annual average pollutant concentrations results of the Proposed Development are presented in Tables 7, 8 and 9 (Appendix 16.7).

15.100. There will be no exceedance of the AQOs on-site. Concentrations are highest at ground level facing on the southern façade, facing the Mancunian Way, which will be commercial use. Highest concentrations are modelled at R1, at which the concentrations are 22.5 µg/m3 for NO_2, 16.7 µg/m3 for PM_{10} and 9.4 µg/m3 for $PM_{2.5}$. These are all significantly below AQOs. Pollutant concentrations reduce with height, so residential properties will be exposed to even lower concentrations.

15.101. An annual mean NO_2 concentration of 60 µg/m3 has been used to determine whether an exceedance of the 1-hour mean NO_2 AQO is likely. As all modelled annual average NO_2 concentrations are below this threshold at all receptors, exceedance of the 1-hour mean NO_2 AQO is deemed unlikely, in accordance with LAQM.TG(22) guidance.

15.102. The maximum modelled PM_{10} concentration on-site equates to less than 1 day when 24-hour mean PM_{10} concentrations are greater than 50 µg/m3 (when following the methodology in section 6.53). Therefore, no exceedance of the 24-hour mean PM_{10} AQO is considered likely.

15.103. As air pollutant concentrations will be in compliance with AQOs across the EIA Site, the impact of air pollution on new receptors introduced by the Proposed Development will be negligible.

15.104. As such, the overall significance of future exposure at the Proposed Development from NO_2, PM_{10} and $PM_{2.5}$ was determined not to be significant in line with EPUK and IAQM guidance.

15.105. As all impacts on air quality during both the construction and operation phases are not significant, the overall effect of the Proposed Development on air quality is deemed to be not significant.

Cumulative Effects

15.106. The complete list of cumulative schemes is detailed in Chapter 2 (Appendix 2.2) of the ES. The impacts of the cumulative schemes on future traffic are integrated into the supplied traffic data and are therefore considered inherently in the assessment.

15.107. There are no cumulative schemes within the model domain that will introduce uses at which the annual mean objectives apply. Therefore, receptors introduced by cumulative schemes have been considered and are not relevant to the assessment.

Mitigation Measures

Construction Phase

15.108. As the impact of construction traffic on all human receptors will be negligible, no additional mitigation is recommended.

Operational Phase

15.109. As the impact of operational traffic on all human receptors will be negligible, no additional mitigation is recommended.

Residual Effects

Construction Phase

15.110. The conclusions on mitigation measures on construction effects are presented in Table 15.10.

Table 15.10 Summary of construction effects

Likely Significant Effect	Receptors (sensitivity)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Effects of emissions arising from traffic generated by the construction of Proposed Development on human health	Surrounding sensitive uses, e.g. residential properties and schools (high)	No mitigation is required	N/A	N/A

Operational Phase

15.111. The conclusions on mitigation measures on operational effects are presented in Table 15.11.

Table 15.11 Summary of operational effects

Likely Significant Effect	Receptors (sensitivity)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Effects of emissions arising from traffic generated by the operation of Proposed Development on human health	Surrounding sensitive uses, e.g. residential properties and schools (high)	No mitigation is required	N/A	N/A
Effect of air pollution on new exposure introduced by the Proposed Development	Future sensitive uses on-site, including residential properties (high)	No mitigation is required	N/A	N/A

Monitoring

15.112. As no significant air quality effects have been identified, and no mitigation is being added to the Proposed Development, monitoring is not deemed a requirement.

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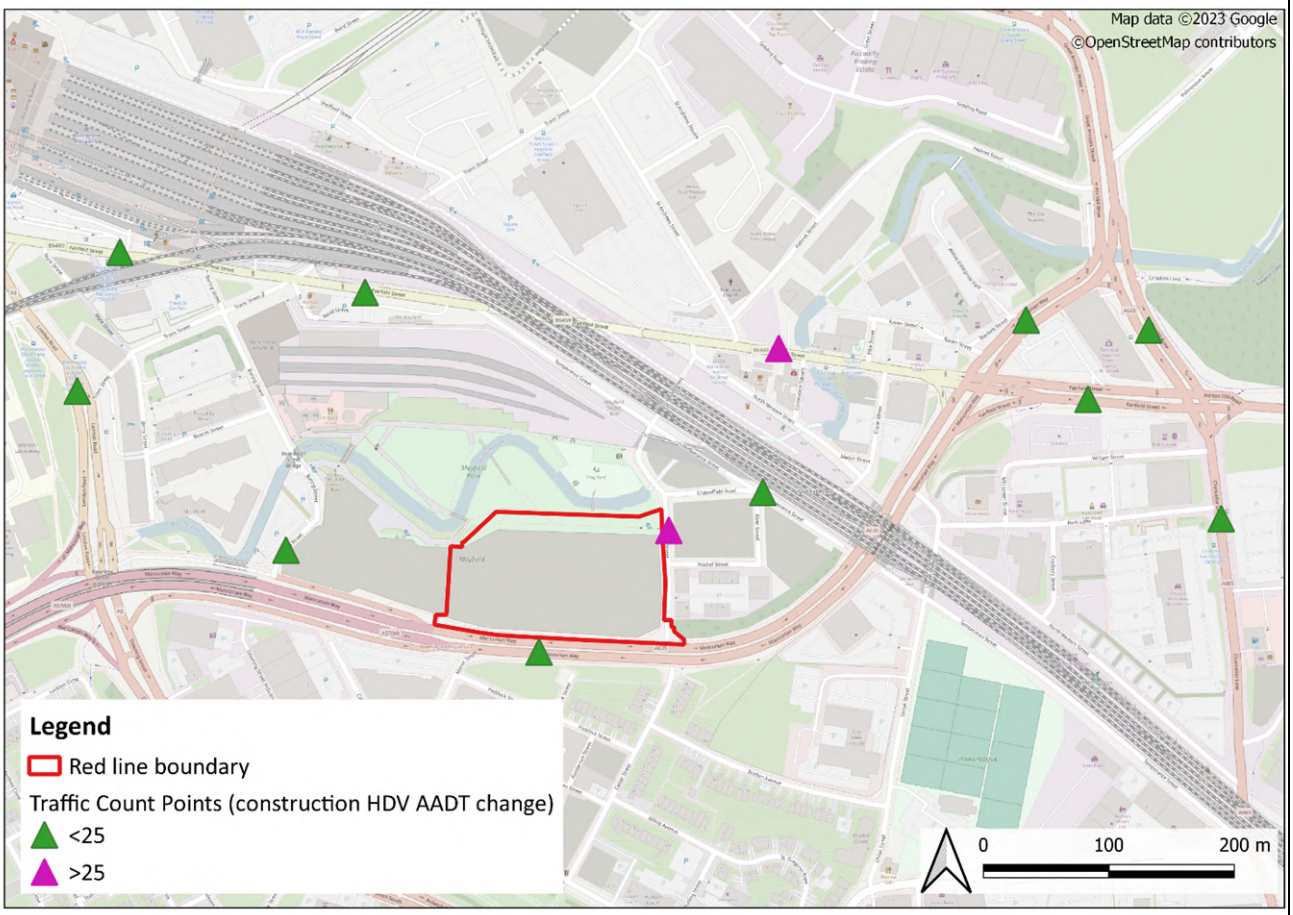
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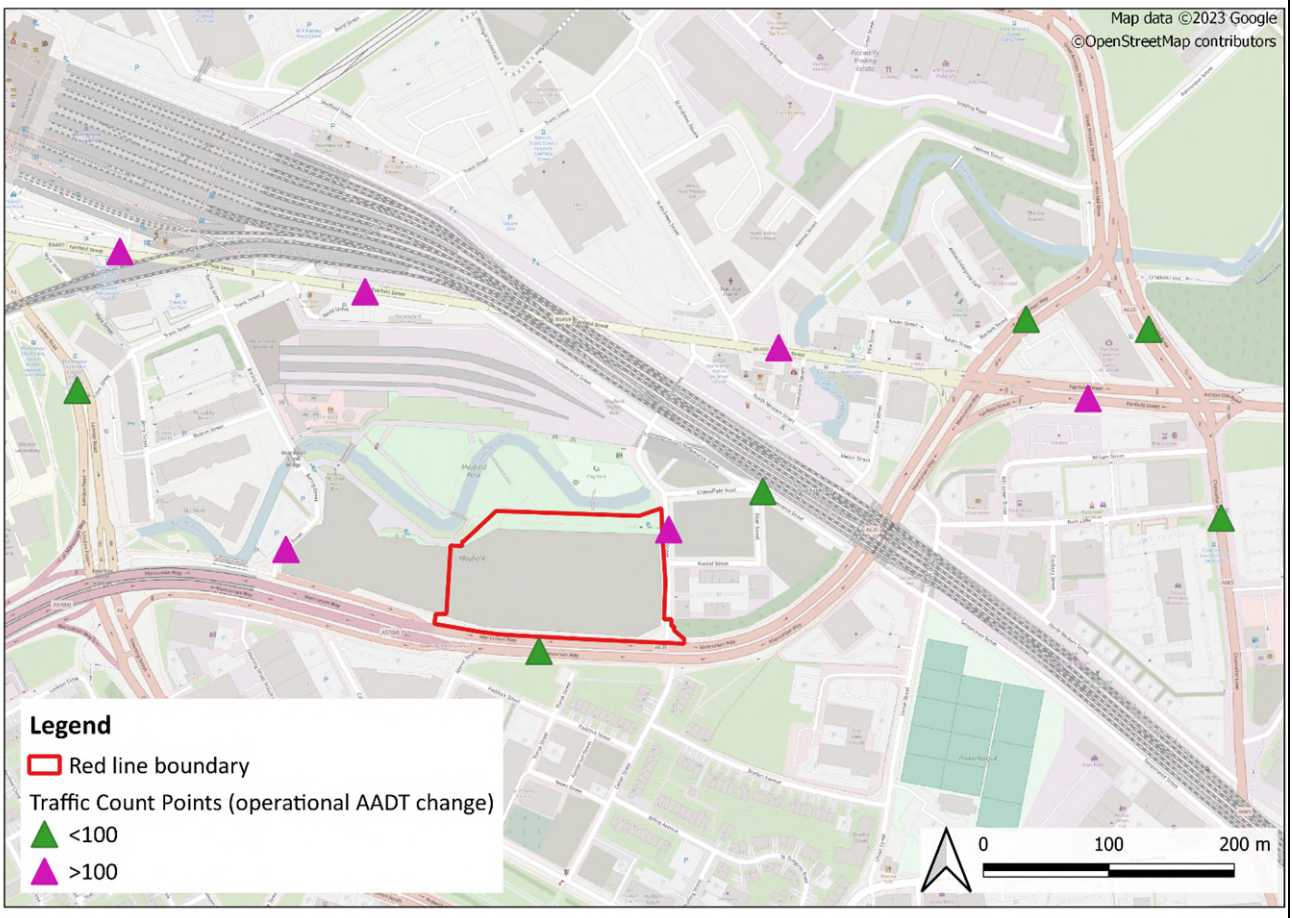
Figure 15.1



Traffic count points, showing exceedances of the construction traffic HDV AADT screening criteria.

	Date: 06/12/2024

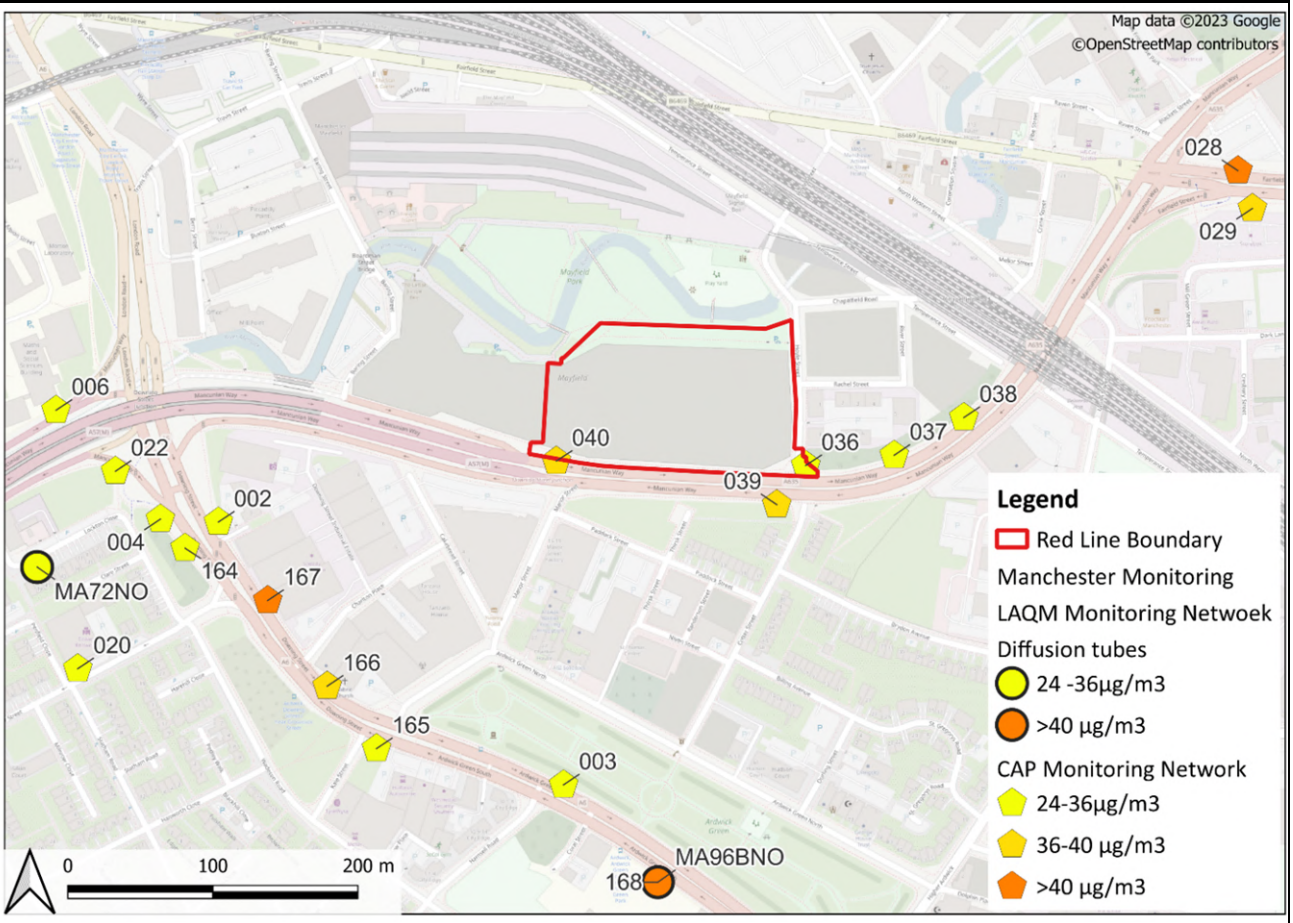
Figure 15.2



Traffic count points, showing exceedances of the operational traffic AADT screening criteria.

Date: 06/12/2024

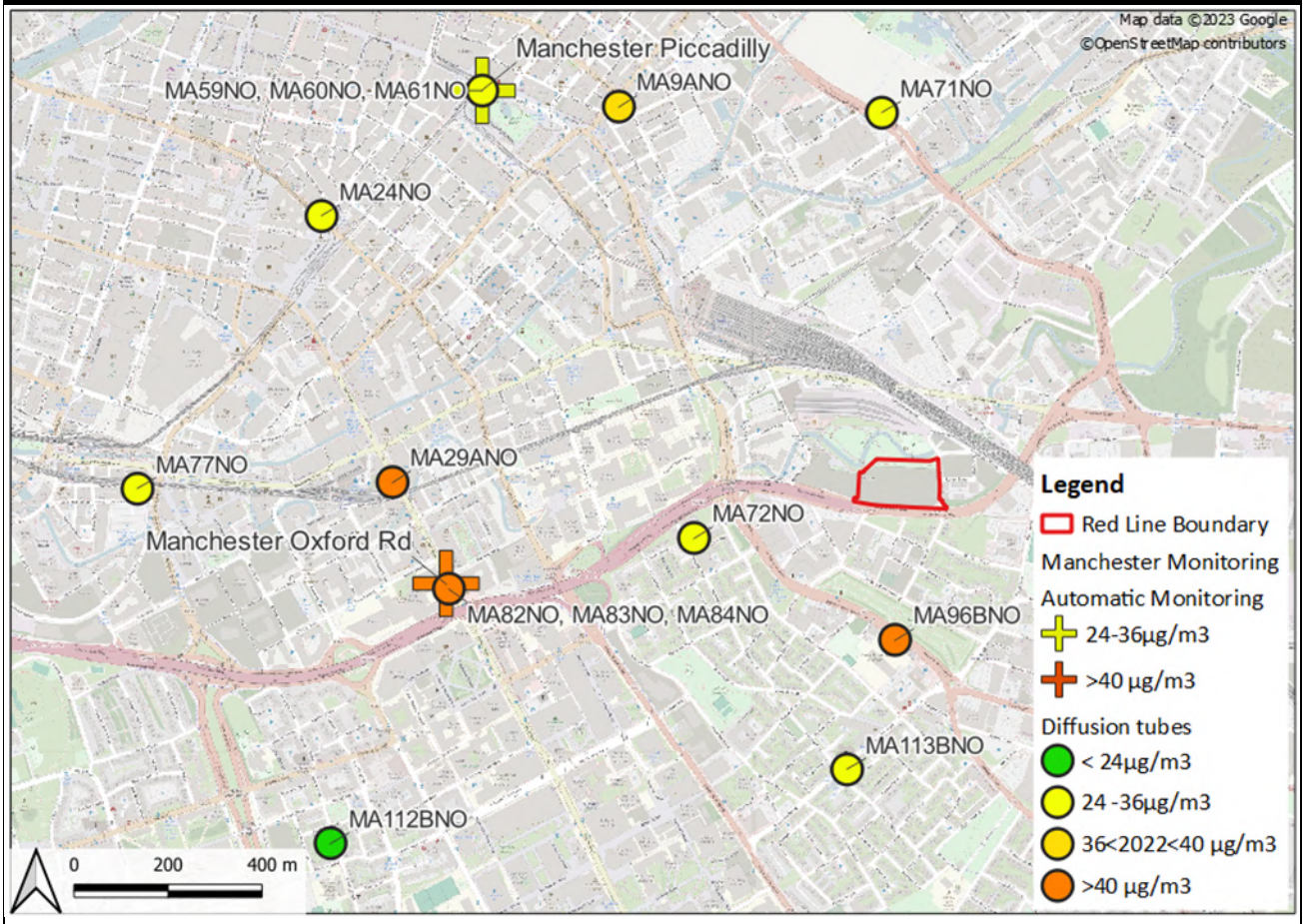
Figure 15.3



GMCA Clean Air Plan diffusion tube monitoring sites in proximity to the EIA Site

	Date: 06/12/2024

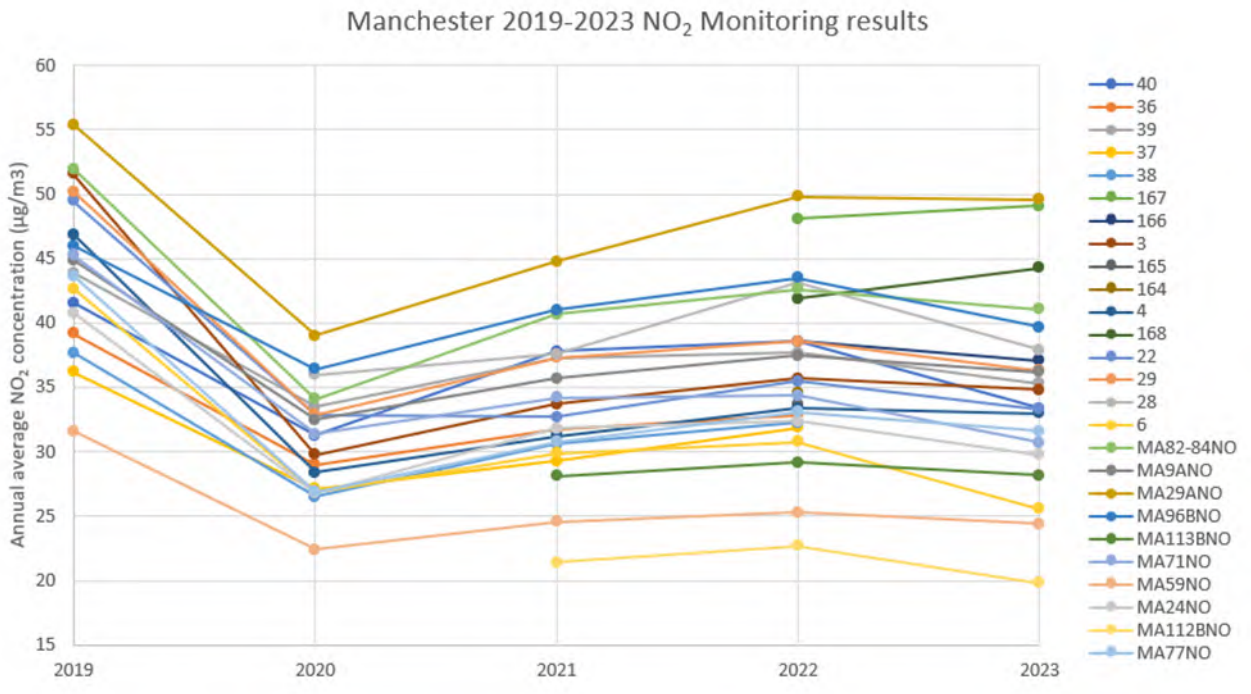
Figure 15.4



GMCA Local Air Quality Management automatic and diffusion tube monitoring sites in proximity to the EIA Site

	Date: 06/12/2024

Figure 15.5



Variation of NO_2 annual average monitoring results from LAQM and CAP monitoring sites in proximity to the EIA Site.

	Date: 06/12/2024

Figure 15.6



Part B Environmental Permits are in the vicinity of the EIA Site

	Date: 06/12/2024

16. Noise and Vibration

Introduction

16.1. This Chapter of the ES has been prepared by Buro Happold and assesses the potential noise and vibration impacts and effects that may arise at the relevant sensitive receptors from the construction and operation of the Proposed Development at the EIA Site. This chapter provides an assessment of various sources associated with the Proposed Development, including construction noise and vibration, the relative change in road traffic noise as a result of the access and egress of construction vehicles and the operational traffic where the Site is fully occupied, and noise from fixed plant installations and other commercial sources.

16.2. To assist with the understanding of this Chapter, a glossary of acoustic terms is provided in Appendix 16.1

16.3. The Chapter describes the assessment methodology, the baseline conditions, the potential impacts and effects of the Development arising from noise and vibration, and any mitigation measures required to prevent, reduce or offset the effects, as well as any residual effects that may exist after these measures have been applied.

16.4. This Chapter is accompanied by the following appendices:

- Appendix 16.1 - Acoustic Glossary
- Appendix 16.2 - Planning Policy
- Appendix 16.3 - Environmental Noise Survey Report (WSP, 2024)
- Appendix 16.4 - Construction Noise Information
- Appendix 16.5 - Road Traffic Data
- Appendix 16.6 - Road Traffic Noise Predictions

16.5. The authors of this Chapter have the following technical competence in the field of acoustics.

Technical Competence in Acoustics		
	Lead Author	Reviewer
Name	Vincent Parker	Chris Goff
Company	Buro Happold	Buro Happold
Qualifications/Accreditations relevant to technical area	Institute of Acoustics Diploma in Acoustics and Noise Control, Member of the Institute of Acoustics (MIOA	MSc Environmental and Architectural Acoustics, Member of the Institute of Acoustics (MIOA), Member of the Institution of Environmental Sciences (MIEnvSc)
Does the practitioner hold any IEMA qualification?	No	No
Company hold IEMA QMark?		

Technical Competence in Acoustics	Lead Author	Reviewer
Years technical experience (in technical area)	8	13
Number of EIA's delivered to date	5+	10+

Assumptions and Limitations

16.6. All acoustic assessment tools, whether calculations, modelling tools or survey measurements, have a degree of uncertainty associated with the results. The choices made in configuring acoustic models, choosing the input data, and analysing the measured data will dictate whether the final predicted impact should be considered a central estimate, or an estimate tending towards the upper bounds of the uncertainty range (i.e., tending towards worst-case). To take a robust approach to this assessment, reasonable worst-case, rather than central-estimate, assumptions have been used wherever possible.

16.7. Regarding construction plant, methodologies, and the programme referenced for the assessment of construction noise, the best available information has been used following discussions with the contractor. However, these details may change as the works progress and alternate methods are identified or unexpected obstacles are encountered.

16.8. The operational and construction traffic noise assessments have been based on data supplied by the Project's traffic consultant and are subject to the limitations and assumptions inherent within that dataset. Detailed discussion of how the traffic data has been derived, and the limitations associated with it, can be found in Chapter 18 (Transport and Access).

16.9. Detailed information regarding the type and number of external building services plant units is not yet available so this noise source has not been assessed directly. However, target plant noise levels at nearby receptors to be used in the design and specification of plant.

Relevant Legislation, Policy and Guidance

National Planning Policy

16.10. Planning Policy and Guidance relevant to this chapter has been listed below. Further details of the planning policy context are provided in Appendix 16.2.

- National Planning Policy Framework (NPPF), 2024
- Noise Policy Statement for England (NPSE), 2010; and
- National Planning Practice Guidance (NPPG), 2012 revised July 2019.

Local Planning Policy

- Manchester Core Strategy, 2012
- Addendum to Manchester Core Strategy, 2024

Guidance

16.11. The following guidance documents are relevant to this Noise and Vibration Chapter:

- BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound;
- BS 8233:2014 Guidance on sound insulation and noise reduction for buildings;
- BS 5228-1:2009+A1:2014 Code of Practice for noise and vibration control on construction and open sites, Part 1 Noise and Part 2 Vibration;
- Department of Transport (1988), Calculation of Road Traffic Noise (CRTN);
- IEMA Guidelines for Environmental Noise Impact Assessment, 2014;
- International Organization for Standardization (1996), ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation (ISO 9613-2).
- Manchester City Council: Planning and Noise Technical Guidance, 2022
- National Highways (2020), Design Manual for Roads and Bridges, LA 111: Noise and vibration, revision 2 (DMRB);
- World Health Organisation 'Environmental Noise Guidelines for the European Region, 2018; and
- World Health Organisation Guidelines for Community Noise, 1999.

Assessment Methodology and Significance Criteria

Scenarios Tested

16.12. Below are the testing scenarios to be considered within the EIA with the relevant element considered within this Noise & Vibration Chapter:

Table 16.1 Testing scenarios and noise and vibration elements considered in this Chapter

Scenario Reference	Scenario Detail	Element of Assessment within this Chapter
Scenario 1	Baseline (existing Site, including developments currently under construction)	Operational mechanical plant noise sources Operational road traffic noise Construction road traffic noise Local Cultural Entertainment Noise Sources (Appendix 3)
Scenario 2	Baseline with Proposed Development Phase 1 construction	Construction noise and vibration
Scenario 3	Baseline with Proposed Development Phase 1 and Phase 2 construction (as above)	Construction noise and vibration Construction road traffic noise
Scenario 4	Baseline with Proposed Development Phase 1 and Phase 2 operation (as above)	Operational mechanical plant noise sources Local Cultural Entertainment Noise Sources (Appendix 16.3) Operational road traffic noise

Scenario Reference	Scenario Detail	Element of Assessment within this Chapter
Scenario 5	Baseline with Proposed Development Phase 1 and Phase 2 operational (as above) and cumulative developments	Operational road traffic noise Construction road traffic noise Operational mechanical plant noise sources Local Cultural Entertainment Noise Sources (Appendix 16.3)
*Phase 1 includes Plot K plus public realm and estate road **Phase 2 includes Plot J plus public realm		

Noise and Vibration Sources Considered

16.13. Following a review, the Proposed Development has the potential to result in noise effects from the following:

- Construction of the Proposed Development, including the associated construction road traffic (temporary);
- Changes in road traffic flows on the road network around the Site associated with its operation;
- Noise from entertainment use at the commercial units; and
- The installation of any new fixed plant.

16.14. With regards to vibration sources from the Development it is possible that there may be some associated effects at the receptors during the construction phase only.

The Study Area

16.15. The Study Area for the assessments is receptor led (i.e., based on the nearest receptors where significant effects may occur) and has been presented in context of the order limits and identified receptors in Figure 16.1.

Existing Noise & Vibration Sources

16.16. The noise sources considered relevant in proximity to the Site are presented below:

- Road traffic on Mancunian Way (A635) to the south of the Site;
- Road traffic on Hoyle Street to the east of the Site;
- Road traffic from Fairfield Street to the north of the site;
- Rail traffic on the railway to the north and north-west of the Site;
- Entertainment use from the Depot entertainment venue to the north of the site.

16.17. Regarding vibration, the only nearby sources of potentially significant levels vibration are the railway lines to the north of the Site, which are around 75 m away at the closest point to the boundary.

Identified Receptors

16.18. The nearest noise sensitive receptors to the Site are residential dwellings located on Paddock Street and Cotter Street to the South of the Site, the closest property being less than 50 m to the site boundary of the Development. The three closest properties along each row of housing have been considered representative of the most exposed to the Site in this area.

16.19. To the west of the Site, the Unite Student Residential (PBSR) tower block on Baring Street has been considered as a receptor. This sits approximately 175 m from the outer limits of the Development, but it will not have a direct line of sight as it will be screened by the cumulative developments (see Appendix 2.3.)

16.20. The receptors used in the assessment are presented in Figure 16.1 and listed in Table 16.2 below:

Table 16.2 Receptor ID and Description

Receptor ID	Receptor location	Sources considered (C, O)*
R1	21 Paddock Street (north facing façade) Ground Floor	C, O
R2	21 Paddock Street (north facing façade) First Floor	C, O
R3	43 Cotter Street (west facing façade) Ground Floor	C, O
R4	43 Cotter Street (west facing façade) First Floor	C, O
R5	96 Cotter Street (west facing façade) Ground Floor	C, O
R6	96 Cotter Street (west facing façade) First Floor	C, O
R7	Unite Student Residential Tower, Baring Street (east facing façade) Ground Floor	C, O
R8	Unite Student Residential Tower, Baring Street (east facing façade) Top Floor	C, O
* C: Construction; O: Operational		

Source of Effect

16.21. The potential effects of noise and vibration are assessed using different methods based on the type of source being considered using the relevant standards and guidance, as advised by national noise policy (see Appendix 16.2).

16.22. In some cases, such as construction noise and vibration, this involves the definition of a Lowest Observed Adverse Effect Level (LOAEL), below which no adverse effects are expected but above which adverse effects are detectable, and a Significant Observed Adverse Effect Level (SOAEL), above which significant adverse effects expected to occur. In addition to exceeding the SOAEL, potential significance may also require consideration of other factors such as the duration of the exceedance. However, where a type of noise is already part of an existing environment but is impacted by a development, for example road traffic noise, it can be more appropriate to use the magnitude of change in noise levels to indicate significance.

Construction Noise Sources

16.23. Construction noise levels have been predicted based on estimates of the type and numbers of plant and equipment likely to be used together with their estimated usage, or 'on-time', for a typical working day. These estimates are summarised in Appendix 16.4. Construction of the Proposed Development has been split into the following primary "Construction activities":

- Piling;
- Excavation and Substructure;
- Superstructure; and
- Building Envelope.

16.24. For each construction activity, the contributions for each item of plant were combined and modelled as a single activity point source located at the closest boundary of each of the proposed buildings to consider the worst-case scenario for this noise source.

16.25. The construction noise predictions have been based on the principles of the methodology contained within Annex F of BS 5228-1:2009+A1:2014. This standard has been formally adopted by Government as the Code of Practice for use in this situation. Propagation of construction noise has been predicted using IMMI noise modelling software and the principles of the ISO 9613-2:1996 methodology, assuming moderate downwind propagation between the source and receptors.

16.26. The predictions do not take account of any specific mitigation adopted for the reduction of noise from construction activities (i.e., they are unmitigated noise levels) to ensure that the assessment considers the worst-case. However, as set out in the Construction Management and Phasing Chapter (Chapter 5), a 2.4 m high plywood hoarding fence will be installed around all boundaries, so this has been included in the acoustic model.

16.27. Based on the construction programme and phasing, a 'timeslice' approach has been adopted for the assessment of construction noise at existing receptors. This approach considers the impact of construction activities that are likely to occur simultaneously and represents the distribution of sources across the EIA Site; this is considered a robust approach to the assessment.

16.28. To align with the ES testing scenarios, 'timeslices' have been selected that cover activities in both Scenario 2 (Baseline with Proposed Development Phase 1 construction) and Scenario 3 (Baseline with Proposed Development Phase 1 and Phase 2 construction).

16.29. The 'timeslices' adopted for the assessment which are used to represent the worst-case time periods are set out in Table 16.3 below.

Table 16.3 Construction Timeslice periods considered in this assessment.

Timeslice	EIA Testing Scenario	Period Selected from Indicative Programme	Summary of Works Activities
1	Scenario 2	August 2026	Phase 1 – Piling Works
2	Scenario 2	October 2026	Phase 1 – Excavation / Substructure Works
3	Scenario 2	February 2027	Phase 1 – Superstructure Works

Timeslice	EIA Testing Scenario	Period Selected from Indicative Programme	Summary of Works Activities
4	Scenario 2	June 2028	Phase 1 – Envelope Works
5	Scenario 3	October 2026	Phase 1 - Excavation / Substructure Phase 2 - Piling Works
6	Scenario 3	February 2027	Phase 1 - Superstructure Works Phase 2 - Excavation / Substructure Works
7	Scenario 3	January 2028	Phase 1 - Superstructure Works & Envelope Works Phase 2 - Superstructure Works & Envelope Works

Construction Vibration Sources

16.30. Based on the same assumptions of construction activities and plant as used for the assessment of construction noise (see above), the only source identified with the potential to result in significant vibration effects has been identified as piling. The propagation of vibration from the activity to the receptor will depend upon the methods and equipment used, as well as the intervening distance, soil and geology type.

16.31. It has been indicated that the piling method likely to be used onsite will be Continuous Flight Auger (CFA). Part 2 of BS 5228:2009+A1:2014, which contains guidance on predicting, controlling and minimising construction vibration, states that the levels of vibration associated with this method are minimal. There is no methodology in the standard for predicting vibration levels from CFA Piling. However, the standard does provide some data based on measured levels of vibration on various soil types arising from the process used in CFA piling. Consequently, the augering data from the standard has been filtered for data relating to soil conditions likely to be similar to on-Site ground conditions. The data is summarised in Table 16.4; levels of vibration are stated using peak particle velocity (PPV) in mm/s..

Table 16.4 Measured Data for Rotary Bored Auguring at Different Distances in Fill/Sand/Clay Soil Conditions from Annex D of BS 5228-2:2009+A1:2014

Distance between Auguring and Measurement Location (m)	Measured PPV (mm/s)
10	0.40
15	0.10
26	0.02

16.32. As set out in Table 16.4, it can be seen that the magnitude of measured vibration decreases as the distance from the augering process increases. To provide an indication of the potential for adverse construction vibration effects from piling to occur at nearby receptors, the distance between the receptor and the nearest

location where piling is proposed will be compared with the data in Table 16.4 for the appropriate distance. This will inform the assessment as to whether an adverse or significant adverse effect might occur.

Peak Construction Road Traffic Noise

16.33. Changes in road traffic noise as a result of the construction of the Proposed Development have been assessed by predicting the noise impact comparing the magnitude of change with and without the development. Peak construction road traffic movements have been provided by the appointed transport consultant and the links relevant to the noise assessment are presented in Appendix 16.5.

16.34. The peak construction road traffic data provided does not account for cumulative growth, instead, the relative change between with and without development is based on the baseline (2022/2023) level.

16.35. Given that the data presents the peak construction traffic movements across both phases of construction and that the numerical increase is minimal, breaking down the impact per phase (i.e. Assessment Scenario 2) isn't necessary; the conclusions from considering both construction phases (i.e. Assessment Scenario 3) demonstrate a worst case.

16.36. The relevant links for both scenarios have been imported into the acoustic model as road noise sources as per the technical memorandum Calculation of Road Traffic Noise (CRTN). This considers the annual average weekday traffic (AAWT) of vehicles, the percentage of HGV or OVGs of that number and speed of vehicles.

Operational Road Traffic Noise

16.37. The potential change in road traffic noise during the operation phase of the Proposed Development has been predicted using the environmental noise modelling software IMMI which incorporates the CRTN methodology. The project transport consultant has provided road traffic data in the form of 18 hour (06:00-00:00) the AAWT flows for each scenario (presented in Appendix 16.5).

16.38. For the purposes of assessing road traffic noise, noise levels have been predicted at the identified receptors for the following scenarios:

- 2022/2023 Baseline (EIA Scenario 1);
- Future opening year (Mid 2030) 'Do minimum' (DM) i.e. without the Proposed Development; and
- Future opening year (Mid 2030) 'Do something' (DS) i.e. with the Proposed Development (EIA Scenario 5).

16.39. Traffic flows used for the scenarios include the cumulative effect of all other committed schemes within a radius of 1 km from the Development.

Operational Mechanical Plant Noise

16.40. Sound emission from mechanical plant associated with the Development, such as that which may be employed for ventilation and cooling, is considered a component of operational sound. However, specific information is not yet available regarding the type, number or exact location of the mechanical plant which is going to be installed.

16.41. Target noise levels have therefore been defined at the receptors based on the principles of the methodology of BS 4142:2014+A1:2019 and with reference to the background sound levels and target plant sound levels as presented in this Chapter.

16.42. The methodology from BS 4142 provides an initial estimate of adverse effects based on the difference between the sound from the source being assessed (the specific level) and the existing background sound level at the measurement location and takes into account how certain acoustic characteristics (e.g.,

impulsivity, intermittency, tonality etc.) of the noise may be disturbing. Where such features are discernible at the assessment location, a character correction should be added to the specific sound level to obtain the rating level.

16.43. Target noise levels have been specified for the standard day (07:00 to 23:00) and night (23:00 to 07:00) periods based on the survey data. Typical background sound levels (derived as per Appendix A of the Manchester City Council: Planning and Noise Technical Guidance) are expressed as LA90,15min which is the 'A' weighted noise level exceeded for 90% of the measurement period.

Operation of Ground Floor Commercial Units (Use Class E)

16.44. The Proposed Development includes a number of commercial units on the lower floors of each building which are anticipated to be used for a range of uses falling within Use Class E of the Town and Country Planning (Use Classes) Order 1987 (as amended) (see Chapter 4 – Site and Development Description).

16.45. Whilst there is some information regarding the proposed operation of these uses, there is insufficient information available to enable a full assessment of the ground floor commercial units (e.g., detailed information on hours of operation, capacity, façade construction, etc. would be required). Some of these uses are likely to result in limited noise emissions beyond any building service plant and deliveries and servicing. It would be anticipated that any cafés, restaurants, or pubs which could have amplified music would have the potential for the greatest adverse effect. However, as these units form part of the Proposed Development, a proportionate level of attenuation to protect against noise break out and noise transfer to other elements of the Proposed Development can be incorporated into the scheme as the detailed design of the Proposed Development progresses.

16.46. Therefore, it is proposed that an appropriate planning condition be attached to any planning permission granted requiring that, prior to the operation of any of these units, a noise assessment is submitted to, and approved by, the local planning authority. Within the noise assessment, details of the proposed use, sound insulation of the building envelope and separating walls and floors will be provided along with the likely noise levels at the nearest sensitive receptors. This would include both those receptors within the Proposed Development and those surrounding the Proposed Development. The assessment would demonstrate that noise from the use of these spaces and any associated deliveries and servicing would not give rise to any significant adverse effects and would comply with relevant national and local policy relating to noise.

Local Cultural Entertainment Noise Sources

16.47. Due to the proximity of the Depot Mayfield events venue Freight Island and the Star & Garter Pub, which is are all within 250 m of the EIA Site boundary, consideration of these noise sources has been included within the Environmental Noise Survey Report provided in Appendix 16.6. This report considers the potential façade noise level as a result of noise generated from events like the Warehouse Project that take place in the Depot Mayfield each year at the nearest Development building (Unit K2). The Proposed Development will be designed taking the ambient noise climate and noise generated from the venues into account with respect to the 'Agent of Change' principle (see Appendix 16.3).

16.48. The noise and vibration ES chapter is accompanied by an Environmental Noise Survey Report (Appendix 16.3) covering the relevant design aspects of the Proposed Development. This includes details of suitable glazing specifications to achieve the required internal ambient noise levels, and considers both the requirements of ventilation and overheating. Where required, it makes reference to the Manchester City Council Planning & Noise Technical Guidance.

Significance Criteria

16.49. Details of the assessment methodologies and identification of effects for the different sources of noise and vibration considered in the assessment are provided below.

Temporary noise and vibration during construction

On-site Construction Works

16.50. Construction noise from the key construction activities has been predicted at the receptors based on the methods described in BS 5228-1:2009+A1:2014 using in construction activities and plant information from a scheme of a comparable size and scale (see Appendix 16.4). Construction vibration has been considered with reference to BS 5228-2:2009+A1:2014 and the Design Manual for Roads and Bridges (DMRB).

16.51. To provide a comprehensive assessment of construction noise, the current construction programme and phasing has been reviewed and a selection of 'timeslices' has been identified. A timeslice represents a group of construction activities that take place at the same time. The selected timeslices represent the worst-case combinations of activities over the whole programme and therefore provide a robust assessment of the potential effects of construction noise. Currently, all works are planned take place during daytime hours.

16.52. Construction noise and vibration effect level thresholds have been based on those detailed in the same standards for the on-site construction activities, with the duration of any threshold exceedances also considered when determining significance. Although the concepts regarding LOAEL and SOAEL only specifically refer to noise exposure, it is considered best practice to adopt the same principles when assessing related potential vibration impacts and effects.

16.53. The criteria adopted for the assessment of temporary noise and vibration effects associated with on-site activities are detailed in Table 16.5 and Table 16.6 respectively.

Table 16.5 Effect level thresholds for construction noise

Effect level [a]	Time period	Threshold value (dB $L_{Aeq,T}$) [b]
LOAEL (adverse)	Day (07:00 – 19:00)	>65
	Evening (19.00 – 23.00)	>55
	Night (23.00 – 07.00)	>45
SOAEL (significant adverse) [a]	Day (07:00 – 19:00)	>75
	Evening (19.00 – 23.00)	>65
	Night (23.00 – 07.00)	>55
Notes: [a] Significant effects are expected to occur if the programme of works indicates that the relevant threshold values are likely to be exceeded over a period of at least one month. [b] Values apply to a location one metre from a residential building façade containing a window, ignoring the effect of the acoustic reflection from that façade.		

Notes:

A) Significant effects are expected to occur if the programme of works indicates that the relevant threshold values are likely to be exceeded over a period of at least one month.

B) Values apply to a location one metre from a residential building façade containing a window, ignoring the effect of the acoustic reflection from that façade.

Table 16.6 Effect level thresholds for construction vibration

Effect level	Threshold value (PPV, mm/s) [a]
LOAEL (adverse)	0.3
SOAEL (significant adverse)	1.0 [b]
Notes: *[a] This is the level at a residential receptor.* *[b] Guidance in BS 5228-2:2009+A1:2014 states that this level of exposure can be tolerated by those affected if prior warning and explanation has been given. It goes on to state that a level of 10 mm/s is likely to be intolerable in most building environments for any more than a very brief exposure.* *DMRB states that receptors would only normally be considered with respect to the potential effects of construction vibration if they are 100 m or less from the relevant construction activities; above this distance, no adverse effects would be expected.*	

Peak Construction Road Traffic

16.54. The potential significance of any change between with and without peak construction traffic has been assessed based on the methodologies described in the Design Manual for Roads and Bridges (DMRB). For construction traffic noise, the assessment of significance has been based on the magnitude of the change in noise levels resulting from the addition of the vehicle movements associated with construction of the Proposed Development together with the duration of the impact presented in Table 16.7 below:

Table 16.7 Impact magnitudes and significance criteria for construction road traffic noise

Magnitude of impact	Increase in noise level due to construction road traffic (dB)
No change	No increase or decrease
Negligible	Less than 1.0
Minor	Greater than or equal to 1.0 and less than 3.0
Moderate	Greater than or equal to 3.0 and less than 5.0
Major	Greater than or equal to 5.0
Identification of effect significance: *Significant effects are expected to occur if the programme of works indicates that either a moderate or major impact is expected over a period of at least one month.*	

Operational Mechanical Plant Noise

16.55. Manchester City Council (MCC) policy for noise from fixed mechanical plant and equipment is that it should be a Rating level of at least 5 dB (LAeq) below the typical background level (LA90) as derived using the method detailed in the Manchester City Council: Planning and Noise Technical Guidance (2022) document.

Operational Road Traffic Noise

16.56. The potential significance of any changes between the scenarios have been assessed based on the methodologies described in the DMRB. For operational traffic noise, the assessment of significance has been

based on the magnitude of the change in noise levels resulting from the addition of the vehicle movements associated with operation of the Proposed Development presented in Table 16.8 below.

Table 16.8 Impact magnitudes and significance criteria for operational road traffic noise

Magnitude of Impact	Change in noise level (dB)	Significance of effect
No Change	0	Insignificant
Negligible	Up to 0.9	
Minor	1.0 – 2.9	
Moderate	3.0 – 4.9	Significant
Major	5.0 and above	

Baseline Conditions

Existing Baseline

16.57. As part of the Environmental Noise Survey Report undertaken by WSP (provided in Appendix 3) a baseline noise survey was undertaken to characterise and quantify the existing baseline noise environment. Details of that survey including the monitoring locations, equipment and detailed data has been presented in that report, this Chapter summarises the key points from the surveys undertaken.

16.58. WSP undertook three baseline noise surveys (in Aug 2019, Feb 2024 & Sept 2024) at locations around the EIA Site comprising unattended and attended measurements. A plan of the monitoring locations relative to the EIA Site boundary is presented in Section 4 of the Environmental noise survey report (Appendix 16.3), and a summary of the monitoring locations and measurement dates and times used in this Chapter are presented in Table 16.9 below.

Table 16.9 Details of attended and unattended noise monitoring undertaken

Monitoring location details (U: unattended, A: attended)			Dates and Start Times	Measurement Duration
U1	U	North side (Mayfield Park) within the Site boundary[1]	15/02/2024 (10:15) – 26/02/2024 (13:15)	11 Days
U2	U	South side (Mancunian Way) within the Site boundary[1]	15/02/2024 (10:15) – 26/02/2024 (13:15)	11 Days
1	A	Outside properties on Cotter St (South of Site)	21/02/2024 (00:44) 24/02/2024 (00:44)	2 x 15 minute measurements
2	A	Outside student accommodation on Baring Street (West of Site)	21/02/2024 (00:18) 24/02/2024 (00:19)	2 x 15 minute measurements

Monitoring location details (U: unattended, A: attended)			Dates and Start Times	Measurement Duration
A	A	North west side (Mayfield Park) outside the Site boundary	21/02/2024 (21:20, 22:50) 24/02/2024 (21:26, 22:47)	4 x 15 minute measurements
			28/09/2024 (03:00)	30 minute measurement
B	A	North west side (Mayfield Park) outside the Site boundary	21/02/2024 (21:40, 23:08) 24/02/2024 (21:43, 23:05)	4 x 15 minute measurements
			28/09/2024 (02:28)	30 minute measurement

16.59. The Environmental Noise Survey report (Appendix 16.3) presents the representative background sound levels measured on-site (locations U1 & U2) based on the principles set out in MCC's Planning & Noise Technical Guidance (2022) document. Table 4-3 from that report has been reproduced in Table 16.10 below.

Table 16.10 Summary of 2024 representative background sound level at onsite monitoring locations Logger 1 & Logger 2.

Monitoring Location	Period	Overall A weighted level (dB)
Logger 1 (Mayfield Park)	Daytime 07:00 – 23:00	59 ($L_{A90,\ 1\ hour}$)
	Night Time 23:00 – 07:00	50 ($L_{A90,\ 15\ minutes}$)
Logger 2 (Mancunian Way)	Daytime 07:00 – 23:00	64 ($L_{A90,\ 1\ hour}$)
	Night Time 23:00 – 07:00	51 ($L_{A90,\ 15\ minutes}$)

16.60. As presented in Appendix 16.3, the noise environment is reported as being dominated by road traffic noise and rail noise from the major transport sources identified in the previous section. To account for entertainment noise sources in the area, attended monitoring was undertaken while events were taking place at the Star & Garter Pub (21st Feb 2024), Freight Island (24th Feb 2024) and Warehouse Project events at the Mayfield Depot (28th Sep 2024).

16.61. As concluded in section 5.1 of the Environmental Noise Survey Report (Appendix 16.3) Table 16.11 below presents the representative background sound levels at each identified receptor.

Table 16.11 Representative background sound levels at identified receptors R1 – R8

Identified Receptor Locations	Period	Representative background sound level (dB)
21 Paddock Street (R1, R2)	Daytime 07:00 – 23:00	59 ($L_{A90,\ 1\ hour}$)
43 Cotter Street (R3, R4) 96 Cotter Street (R5, R6) Unite Student Residential Tower (R7,R8)	Night Time 23:00 – 07:00	50 ($L_{A90,\ 15\ minutes}$)

Identification and Evaluation of Likely Significant Effects

Construction noise & vibration

On-site construction works

16.62. As discussed in the methodology section above, the potential significance of construction noise associated with the Proposed Development at the identified receptors has been assessed by comparing a selection of timeslices (groups of construction activities that take place at the same time) to the effect level thresholds. Following a review of the current construction programme, seven timeslices have been identified that represent the worst-case periods of construction noise that are expected to occur.

16.63. The predicted worst-case noise levels for the construction works at each receptor are presented in Table 16.12 below (see Appendix 16.4 for the predicted noise levels for each individual activity).

Table 16.12 Results of assessment of on-site construction noise

Receptor		Timeslice ID*: construction noise level (dB $L_{Aeq,T}$)							No. of LOAEL exceedances	No. of SOAEL exceedances
		1	2	3	4	5	6	7		
R1	21 Paddock Street - GF	64	59	64	65	66	66	71	4	0
R2	21 Paddock Street - FF	66	61	65	65	68	67	72	5	0
R3	43 Cotter Street - GF	63	58	62	62	67	65	71	3	0
R4	43 Cotter Street - FF	64	59	62	63	69	66	71	3	0
R5	96 Cotter Street - GF	61	57	59	59	66	63	69	2	0
R6	96 Cotter Street - FF	61	57	60	60	68	65	70	3	0
R7	Unite Student Residential Tower - GF	38	34	32	32	37	35	39	0	0
R8	Unite Student Residential Tower - Top Floor	39	35	33	33	40	38	40	0	0

16.64. The predictions assume all the plant for that activity is concentrated near the receptors and operating simultaneously on this smaller section of the site. However, in practice the construction equipment would be

spread over a wider area. While the stated levels in Table 16.12 may be experienced by the receptor at some point, it is considered unlikely that the construction noise would remain at this level for a long period of time.

16.65. As can be seen in Table 16.12 above, none of the predicted construction noise levels exceed the relevant SOAEL. The maximum predicted level is 72 dB(A) as predicted at R2, the closest receptor the EIA Site, during Timeslice 7. Therefore, no significant adverse effect would be expected at any receptor as a result of construction noise, but there is likely to be a minor adverse effect. The predicted levels at these receptors require that reasonable steps be taken to mitigate the impact and reduce it to a minimum. Therefore, where possible, mitigation namely Best Practicable Means (BPM) will be implemented to reduce the potential impact from construction noise at these receptors, detail of the mitigation strategies is provided below.

Construction Vibration

16.66. Regarding the potential significance of construction vibration from CFA piling sources associated with the Proposed Development at the receptors, following a review of the relevant construction activities and their locations within the EIA Site, the shortest distance between an activity and a receptor (R5/R6) is approximately 40 m. This is well over the minimum distance stated in Table 16.4 for which adverse effects might be expected at the receptor. Therefore, no significant effects or otherwise adverse effects are expected from on-site construction vibration associated with the Proposed Development. As a result, the resulting construction vibration effect is considered negligible.

Construction road traffic

16.67. As discussed in the assessment methodology section above, the potential significance of any changes in road traffic noise due to construction traffic associated with the Proposed Development have been assessed by comparing the baseline traffic flow scenarios with and without the presence of the construction traffic; this is based on the peak volume of construction traffic.

16.68. Table 16.13 sets out the predicted noise level (expressed as LA10, 18hour) change with and without the Proposed Development construction noise at the identified receptors with reference to the criteria set out in Table 16.7, setting out the magnitude of impact and identifying whether the effects are considered significant. A full presentation of the predicted noise levels are presented in Appendix 16.6.

Table 16.13 Predicted Construction Traffic Noise Effects

Road link details		Change with and without the construction traffic sources associated with the Proposed Development (dB $L_{A10,18hr}$)	Magnitude of impact	Significant effect indicated?
R1	21 Paddock Street (north facing façade) Ground Floor	0.0	No change	No
R2	21 Paddock Street (north facing façade) First Floor	0.0	No change	No
R3	43 Cotter Street (west facing façade) Ground Floor	0.0	No change	No
R4	43 Cotter Street (west facing façade) First Floor	0.0	No change	No

Road link details		Change with and without the construction traffic sources associated with the Proposed Development (dB $L_{A10,18hr}$)	Magnitude of impact	Significant effect indicated?
R5	96 Cotter Street (west facing façade) Ground Floor	0.0	No change	No
R6	96 Cotter Street (west facing façade) First Floor	0.0	No change	No
R7	Unite Student Residential Tower, Baring Street (east facing façade) Ground Floor	0.0	No change	No
R8	Unite Student Residential Tower, Baring Street (east facing façade) Top Floor	0.0	No change	No

16.69. As can be seen in Table 16.13 above, all receptors are predicted to have no change in road traffic noise. This is primarily due to the low volume of construction road traffic associated with the Proposed Development compared to the existing traffic flows. Therefore, no significant effects are expected from construction road traffic noise associated with the Proposed Development. As a result, the resulting construction road traffic effect is considered negligible.

Operational Noise

Road traffic

16.70. As discussed in the assessment methodology section above, the potential significance of any changes in road traffic noise associated with the operational use of the Proposed Development has been assessed by comparing traffic flow scenarios in the opening year with and without the presence of traffic associated with the operation of the scheme. The opening year is mid 2030 when the Proposed Development is currently planned to be completed and fully operational.

16.71. It is noted that the results presented below do include traffic figures from cumulative developments which would be representative of EIA scenario 5, the cumulative traffic contribution from the data provided by the appointed transport consultants is so minor that that the noise predictions at receptors do not change (to 1 decimal point), as a result the figures presented in Table 16.14 below are representative of both EIA Scenarios 4 and 5.

16.72. Table 16.14 sets out the predicted noise level (expressed as LA10, 18hour) change in the 'Do Minimum' (DM) and 'Do Something' (DS) traffic scenarios at the identified receptors, which includes future cumulative schemes as set out in the Transport and Access (Chapter 18)). A full presentation of the predicted noise level is presented in Appendix 16.6. The resulting difference and the magnitude of impact identifies whether the effects are significant with reference to the criteria set out in Table 16.8.

Table 16.14 Predicted Operational Traffic Noise Effects

Road link details		Change with and without the operational traffic sources associated with the Proposed Development (dB $L_{A10,18hr}$)	Magnitude of impact	Significant effect indicated?
R1	21 Paddock Street (north facing façade) Ground Floor	0.0	No change	No
R2	21 Paddock Street (north facing façade) First Floor	0.0	No change	No
R3	43 Cotter Street (west facing façade) Ground Floor	0.0	No change	No
R4	43 Cotter Street (west facing façade) First Floor	0.0	No change	No
R5	96 Cotter Street (west facing façade) Ground Floor	0.0	No change	No
R6	96 Cotter Street (west facing façade) First Floor	0.0	No change	No
R7	Unite Student Residential Tower, Baring Street (east facing façade) Ground Floor	+0.1	Negligible	No
R8	Unite Student Residential Tower, Baring Street (east facing façade) Top Floor	+0.1	Negligible	No

16.73. As can be seen in Table 16.14 above, all receptors are predicted to have no change or a negligible increase in road traffic noise. This is primarily due to the low volume of operational road traffic associated with the Proposed Development compared to the existing traffic flows. Therefore, no significant effects are expected from operational road traffic noise associated with the Proposed Development.

External fixed building services plant

16.74. As previously discussed, target noise rating levels for noise emissions from proposed external fixed building services plant have been specified at the receptors based on the results of the baseline noise survey, set at 5 dB below the existing typical background sound levels presented in Table 16.9, as follows:

Table 16.15 Target noise levels for external fixed plant at receptors

Identified Receptor Locations	Period	Target plant noise rating level (dB $L_{Ar,Tr}$)*
21 Paddock Street (R1, R2) 43 Cotter Street (R3, R4) 96 Cotter Street (R5, R6) Unite Student Residential Tower (R7,R8)	Daytime (07:00 – 23:00), Tr = 1 hr	54
	Night-time (23:00 – 07:00), Tr = 15 mins	45

16.75. As the levels stated in Table 16.15 are rating levels as defined by BS 4142:2014+A1:2019, they apply to the specific noise from the fixed plant with any corrections added on to account for the certain acoustic characteristics, if present at the receptors, that have the potential to increase the associated impact. These include tonality, impulsivity, and intermittency. It should be noted that the target levels apply to the cumulative noise emissions from all new fixed plant associated with the Proposed Development. The target levels apply to the peak 1 hour period of plant operation during the day, and the peak 15 minute period during the night

16.76. Any new external fixed plant installations will be sited and designed to achieve the target noise rating levels. Where necessary, this may include employing standard measures such as screening or enclosures around the fixed plant, or attenuators attached to any intakes or exhausts. This will be confirmed and implemented at the detailed design stage. On this basis, no adverse impacts or significant effects are expected from this source.

Cumulative Effects

16.77. In terms of potential cumulative effects with respect to nearby committed developments, no additional impacts or effects are predicted to occur in terms of noise and vibration generated from within the EIA Site (i.e., from construction, operation, events, or external fixed plant).

16.78. With respect to operational road traffic noise, the data used for this assessment includes traffic flows associated with committed developments for the relevant years and therefore any potential cumulative effects have already been considered in the main assessment.

16.79. Operationally, if the EIA Site and cumulative schemes were to be developed, receptors R1-R6 (south of Mancunian Way) would likely experience a noise reduction from events held at the Mayfield Depot, especially in the early hours and at low frequencies.

Mitigation Measures

Construction Phase

16.80. No significant adverse effects are expected from construction noise or vibration associated with the Proposed Development, but there is likely to be an adverse effect, therefore construction noise and vibration will be mitigated and minimised using the principle of best practicable means (BPM). These measures will include the selection of quieter items of plant and equipment, the use low of low noise methodologies, and implementation of boundary hoarding and localised screening around noisier activities where possible.

16.81. It is anticipated that a Construction Environmental Management Plan (CEMP) will be submitted to the council before the works begin that gives further details on the mitigation options to be used.

Operational Phase

16.82. No significant or otherwise adverse effects are expected from operational noise associated with the Proposed Development, and therefore, no specific mitigation measures are required.

16.83. As detailed above, target noise levels at receptors have been defined for noise emissions from external fixed building services plant. To achieve these, measures such as the use of screening or enclosures around the fixed plant, or attenuators attached to any intakes or exhausts may be required. This will be confirmed and implemented at the detailed design stage.

16.84. As discussed in the Environmental Noise Survey Report (Appendix 16.3), measurements from entertainment noise sources in the baseline noise survey have accounted for and informed the relevant design aspects of the Proposed Development, with respect to with the Agent of change principle

Residual Effects

16.85. No significant are expected from either construction vibration or operational noise associated with the Proposed Development at any receptor, and therefore there is no need for mitigation.

16.86. No significant adverse effects are expected from construction noise associated with the Proposed Development, but there is likely to be an adverse effect, therefore construction noise and vibration will be mitigated and minimised using the principle of best practicable means (BPM). These measures will include the selection of quieter items of plant and equipment, the use low of low noise methodologies, and implementation of boundary hoarding and localised screening around noisier activities where possible.

Monitoring

16.87. No noise or vibration monitoring should be required during the operational phase of the Proposed Development; however, a programme of noise monitoring for the construction phase will be set out in the CEMP, which will be submitted to the council before the works begin.

Reference List

16.88. This ES Chapter has been prepared in reference to the following:

- BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'
- BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open Sites – Part 1: Noise'
- BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open Sites – Part 2: Vibration'
- Calculation of Road Traffic Noise, Department of Transport (1988)
- ISO 9613-2:1996 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation'
- LA 111 version 2, Design Manual for Roads and Bridges, National Highways (2020)
- Manchester Core Strategy 2012 to 2027, Manchester City Council (2012)
- Addendum to Manchester Core Strategy (2024)
- National Planning Guidance: Noise, Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019)
- National Planning Policy Framework, Ministry of Housing, Communities & Local Government (2023)
- Noise Policy Statement for England, Department for Environment, Food & Rural Affairs (2010)
- Planning and Noise: Technical Guidance, Manchester City Council (2022)

Figure 16.1 Study area of the proposals relative to identified receptors



Noise sensitive receptors relative to the development Site boundary

17. Heritage

Introduction

17.1. This Chapter of the ES has been prepared by Stephen Levrant Heritage Architecture ('SLHA') and assesses the impact of the Proposed Development on built heritage (i.e. above ground) heritage receptors.

17.2. This Chapter is accompanied by the following appendices:

- Appendix 17.1 – Heritage Statement

17.3. The authors of this Chapter are Anna Manley (BA (Hons), MA) and Kirsten McKnight (BA (Hons), MA, MSc, IHBC) who, collectively, have c.20 years of experience in the preparation of ES Chapters in the historic built environment.

Assumptions and Limitations

17.4. Survey of the identified heritage assets within the study area was undertaken from publicly accessible areas. As such the study is limited to assessment from ground level. An assessment of below ground archaeology does not form part of this assessment.

Relevant Legislation, Policy and Guidance

Legislation

17.5. The Heritage Statement (Appendix 17.1) has been prepared in accordance with or with reference to the following legislation, policy, and guidance:

> Section 66 of the Planning (Listed Building and Conservation Areas) Act 1990 requires the Local Planning Authority to "have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses" when considering whether to grant planning permission. This section is of relevance as there are listed buildings in the setting of the Site.
>
> Section 72 of the Act is also of relevance given the presence of conservation areas in the setting of the Site, and because it embodies the "general duty as respects conservation areas in exercise of planning functions" and stipulates that "special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area".

Policy

National Planning Policy Framework, NPPF (December, 2024)

17.6. Chapter 12 (Design) of the NPPF establishes the Government's framework and approach towards design. The NPPF states at Paragraph 131 that "good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities".

17.7. At Paragraph 135, the NPPF establishes a set of principles that Local Authorities should ensure are at the forefront when considering planning policies and development proposals. These principles stipulate that developments should: function well and contribute to the overall quality of the area; be visually attractive through the use of high quality architecture, successful layouts and effective landscaping; be sympathetic to local townscape character and history (including the built environment and landscape setting); reinforce and maintain sense of place through considered arrangement of streets, spaces, typologies and materiality;

optimise the potential of sites and create a sustainable mix of developments; and create spaces that are safe, inclusive and accessible to all.

17.8. Paragraph 139 states that developments that are that not well designed should be refused by Local Authorities (including and especially where proposals fail to reflect local design policies and government design guidance). Conversely, the NPPF states in the same paragraph that "significant weight" should be given to schemes that reflect local policy requirements and government guidance on design, and those that reflect "innovative designs which promote high levels of sustainability".

17.9. Read together, Paragraphs 134 and 139 demonstrate the Government's encouragement of Local Authorities to support schemes which embody high quality sustainable design.

17.10. Chapter 16 (Heritage) of the NPPF sets out the Government's planning policies on the conservation of the historic environment.

17.11. 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 shall not be supported. This is because one of the key dimensions of sustainability is protecting and enhancing our historic environment.

17.12. The NPPF stresses that "great weight" should be given to the conservation of designated heritage assets (paragraph 212), emphasising the need to avoid substantial harm, in terms of demolition, alteration or the compromise of its setting. 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.

17.13. The NPPF establishes a clear hierarchy of significance for heritage assets, derived from their designated status. The fundamental objective is to avoid compromising designated heritage assets, such that any potential 'harm' from a development must be balanced against the potential advantages of the public benefits that may outweigh any harm.

17.14. Degrees of harm are categorised within the NPPF as 'substantial' and 'less than substantial'. Paragraph 207 states that "where a Proposed Development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss". Four subsequent tests apply to mitigate such harm.

17.15. Paragraph 215 relates to 'less than substantial harm', stating that "this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use".

17.16. The 'designated heritage asset' status of the identified listed buildings and conservation areas within and in the setting of any site requires that any potential 'harm' must be weighed and balanced against the potential advantages of the particular development proposal. 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.

17.17. Paragraph 216 outlines that effects of a Proposed Development on non-designated heritage assets should be taken into consideration.

Planning Practice Guidance ('PPG') (2014 and as subsequently amended)

17.18. The PPG is an online document which is amended as required by the Government. It provides current advice to assist with the interpretation of the NPPF. The section "conserving and enhancing the historic environment" of the current iteration of the PPG has been reviewed and referenced in the course of producing this Heritage Statement.

Manchester City Council, Core Strategy (2012)

17.19. 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 are of relevance.

17.20. 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 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.

17.21. Policy EN3 (Heritage) states that Manchester City Council will encourage development that complements and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods. Development options must be designed 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.

Manchester City Council, Places for Everyone ('PfE') (2024)

17.22. PfE is the long-term plan of nine Greater Manchester districts for jobs, new homes and sustainable growth. The plan sets out a strategic policy framework for the nine boroughs and helps these areas to meet their local housing and employment needs by identifying land and infrastructure to support growth.

17.23. Objective 4 of the PfE seeks to: "Enhance our cultural, heritage and educational assets; - Improve sustainable transport and active travel access to these locations; - Improve access for local people to jobs in these locations."

17.24. Policy JP-P 2 addressing 'Heritage', states:

"Through this Plan we will proactively manage and work with partners to positively conserve, sustain and "enhance its historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct identity and sense of place. Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for safeguarding and enhancing in the future, and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive integration of our heritage by:

- Setting out a clear vision that recognises and embeds the role of heritage in place-making;
- Utilising the heritage significance of a site or area in the planning and design process, providing opportunities for interpretation and local engagement;
- Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;
- Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and
- Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer."

17.25. Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic Places for Everyone transport

routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings and areas of identified archaeological, architectural, artistic and historic value.

17.26. Development proposals affecting a designated heritage asset (or an archaeological site of national importance) and a conservation area should conserve those elements which contribute to its significance including those identified in any conservation area appraisal as making a positive contribution to the area. Harm to such elements will only be permitted where this is clearly justified and outweighed by the public benefits of the proposal.

17.27. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Guidance

Historic England Guidance

17.28. In 2015 Historic England ('HE') released three Good Practice Advice notes supporting the implementation of national policy and the related guidance provided within the PPG. Good Practice Advice Note 2 - Managing Significance in Decision-Taking in the Historic Environment (2015) ('GPA2') and Good Practice Advice Note 3 - The Setting of Heritage Assets (amended December 2017) ('GPA3') were both utilised as part of this assessment in order to gain a full understanding of the relevant issues.

17.29. In particular, this Chapter and the accompanying Heritage Statement (Appendix 17.1) take account of the advice contained within the revised version of GPA3 on understanding what constitutes the setting of a listed building, Conservation Area, or other heritage asset. Furthermore, this Chapter relies on the guidance provided on the identification of assets and their settings which have the potential to be affected by development proposals, as well as the approach to the selection of indicative key views of a Proposed Development in a context which includes heritage assets and heritage sensitivities.

17.30. In terms of assessing the impacts of development proposals, this Chapter takes account of the advice in GPA3 which states that "setting and views are matters of qualitative and expert judgement […] technical analyses [and] should be seen primarily as material supporting a clearly expressed and non-technical narrative argument that sets out 'what matters and why' in terms of the heritage significance and setting of the assets affected, together with the effects of the development upon them."

17.31. This Chapter also accords with the guidance and approach established in Historic England Advice Note 12 - Statements of Heritage Significance: Analysing Significance in Heritage Assets (2019) and Conservation Principles, Policies and Guidance (2008).

17.32. Additional Historic England advice notes utilised within this report include Tall Buildings, Advice Note 4 (March 2022). Historic England Advice Note 4: Tall Buildings ('HEAN 4'). The note supersedes the previous version from 2015 and takes into account recent updates to planning policy and legislation and recent experience of the development of tall buildings within the historic environment.

17.33. The purpose of the guidance is 'to support Local Planning Authorities, developers, communities and other stakeholders in dealing with tall buildings proposals within the legislative and planning framework relevant to the historic environment'.

17.34. The note provides support and guidance in the following key ways: in the initial plan-making process, in the identification of appropriate locations for tall buildings and the definition of 'design parameters' with regard to the historic environment, and in the assessment and determination of individual tall building proposals at the determination stage of the planning process.

17.35. HE's note establishes a set of principles for the consideration of tall building development in the historic environment. The emphasis is on a plan-led approach to the consideration of such development, with appropriate locations determined through the Local Plan. This process, the note advises, should be informed

and supported by an evidence base which explores different locations and considers heights which might be appropriate in any given area. The note stipulates that the identification of locations or the determination of proposals should be informed by an understanding of local place, character and historic significance. The guidance warns of the negative impacts tall buildings can have on the qualities of place valued by people who experience them if the siting, scale, or design is wrong and/or fails to demonstrate a consideration for the defining positive characteristics of a local area.

17.36. The note demonstrates HE's acknowledgement of the capability of high-quality tall buildings to deliver sustainable development in tandem with the conservation and promotion of the historic environment. The note emphasises the importance of good design in ensuring that tall buildings respond positively to their local context, especially within the historic environment, and the opportunity high-quality proposals can embody in terms of place-making, particularly within the context of wider regeneration schemes. In summary, the note promotes a best-practice approach to the consideration of tall buildings to deliver high quality, sustainable schemes.

Assessment Methodology and Significance Criteria

Scenarios Tested

17.37. Potential effects associated with the construction and operational phases of the Proposed Development will relate to indirect temporary visual/setting impacts and indirect permanent visual/setting impacts. The scenarios which will be used to assess the Proposed Development in both the construction and operational phases will be:

- Scenario 1: Baseline (existing Site, including developments currently under construction);
- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operational (as above);
- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operational (as above); and
- Scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational (as above) and cumulative developments.

The Study Area

17.38. A study area of 500m from the Site boundary has been determined by SLHA as being appropriate for the consideration of potential significant effects of the Proposed Development on the setting of heritage assets in the local area. The determination of the study area has been based on an understanding of the existing nature of the Site and its surroundings, heritage sensitivities in the locality of the Site, the form and character of the Proposed Development, a Zone of Theoretical Visibility ('ZTV') and has been further informed by professional judgement and experience in similar assessments. It is acknowledged that there are a number of heritage assets outside of the study area and in the wider setting of the Site.

17.39. Baseline data of the study area was collected utilising Historic England's Online Mapping tool (plotting structures identified on the National Heritage List for England) and MCC's available conservation-focused resources. Google Earth was also utilised as part of the baseline data collection.

17.40. Due consideration has been given to heritage assets outside of the 500m study area. It has been determined that it is probable there will be no potential for significant effects on these receptors due to separating distance and interposing built form and landscape. Notwithstanding this, heritage assets outside of the study area will still be considered with regard to any potential material impact to their setting or an appreciation of their significance in the forthcoming built heritage assessment and any effects identified; this will be informed by the verified views prepared (by Our Studio) to support the Heritage Impact Assessment as well as the Townscape and Visual Impact Assessments (prepared by Chris Burnett Associates).

Source of Effect

17.41. The built heritage chapter will identify and evaluate the nature and likelihood of the impacts of the Proposed Development, both permanent and temporary, in both the short term and long term, on built heritage receptors against clearly defined criteria. Indirect effects relate to changes to a heritage receptor's setting, i.e. changing the ability to appreciate the significance of a heritage receptor in the view, or other experiential effects which might change the setting of a heritage asset, such as increased levels of public activity in their locality. Direct effects relate to physical change to a heritage receptor through intervention to its fabric; there will be no direct heritage impacts as a result of the Proposed Development.

Significance Criteria

17.42. Criteria has been established to appraise a heritage asset's significance. Statutory criteria, as set out in the 'Principles of Selection for Listing Buildings', DCMS (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's criteria outlined in 'Conservation Principles, Policies and Guidance' (2008), are also considered in this assessment.

17.43. 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 has also been applied when considering sensitivity of views containing heritage assets. Indicative definitions for each of these ratings are outlined in Table 17.1 below:

Table 17.1: Significance Criteria for Determining the Value of Heritage Assets

Sensitivity	Definition of Receptor
Very High	• Grade I listed buildings / Grade I registered parks and gardens • World Heritage Sites
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. • Historic buildings of modest quality in their fabric or historical association.
Negligible	• Recorded on the HER in record form or as 'Find Sites' • buildings, structures, or designed landscape features, which detract from the architectural design, historic, communal, or townscape interest of the principal heritage asset.
Unknown / none	• Buildings/sites where the potential importance interest requires determination

	• Or sites determined to be of no heritage interest

Baseline Conditions

17.44. The Site does not contain any designated heritage assets and is not located in a Conservation Area. The Site currently comprises a brownfield site which is currently enclosed by low quality hoardings. Neighbouring sites associated with the wider Mayfield masterplan area enclose the Site to the north, east, and west, including Mayfield Park which is now complete. The Site is bound to the south by the A635.

17.45. The Site has an historic industrial identity, accommodating across different periods from the 18th century onwards, a dye works, tannery, and water meter works alongside workers' housing and a public house. The extant buildings on the site were redeveloped as a plastic and rubber works in the second half of the 20th century. The Site has since been cleared of all above-ground structures.

Heritage Baseline

17.46. The Site is not located in a conservation area, nor does it contain any listed buildings. No Non-Designated Heritage Assets ('NDHAs') have been identified within the Site or its setting.

Listed Buildings

17.47. Within 500m of the Site boundary, there is a total of 20 listed buildings. The eastern edge of Whitworth Street Conservation Area just falls within the 500m study area.

17.48. A ZTV has been prepared by Our Studio to inform the selection of viewpoints used to assess the Proposed Development and to understand the extent and nature of the visibility of the scheme in the local and wider townscape setting of the Site. The ZTV is also a helpful tool for indicating which heritage assets are likely to be affected by the Proposed Development through intervisibility. The ZTV has therefore been used to inform the scoping of heritage assets appraised in this Heritage Statement.

17.49. It is considered, from an interrogation of the ZTV, from an understanding of the nature of the townscape in the setting of the Site and the level of interposing built form, and from an understanding of the proposals, that a number of heritage assets (including listed buildings) will be unaffected by the Proposed Development. This does not necessarily mean that the Proposed Development will not be a visible feature of the asset's setting, but that its presence does not materially affect an appreciation and understanding of the asset's special interest, including its architectural and historical interest. In the case of some heritage assets (e.g. the Grade II listed Sculptural Wall to the east of the ID Manchester Campus), it is judged that the wider townscape setting of this particular structure contributes little to an appreciation of its significance, and therefore it will be unaffected by the Proposed Development. The following listed buildings have subsequently been scoped out of this assessment:

- Crusader Works (Grade II)
- Sculptural Wall (Grade II)
- Apollo Theatre (Grade II)
- Milepost beside Railings of Ardwick Park (Grade II)
- Railings of Ardwick Green (Grade II)

17.50. The following listed buildings are considered to have the potential to be affected to some degree by the Proposed Development:

- 21 and 23, Manor Street (Grade II) - No. 1 on Figure 17.1
- 25, Manor Street (Grade II) - No. 2 on Figure 17.1
- 27, Manor Street (Grade II) - No. 3 on Figure 17.1
- 27, Ardwick Green North (Grade II) - No. 4 on Figure 17.1
- Milford House (Grade II) - No. 5 on Figure 17.1
- 31, Ardwick Green North (Grade II) – No. 6 on Figure 17.1
- Former Church of St Thomas (Grade II) - No. 7 on Figure 17.1
- Drill Hall (Grade II listed) - No. 8 on Figure 17.1
- War Memorial (Grade II listed) - No. 9 on Figure 17.1
- Fenton House (Grade II) - No. 10 on Figure 17.1
- 2 and 4, Palfrey Place (Grade II) - No. 11 on Figure 17.1
- Train Shed and Undercroft at Manchester Piccadilly Station (Grade II) - No. 12 on Figure 17.1
- Former Goods Offices to Piccadilly Station (Grade II) - No. 13 on Figure 17.1
- Police and Fire Station (Grade II*) - No. 14 on Figure 17.1
- Star and Garter Public House (Grade II) – No. 15 on Figure 17.1
- Manchester South Junction and Altrincham Railway Viaduct (Grade II) – No.16 on Figure 17.1

17.51. The location of these heritage assets in relation to the Site boundary are shown on map at Figures 17.1. The full heritage baseline is presented in Table 17.2.

Conservation Areas

17.52. Conservation areas are designated areas (under the authority of the LPA) that are deemed to have special architectural or historical interest, the character or appearance of which it is desirable to preserve or enhance. Whitworth Street Conservation Area is the only such designation within 500m of the Site boundary. Given the degree of visual separation between the Site and the conservation area, and the level of interposing development, it is considered that the Proposed Development is unlikely to materially affect an appreciation and understanding of the conservation area's significance. It is therefore scoped out of the assessment.

17.53. The ZTV also suggests that the Proposed Development has the potential to be visible from both Ancoats and Stevenson Square Conservation Areas, both of which are located outside the 500m study area. Given the separating distance between these assets and the Site and the level of interposing development, it is considered that the Proposed Development will not materially affect an appreciation of the significance of these heritage assets.

Non-Designated Heritage Assets

17.54. Local planning authorities may identify non-designated heritage assets ('NDHA's) (non-statutory designations). These are buildings, monuments, sites, places, areas, or landscapes identifies as having a degree of significance (mostly on a local scale) meriting consideration in planning decisions, but which are

not formally designated heritage assets. In some areas, local authorities identify some non-designated heritage assets as 'locally listed'. Some non-designated assets, such as buildings of good local character or sites of archaeological interest, are of heritage significance but not at a level that would pass the threshold for national designation. Such assets can, singularly and collectively, make an important, positive contribution to the local environment.

17.55. For the purposes of this assessment, one structure has been identified through the consultation period with MCC and other relevant consultees as a NDHA:

- Mayfield Depot – No. 17 on Figure 17.1.

17.56. The NDHA is scoped into the subsequent assessment.

Summary of Heritage Baseline

17.57. The heritage baseline is summarised in Table 17.2 below:

Table 17.2: Heritage Baseline

Name of Heritage Asset	Designation	Heritage Value
Star And Garter Public House	Grade II	Medium
Milford House	Grade II	Medium
25, Manor Street	Grade II	Medium
27, Manor Street	Grade II	Medium
21 and 23, Manor Street	Grade II	Medium
27, Ardwick Green North	Grade II	Medium
Former Goods Offices to Piccadilly Station	Grade II	Medium
Train Shed And Undercroft at Manchester Piccadilly Station	Grade II	Medium
Drill Hall	Grade II	Medium
Former Church of St Thomas	Grade II	Medium
War Memorial	Grade II	Medium
Fenton House	Grade II	Medium
2 And 4, Palfrey Place	Grade II	Medium
31, Ardwick Green North	Grade II	Medium
Police and Fire Station	Grade II*	High
Manchester South Junction and Altrincham Railway Viaduct	Grade II	Medium
Mayfield Depot	NDHA	Low-Medium

Identification and Evaluation of Likely Significant Effects

17.58. The assessment methodology for the Historic Built Environment is a synthesis of established guidance, best practice and professional judgement. In accordance with an adapted form of the methodology set out in the ICOMOS Guidance on 'Heritage Impact Assessments' (January 2011), in which the value of heritage attributes is assessed in relation to statutory designations, and priorities or recommendations set out in national research agendas, and ascribed values. Professional judgement is then used to determine the importance of the resource. The heritage assets 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.

17.59. A Heritage Statement (Appendix 17.1) has been prepared to support the Built Heritage Chapter and accompany the Planning Application. The Heritage Statement provides a detailed and robust baseline assessment of the identified heritage assets surrounding the Site, considering their significance and to what extent their setting contributes to an appreciation of this.

17.60. Both reports are prepared in general accordance with or with reference to the following legislation, policy and guidance:

- Planning (Listed Buildings & Conservation Areas) Act 1990;
- National Planning Policy Framework (NPPF) Conserving and enhancing the historic environment (2024);
- Historic England guidance: Conservation Principles Policies and Guidance (2008);
- Historic England's Good Practice Advice Note 2: Managing Significance in Decision-Taking in the Historic Environment (2015);
- Historic England's Good Practice Advice Note 3: The Setting of Heritage Assets (2017);
- Historic England's Advice Note 12: Statements of Heritage Significance (2019); and
- Historic England's Advice Note 4: Tall Buildings (2022).

17.61. The Heritage Statement considers the potential indirect impact of the Proposed Development on heritage assets (i.e. change to setting or through indirect visual impact) of sensitive receptors within the defined study area (and beyond it where necessary). The Heritage Impact Assessment ('HIA') utilises relevant key views (prepared as Accurate Verified Views, 'AVRs') to inform an understanding of the potential effects of the Proposed Development. The selection of viewpoint locations has been informed by ZTV Studies (produced by Our Studio). The views have been identified in consultation with the LPA and agreed as part of the scoping exercise. A total of 16 key views have been identified for the purposes of the EIA, of which a number are relevant for the HIA, although the wider set is interrogated within the Heritage Statement to understand the overarching visual impact of the Proposed Development. The proposed representative viewpoint locations are provided at Figure 17.2.

17.62. In order to assess the potential magnitude and significance of effect of the indirect impact of the Proposed Development on the setting of heritage assets, the following criteria is considered:

- The sensitivity and proximity of receptors (i.e. heritage assets);
- The nature of the existing views;
- The degree of change to existing views and the visibility of the Proposed Development;
- The availability and amenity of alternative views;

- Other experiential changes to the setting of receptors such as increased activity levels.

17.63. The assessment section of the Chapter will:

- Describe the potential impacts to the heritage assets as a result of the Proposed Development; and
- Outline suitable mitigation measures to deal with the potential effects of the Proposed Development on heritage assets.

17.64. Tables 17.3-17.5 below set out the methodology for determining the magnitude of impact of Proposed Development, the sensitivity of a receptor, and the overarching 'Impact Significance', i.e. the overall effect of the Proposed Development on the receptor.

Table 17.3: 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 circumstance/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation

17.65. The sensitivity of a receptor is based on relative importance of the receptor using the scale in the table below:

Table 17.4: Methodology for Determining Sensitivity

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

Table 17.5: Impact Significance Matrix

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

Construction Phase

17.66. During the demolition and construction phase, works related to the Proposed Development will trigger various construction impacts which in turn will temporarily and indirectly impact the heritage assets within the setting of the Site.

17.67. 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 indirect issues such as demolition, dust, noise, site hoarding, scaffolding, increased pressure on local road networks through presence of construction traffic and appearance of construction machinery in views which also take in heritage assets.

17.68. A summary of the construction effects on scoped-in heritage assets is provided at Table 17.6 below.

Operational Phase

17.69. The assessment methodology and approach to the relative impact on heritage assets during the completed / operational phase has been assessed utilising the suite of application plans and drawings, the Design and Access Statement ('DAS') prepared by the project architect and the verified views prepared by Our Studio, as well as the application of professional judgement.

17.70. A summary of the operational effects on scoped-in heritage assets is provided at Table 17.7 below.

Cumulative Effects

17.71. The cumulative assessment within this Chapter considers the cumulative effect of the Proposed Development in conjunction with other developments in the local and wider townscape which, when considered individually might be insignificant, but when considered together could create a significant cumulative effect.

17.72. The cumulative schemes which are a consideration of this assessment are identified at Appendix 2.2 of this ES.

Mitigation Measures

Construction Phase

17.73. During the construction phase, works related to the Proposed Development will trigger various construction impacts which in turn will temporarily and indirectly affect heritage assets within the setting of the Site.

17.74. 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 indirect issues such as dust, noise, site hoarding, scaffolding, increased pressure on local road networks through presence of construction traffic ad appearance of construction machinery in views which also take in heritage assets.

17.75. Prior to any demolition, a method statement by a suitably trained contractor should be submitted to the council. This should include relevant protection measures to avoid unnecessary dust, noise and debris impacting upon the surrounding built environment.

17.76. Recommended measures, to be included within a Construction Environmental Management Plan include:

- Use of high quality hoardings;
- Dust management;
- Vibration monitoring;
- Regular cleaning of roads and the public realm surrounding the site;
- Edge protection to be affixed whilst concreting operations are in place;
- Implementation of a traffic management plan; and
- Vibration monitoring.

17.77. A summary of construction effects on scoped-in heritage assets is provided at Table 17.6 below.

Operational Phase

17.78. As stipulated within Historic England's Tall Building Guidance (March 2022) "good design can ensure that tall buildings respond positively to the character of the surrounding area and the historic environment and can be used creatively to achieve sustainable outcomes". Mitigation for the impacts derived from the Proposed Development on heritage assets in the operational phase is embedded in the high-quality architecture and design of the buildings, and the regeneration of a brownfield site. This includes the choice of high-quality materials and detailed design elements which respond and are complementary to the surrounding townscape, the provision of high-quality public realm with hard and soft landscaping, the activation of frontages across the Site, and enhanced connections with neighbouring developments.

17.79. The assessment methodology and approach to the relative impact on heritage assets during the operational phase has been assessed utilising the suite of application plans and drawings, the Design and Access Statements ('DAS') by ShedKM and Studio Egret West, the Accurate Visual Representations ('AVRs') prepared by Our Studio, and professional judgement.

17.80. A summary of the operational effects on scoped-in heritage assets is provided at Table 17.7 below.

Residual Effects

17.81. The residual impacts, i.e. the remaining impacts of the Proposed Development following implementation of proposed mitigation, are summarised in the Construction and Operational phases in Tables 17.6 and 17.7 below.

Construction Phase

Table 17.6: Residual Effects in Construction Phase

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
21 and 23, Manor Street (Grade II listed)	Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
25, Manor Street (Grade II listed)	Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
27, Manor Street (Grade II listed)	Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
27, Ardwick Green North (Grade II listed)	Minor-Negligible Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
Milford House (Grade II listed)	Minor-Negligible Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
31, Ardwick Green North (Grade II listed)	Negligible-Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
Former Church of St Thomas (Grade II listed)	Negligible-Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
Drill Hall (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
War Memorial (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Fenton House (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
2 and 4, Palfrey Place (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Train Shed and Undercroft at Manchester Piccadilly	Neutral	N/A	N/A	Neutral

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Station (Grade II listed)				Temporary
Former Goods Offices to Piccadilly Station (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Police and Fire Station (Grade II* listed)	Neutral	N/A	N/A	Neutral Temporary
Star and Garter Public House (Grade II listed)	Negligible-Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
Manchester South Junction and Altrincham Railway Viaduct (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Mayfield Depot (NDHA)	Neutral	N/A	N/A	Neutral Temporary

17.82. Table 17.6 has identified the following potential impacts of the Proposed Development on heritage assets in the Construction Phase:

- 4 x Negligible-Minor Adverse impacts
- 4 x Negligible Adverse impacts
- 9 x Neutral impacts

17.83. All the impacts on heritage assets during the Construction Phase are indirect and temporary. The temporary, indirect effects on other heritage assets relate to the environmental impact on their setting resultant from the demolition and construction activities including noise, dust, vibrations, visual impacts from hoardings and construction equipment and scaffolding, and levels of traffic related to the works on Site and moving through the local area. In such instances where the construction activities affect an appreciation of the significance of heritage assets, it is emphasised that these works are predicted to be a short-medium term duration and are the impacts are therefore temporary in their nature.

Operational Phase

Table 17.7: Residual Effects in Operational Phase

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
21 and 23, Manor Street (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor Adverse Permanent
25, Manor Street (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor Adverse Permanent
27, Manor Street (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor-Moderate Adverse Permanent
27, Ardwick Green North (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
Milford House (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
31, Ardwick Green North (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
Former Church of St Thomas (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor Adverse Permanent
Drill Hall (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
War Memorial (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Fenton House (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
2 and 4, Palfrey Place (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Train Shed and Undercroft at Manchester Piccadilly	Neutral	N/A	N/A	Neutral

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Station (Grade II listed)				Permanent
Former Goods Offices to Piccadilly Station (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Police and Fire Station (Grade II* listed)	Neutral	N/A	N/A	Neutral Permanent
Star and Garter Public House (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
Manchester South Junction and Altrincham Railway Viaduct (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Mayfield Depot (NDHA)	Neutral	N/A	N/A	Neutral Permanent

17.84. Table 17.7 has identified the following potential impacts of the Proposed Development on heritage assets in the Operational Phase:

- 1 x Minor-Moderate Adverse impact
- 3 x Minor Adverse impacts
- 4 x Negligible-Minor Adverse impacts
- 9 x Neutral impacts

17.85. The Proposed Development will deliver a collection of new tall buildings that herald the next phase of the regeneration of the Mayfield area. The heritage views assessment contained within the Heritage Statement (Appendix 17.1) has provided an insight into the degree to which the new buildings will be visible across the local and wider townscape setting of the Site, including those areas which are sensitive in heritage terms.

17.86. The Heritage Impact Assessment has identified several Minor and Negligible-Minor Adverse indirect impacts on heritage assets, particularly those listed buildings which form the historical enclave at Ardwick Green. The adverse impacts identified are derived in the degree to which the Proposed Development detracts from or diminish an appreciation of the architectural and historical significance of these listed buildings in localised views, both as individual buildings and as an important group of historic buildings.

17.87. Of these impacts, the most significant is deemed to be the potential effect on No.27 Manor Street, where a Minor-Moderate Adverse impact has been identified, and the Former Church of St Thomas, both Grade II

listed, where a Minor Adverse impact has been identified. In both cases, and particularly with regard to the early 19th century house, it is considered that the Proposed Development, through its scale and prominence in views, has the potential to diminish the architectural prominence of the buildings and their primacy as key townscape buildings in the streetscape. Lesser adverse impacts are identified on other buildings which enclose the park.

17.88. For the majority of listed buildings in the study area, it is likely that the Proposed Development will be visible from some part of their setting, given the scale and form of the buildings proposed. In most cases, it has been judged that the impact will be Neutral, by which it is considered likely that, even if visible, the Proposed Development will not affect how or the degree to which the significance of the heritage asset is appreciated and understood.

17.89. The design quality of the Proposed Development and the activation and regeneration of a brownfield site forms part of the embedded mitigation of the scheme and has been factored into the Heritage Impact Assessment.

Cumulative Effects

17.90. The assessment of views within the Heritage Statement has demonstrated that the Proposed Development will be experienced in tandem with a number of other schemes, particularly those being developed in plots which are in close proximity to the Site. Notwithstanding the scale and proximity of a number of the cumulative schemes, it is considered that the effects identified on heritage assets from the Proposed Development in isolation (and defined in Tables 17.6 and 17.7 above) will remain the same in the cumulative context.

17.91. That is not to say that cumulative schemes will not change to a small degree the impact of the Proposed Development on the setting of heritage assets, but that they will not be impactful to an extent where any of the individual impacts identified on heritage assets is judged to increase or decrease to any significant degree (i.e., in the case of listed buildings at Ardwick Green, and particularly No. 27 Manor Street, to change from a Minor-Moderate Adverse impact to a Moderate Adverse impact).

Monitoring

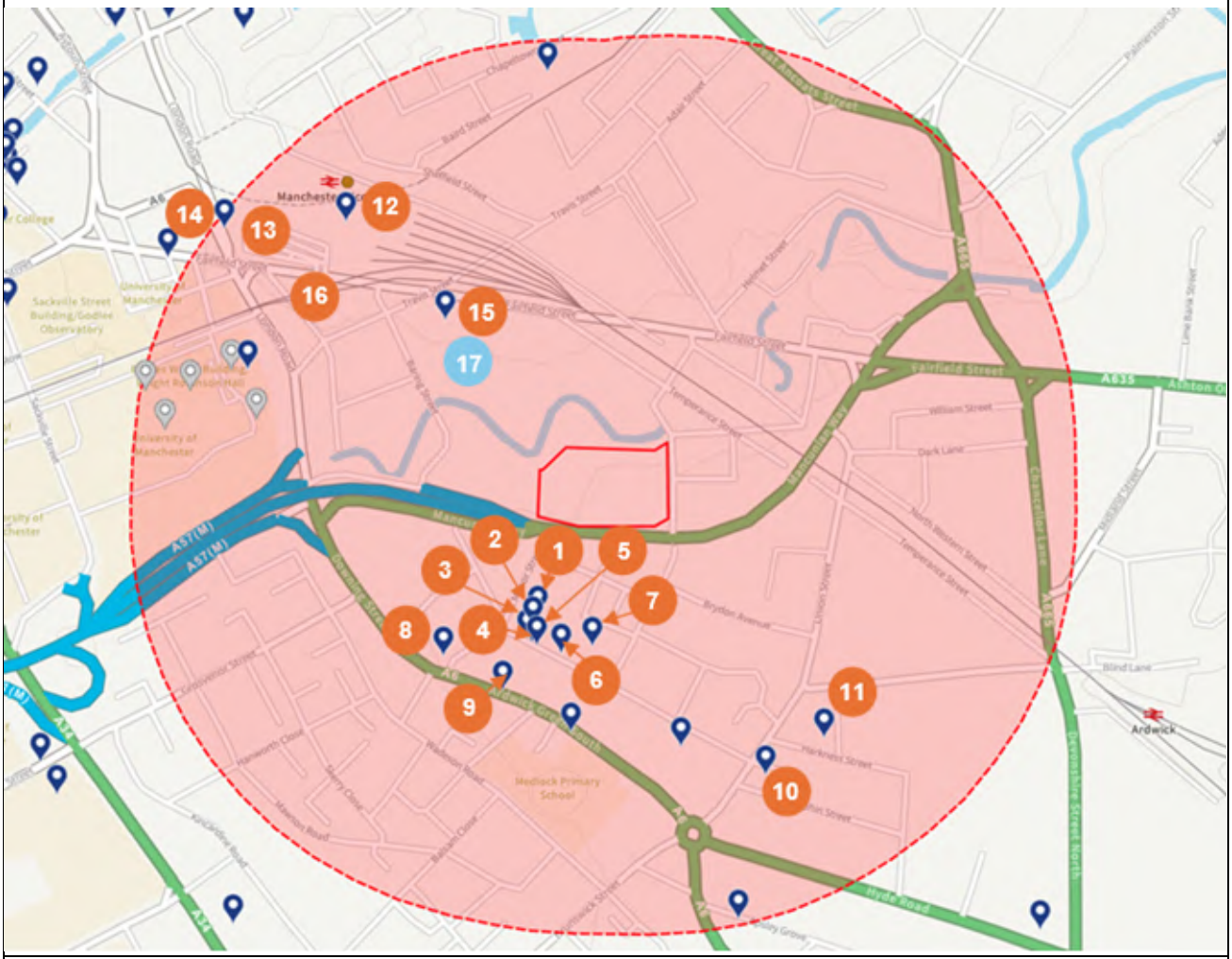
17.92. As stated above, a suitable CEMP should be produced in order to ensure appropriate monitoring during the construction stage.

Reference List

17.93. This ES Chapter has been prepared in reference to the following:

- DCMS's Principles of Selection for Listing Buildings (2018);
- 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 Understanding Place: Conservation Area Designation, Appraisal and Management (2019); and
- Historic England's Good Practice Advice Note 4: Tall Buildings (2022).

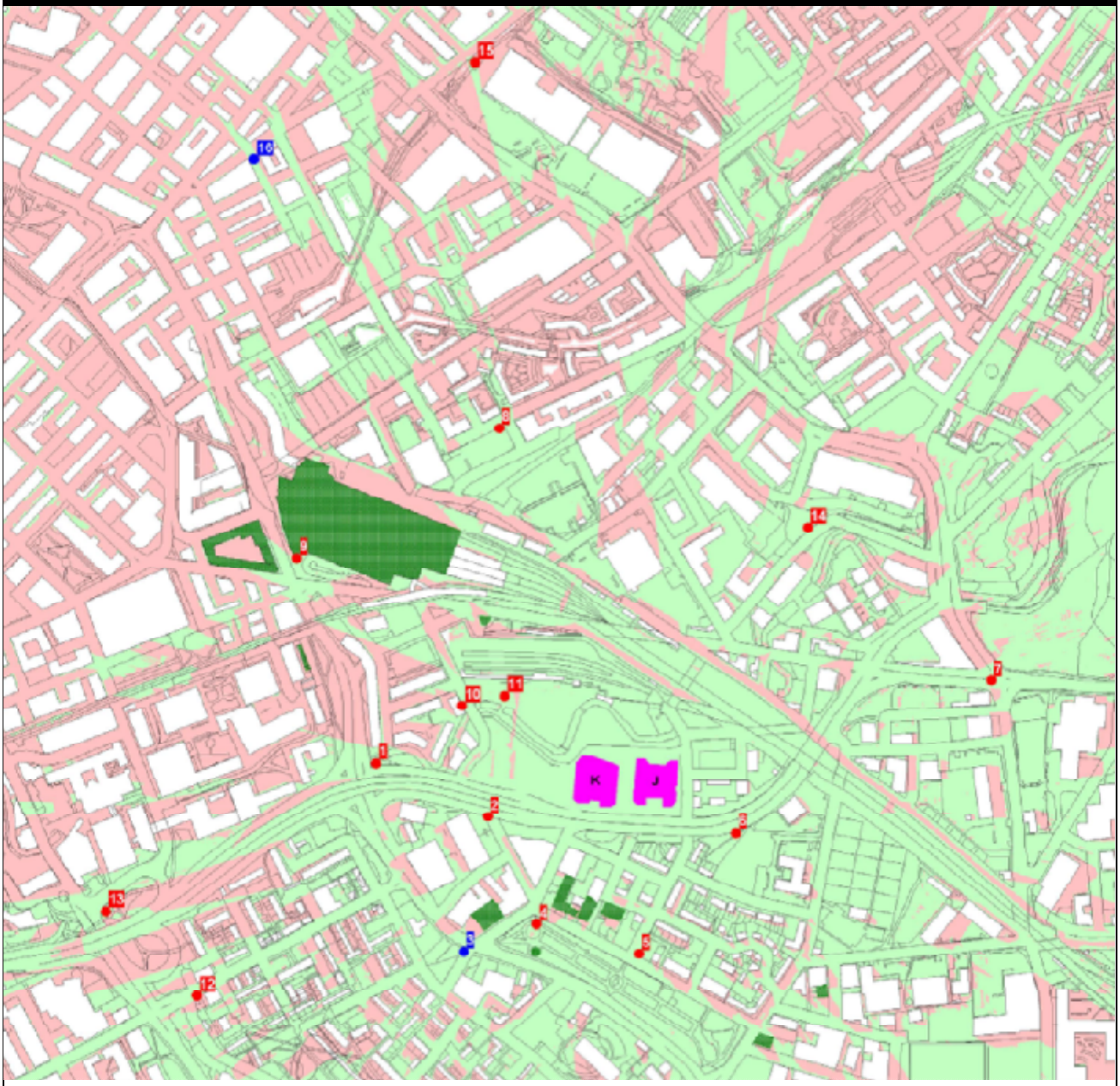
Figure 17.1



Heritage Asset Plan showing location of Listed buildings (blue orange markers) and NDHAs (pale blue markers) scoped into this ES Chapter within the setting of the Site. The red shaded area indicates a 500m area from the Site boundary (indicatively shown in red). Source: Historic England, National Heritage List for England (NHLE).

To Scale: No	Date: December 2024

Figure 17.2



ZTV showing potential visibility (in light green) of the Proposed Development in the setting of the Site, identified by the pink shading of Plots J and K. Listed buildings are shaded in dark green and the viewpoints used to test the proposals are identified in red and blue. Those which have been utilised for the purposes of the Heritage Impact Assessment are Views 3, 4, 5, 9 and 11. Further information on this is outlined in the Heritage Statement at Appendix 17.1. Source: Our Studio.

To Scale: No	Date: December 2024

18. Transport and Access

Introduction

18.1. This Chapter of the ES has been prepared by Civic Engineers and assesses Transport and Access. This Chapter is accompanied by the following appendices:

- Appendix 18.1: Scoping in and out of Committed Developments
- Appendix 18.2: Sensitivity of Receptors along Road Links in Study Area
- Appendix 18.3: CrashMap – Identification of Collision Clusters
- Appendix 18.4: Baseline traffic flows
- Appendix 18.5: Construction Phase change in AADT and HDV Flow
- Appendix 18.6: Fear and Intimidation on and by Road Users – Construction Stage Calculations
- Appendix 18.7: Operational Phase change in AADT and HDV Flow
- Appendix 18.8: Fear and Intimidation on and by Road Users – Operational Stage Calculations
- Appendix 18.9: Cumulative Effects AADT and HDV Change Study
- Appendix 18.10: Fear and Intimidation on and by Road Users – Cumulative Assessment

18.2. The authors of this Chapter have the following technical competence:

Technical Competence in Traffic and Transport		
	Lead Author	Reviewer
Name	Emily Ingham	Leah Stuart
Company	Civic Engineers	Civic Engineers
Qualifications/Accreditations relevant to technical area	MEng, MCIHT	BEng, CEng, MICE
Does the practitioner hold any IEMA qualification?	No	No
Company hold IEMA QMark?	No	
Years technical experience (in technical area)	10	20+
Number of EIA's delivered to date	10	20+

Assumptions and Limitations

18.3. To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- Detailed information regarding the construction methodology and total forecast construction traffic movements was taken from the information provided for similar schemes at Liverpool Waters, Upper Brooke Street in Manchester and Greenwich Peninsular in London, with pro-rata calculations used to relate to the GFA and/or number of homes at the Proposed Development. It is the professional judgement of the Transport Consultant producing this Chapter that these are comparable schemes.

- Assumptions related to the calculation of the trip generation and distribution, and inclusion of baseline traffic are set out in the Transport Assessment which is submitted with the planning application for the Proposed Development.

Legislative and Policy Context

18.4. The following legislation, policy and guidance are summarised in the accompanying Transport Assessment submitted with the planning application.

Policy

18.5. Local Development Plan:

- Manchester Core Strategy 2012-2027 (2012) including Parking Requirements;
- Places for Everyone (PfE) Joint Development Plan (2024); and
- Saved Policies of the Manchester Unitary Development Plan (2005).

18.6. Other material considerations:

- National Planning Policy Framework ('NPPF') (2024);
- Mayfield Strategic Regeneration Framework (2018) and other adjacent Frameworks including Ardwick NDF and IDM Masterplan;
- Manchester Climate Change Framework 2020-25;
- Greater Manchester Transport Strategy 2040; and
- Manchester City Centre Transport Strategy 2040 (2021).

Guidance

18.7. The following guidance informs the assessment of effects:

- Government's National Planning Practice Guidance; Travel Plans, Transport Assessments and Statement;
- IEMA Guidelines: Environmental Assessment of Traffic and Movement, 2023, which is here after referred to in this Chapter as the 'IEMA Guidelines' provides an update to the above and is considered in the assessment and referenced in this Chapter.

Assessment Methodology and Significance Criteria

18.8. The following scenarios are included in the assessment of Transport effects of the Proposed Development:

- Scenario 1: Baseline (existing Site, including developments currently under construction);
- Scenario 3: Baseline with Proposed Development Phase 1 and Phase 2 under construction;
- Scenario 4: Baseline with Proposed Development Phase 1 and Phase 2 operational;
- Scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational and cumulative developments; and

- Scenario 6: Baseline with Cumulative Development only. This provides a scenario to which to compare the future scenarios which do include the Proposed Development, meaning that the impact of the Proposed Development can be isolated and analysed.

18.9. Scenario 2 has been excluded from this Assessment as the worst case scenario for traffic generation is during Scenario 3, and therefore Scenario 2 does not need to be assessed.

Study Area

18.10. The approach to define the study area for the environmental effects on the highway is firstly to use Rules 1 and 2 defined by the IEMA Guidelines.

18.11. IEMA Guidelines state that *'following the determination of a study area, it is recommended the competent traffic and movement expert applies two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment':*

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

- *Rule 2: Include highway links of high sensitivity where traffic flows have increased by 10% or more.*

18.12. The change in annual average daily traffic (AADT) with the addition of construction traffic (Scenario 1 and 3) and Proposed Development traffic (Scenarios 4 and 5) will be used to understand which highway links should be included because of flows increasing by more than 30% (Rule 1). To understand if Rule 2 applies to any highway links, an exercise was carried out to define the sensitivity of the links in the vicinity. If any links are of high sensitivity where traffic flows increase by 10% or more, they are included in the Study Area.

18.13. These rules are used for all effects except 'Road User and Pedestrian Safety'. For this, a review of collision data within the study area has been carried out, and collision clusters identified. The impact of the Proposed Development on these clusters is assessed.

Background Studies

18.14. Table 18.1 summarises all studies / surveys / analysis / evaluations that will be undertaken to inform the assessment presented within this Chapter.

Table 18.1: Background studies

Study	Overview
Transport Baseline	Transport Baseline is included at Paragraph 18.16-18.33.
Road collision information	CrashMap has been used to identify collision clusters, presented at Appendix 3.
Road Traffic Statistics	Review of DfT annual traffic by vehicle type in vicinity for all road links except Link 4, Fairfield Street west, which uses data from TfGM.
Vehicle Trip Distribution	The trips generated by the development have been distributed on the highway network using a gravity model to distribute LGV, OGV and taxi movements. For Construction movements, trips have been distributed to the strategic road network.

Source of Effect

18.15. Table 18.2 outlines the effects that are considered likely to be significant or are subject to change. This approach was agreed with MCC via feedback to the EIA Scoping Report, and have been assessed and are reported within this Chapter.

Table 18.2. Effects likely / significant or are subject to change.

Effect	Receptors	Applicable stage
Severance of communities	Pedestrians and cyclists	Construction and Operation
Non-motorised user delay	Pedestrians and cyclists	Construction and Operation
Non-motorised user amenity	Pedestrians and cyclists	Construction and operation
Fear and intimidation on and by road users	Vehicle drivers / occupants, pedestrians and cyclists	Construction and Operation
Road user and pedestrian safety	Vehicle drivers / occupants, pedestrians and cyclists	Construction and Operation

Significance Criteria

Baseline Conditions

Walking

18.16. There are footway/cycleways to either side of Mancunian Way that are approximately 3.5m wide, however there are no pedestrian crossings over Mancunian Way in the immediate vicinity of the site. The closest pedestrian crossing over Mancunian Way is 320m to the east where there is a signal-controlled crossing at the junction with Fairfield Street. To the west there is a signal-controlled crossing around 430m from Hoyle Street at the junction between Mancunian Way and the A6.

18.17. To the north of the site there are a network of footways, all around 1.8m wide, however these are currently in a poor condition and subject to frequent incidences of pavement parking. The pedestrian link to Manchester Piccadilly is along Temperance Street and Fairfield Street. Fairfield Street benefits from footways that are around 3m wide, and most road crossings are uncontrolled with dropped kerbs and tactile paving. Some junctions have wide crossings. The junction of Fairfield Street and Travis Street has one arm where the pedestrian crossing is roughly 25m, here the crossing facilities are inadequate.

Cycling

18.18. There are no cycle facilities in the immediate vicinity of the site, but several routes are accessible a short distance away.

18.19. National Cycle Route (NCR) 66 can be followed from Manchester Piccadilly north past Rochdale, from here it continues east through Leeds towards Hull.

18.20. To the west, the on-road cycle lanes on Grosvenor Street connect with the segregated cycle route that runs along Oxford Road.

18.21. To the east, there is a route along the Ashton Canal or local route 86 which follows the River Medlock river valley. Both of these routes connect to NCR 60.

Bus

18.22. The closest bus stops to the site are on Fairfield Street around 250m to the north of the site. This pair of stops are used by the number 219 bus. The 220 and 221 also use these stops but between them only operate just eight services a day, only on weekdays. There are also bus stops on London Road that are served by several other bus routes, but these are a little further away.

18.23. The 219 operates a service between Manchester and Ashton-under-Lyne and Stalybridge, it runs at frequent intervals of not more than 10 minutes during peak hours. During the week, services start at 0425 from Ashton and 0500 from Manchester. Monday to Thursday, the last services depart at 2333 and 2350 from Ashton and Manchester respectively, on a Friday night there are also departures at 0120 and 0240 from Manchester. Saturday services start before 0600 and finish at the same time as the Friday night service, peak frequencies on Saturday are at intervals of not more than 10 minutes. Sunday services start before 0700, finishing at the same time as weekday services, peak frequencies are also at intervals of not more than 10 minutes.

18.24. Although there is only one frequent bus service within 400m of the site, this service provides at least six buses an hour in each direction and can be used to connect with a range of other bus services and the Metrolink network at Piccadilly Gardens.

18.25. The nearest tram stop is at Manchester Piccadilly, and 600m (8-min walk) from the site. Services to Ashton-under-Lyne, Bury, Eccles, and Altrincham all depart from here. All services operate a peak service of 12-minute frequency, except for the Ashton line which runs every 6-minutes.

Train Access

18.26. The nearest train station to the Proposed Development is Manchester Piccadilly station around 600m (8-minute walk) to the west of the site, shown on Figure 18.5. This is the busiest station in Manchester with an estimated 30.3M entries and exits in the financial year 2018-19.

18.27. Manchester Piccadilly has frequent commuter rail services throughout northwest England. It is open and staffed 24 hours a day, seven days a week. The station also provides direct national services to London, Birmingham, Glasgow, Edinburgh, Liverpool, and Leeds.

18.28. There are cycle stands and compound at the station that accommodate up to 43 bicycles.

Local Highway Network

18.29. The Site is bounded by the Manchester ring road (Mancunian Way) to the south with access via Hoyle Street. The Hoyle Street/Mancunian Way junction is left-in/-out only so only accessible to traffic travelling anticlockwise on the ring road.

18.30. The ring road provides connections to all the radial routes into and out of Manchester which in turn connect to the strategic motorway network in the north of England.

18.31. The Site is therefore very well located for access to the strategic highway network allowing for connections around the north of England and nationwide.

Baseline Traffic (Scenario 1)

18.32. Appendix 18.1 lists out the Committed Developments which have been considered as part of this EIA. The following Committed Developments are included in the Baseline Traffic Flows:

- Land At Bennett Street Manchester M12 5NL Ref:134504/FO/2022

18.33. Baseline traffic will be presented in a table at Appendix 18.4.

Identification and Evaluation of Likely Significant Effects

Methodology for Determining Impact Magnitude

18.34. The magnitude of change during the peak year of Construction ("Scenario 3: Baseline with Proposed Development Phase 1 and Phase 2 under construction) will be considered as the change experienced when compared with "Scenario 1: Baseline, including developments currently under construction" at the sensitive receptor and will be considered on a scale of large, medium, small or negligible.

18.35. As identified within the 2023 IEMA Guidelines, the magnitude of each effect represents the level of change from the baseline conditions.

18.36. As an overview Table 18.3 sets out the Magnitude or Impact. A description of how the magnitude of change for each effect set out in Table 18.2 is determined more specifically is detailed below.

Table 18.3. 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 circumstance/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation

Severance of Communities

18.37. The IEMA Guidelines paragraph 3.13 states that "severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure."

18.38. The measurement for assessing severance is difficult to predict as according to the Guidelines for the Environmental Assessment of Traffic and Movement, 2023: "the correlation between the extent of severance and the physical barrier of a road is not clear and there are no predictive formulae which give simple relationships between traffic factors and levels of severance."

18.39. Nevertheless, the IEMA guidelines refers to the Department for Transport's 1983 Manual for Environmental Appraisal and suggests using the range of indicators for determining the magnitude of change in severance of communities as set out in Table 18.3.

Table 18.4. Severance of Communities Indicator Thresholds

Magnitude of Impact	Criteria for assessing impact
Magnitude of Change	Change in traffic flow
No Change	No Change
Negligible	< 30%
Minor	30% - 60%
Moderate	60% - 90%
Major	> 90%

18.40. However, it is noted that caution will be observed when applying these thresholds to very low baseline flows which are unlikely to experience severance impacts even with high percentage changes in traffic.

Non-motorised User Delay

18.41. The IEMA guidelines note that a change in the volume, composition and/or speed of traffic may affect the ability of a person to crossroads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site. The guidelines do not set any thresholds for assessing non-motorised user delay, recommending instead that assessors use their judgement to determine whether non-motorised user delay constitutes a significant effect. In densely populated areas with highly sensitive, receptors, it may be necessary to quantify the number of pedestrians impacted.

18.42. There is a relationship between non-motorised user delay and increased traffic volume. On this basis the significance of the change in traffic magnitude on Severance of Communities is used as a suitable measure of the significance of the change in traffic magnitude on non-motorised user delay.

Non-motorised User Amenity

18.43. With respect to 'Non-motorised User Amenity' this is described in the IEMA guidance as 'relative pleasantness of a journey'. It is affected by traffic flow, traffic composition, footway width and separation from the carriageway. The IEMA 1993 guidelines suggested a tentative threshold for judging the significance of a change in pedestrian amenity where the traffic flow (or the HGV component) is halved or doubled. The 2023 guidance suggests that thresholds are expressed as a starting point and have been adopted in considering the significance of effect. However, the IEMA guidelines state that any assessment of amenity should pay full regard to specific local conditions.

Fear and Intimidation on and by Road Users

18.44. A further environmental impact that affects people is the fear and intimidation created by all moving objects. This can include motorcycles, cars, lorries, and buses, and it also has to consider other modes of travel, including horses, cycles, mobility scooters, e-scooters and e-cycles if appropriate. The extent of fear and intimidation is dependent on heavy vehicle composition, the speed vehicles are passing and proximity of traffic to people.

18.45. There is no commonly agreed guidance on the thresholds for estimating levels of danger and in the absence of such, the updated IEMA guidance put forward a weighting system to help assessors provide a first approximation of the likelihood of pedestrian fear and intimidation. This is assessed based on the degree of

hazard to pedestrians by average traffic flow, 18-hour heavy vehicle flow and average speed over an 18-hour day in miles/hour. The degree of hazard is assessed with reference to the established thresholds, and a score provided for each combination on a highway link under consideration (see Table 18.4).

Table 18.5. Fear and Intimidation Degree Of Hazard Levels of Fear and Intimidation

Average traffic flow over 18-hour day –all vehicles / hour 2-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (c)	Degree of hazard score
+1,800	+3,000	->40	30
1,200–1,800	2,000–3,000	30–40	20
600–1,200	1,000–2,000	20–30	10
<600	<1,000	<20	0

18.46. The total score from all three elements is combined to provide a 'level' of fear and intimidation for all three elements. The thresholds suggested in the IEMA guidelines are set out in Table 18.5.

Table 18.6. Levels of Fear and Intimidation

Level of fear	Total hazard score (a) + (b) + (c)
Extreme	71+
Great	41-70
Moderate	21-40
Small	0-20

18.47. The magnitude of impact is approximated with reference to the changes in the level of fear and intimidation from baseline conditions as set out in Table 18.6.

Table 18.7. Fear and Intimidation Magnitude of Impact

Magnitude of Impact	Change in step/traffic flows from baseline conditions
Major	Two step changes in level
Moderate	One step change in level, but with • >400 vehicle increase in average 18hr average two-way all vehicle flow; and/or • >500 hv increase in total 18hr hv flow
Minor	One step change in level, with • <400 vehicle increase in average 18hr average two-way all vehicle flow; and/or

Magnitude of Impact	Change in step/traffic flows from baseline conditions
	• <500 hv increase in total 18hr hv flow
Negligible	No step changes

Road User and Pedestrian Safety

18.48. The IEMA guidelines highlight that professional judgement will be needed to assess the implications of local circumstance or factors which may increase or decrease the risk of collisions, e.g. junction conflicts. The IEMA guidelines encourage assessors to review the baseline conditions to identify any collision clusters and assess the effects of additional development traffic for all users (including vulnerable groups).

18.49. Note that collision clusters were identified in the following junctions, as shown at Appendix 18.3:

- The junction of Fairfield Street east (Link 5) / Pin Mill Brow / Ashton Old Road (Link 7) / Chancellor Lane (Link 8)
- A6 London Road north (Link 10)

18.50. At the locations where there are collision clusters, the increase in AADT will form the basis for understanding the magnitude of change, as set out in Table 18.8.

Table 18.8 - Road User and Pedestrian Safety Indicator Threshold

Magnitude of Change	Change in traffic flow
No Change	No Change
Negligible	< 30%
Small	30% - 60%
Medium	60% - 90%
Large	> 90%

Methodology Determining Sensitivity

18.51. The sensitivity of affected receptors will be considered on a scale of high, medium, low or negligible. Table 18.3 sets out the criteria used to assess the sensitivity of receptors on each link in the study area. The sensitivity of the receptors along the road links in the study area are presented at Appendix 18.2.

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. Defined as **road links and junctions with school, nursery or playground; retirement/care homes; lack of adequate footways, lack of crossings, network congested and over capacity; collision cluster zones**

Sensitivity	Examples of receptor
Medium	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance. Defined as **road links and junctions with hospitals, surgeries, clinics, hopping areas, parks/recreation grounds; narrow footways.**
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or no local importance. Defined as **road links and junctions with few residential properties with direct frontage to the highway link being used as a construction traffic route - Workplaces with direct frontage to highway link being used as construction route.**

Table 18.9. Sensitivity of Receptors

18.52. If a link is identified as having receptors which are of high sensitivity the impacts are assessed in more detail if there is a change in AADT of 10% or more (Rule 2 of the IEMA Guidelines).

18.53. All other links in the study area will have impacts assessed in more detail if there is a change in AADT or HDV of 30% of more (Rule 1 of the IEMA Guidelines).

18.54. The significance of an environmental impact is determined by the interaction of magnitude and sensitivity, whereby the impacts can be positive or negative. The impact Significance Matrix is set out in the table below.

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

Construction Phase

18.55. To understand the impact of the Proposed Development during its Construction Phase, the AADT and HDV movements in the study area in Scenario 3 have been assessed, being the busiest period in construction, and compared against movements in Scenario 1. This is presented at Appendix 18.5.

18.56. As shown in Appendix 18.5 there are two links which will experience either an AADT or HDV increase of 30% or more during the Construction Phase (Rule 1):

- Link 2, Hoyle Street, HDV increase of 1,531% (from 2 per day to 33 per day).
- Link 4, Fairfield Street west, HDV increase of 31% (from 100 per day to 131 per day).

18.57. There are also no links of high sensitivity which experience an AADT increase of 10% or more during the Construction Phase (Rule 2).

18.58. The above assessment forms the basis for evaluating all effects for the remainder of this Construction Phase section, for all effect types, except 'Road User and Pedestrian Safety', which uses a different metric as explained in Paragraph 18.48-18.50 above.

18.59. The effects are now addressed in turn.

Severance of Communities

18.60. On Link 2, Hoyle Street, the magnitude of change will be Negligible, as the AADT increases by less than 30% (9% increase). The sensitivity of this link is Medium. Therefore there will be a direct, temporary Negligible adverse effect which is not significant.

18.61. On Link 4, Fairfield Street west, the magnitude of change will be Negligible, as the AADT increases by less than 30% (4% increase). The sensitivity of this link is High. Therefore there will be a direct, temporary Negligible adverse effect which is not significant.

Non-motorised User Delay

18.62. Non-motorised user delay is assessed as per Severance of Communities, and therefore:

- On Link 2, Hoyle Street, there will be a direct, temporary Negligible adverse effect which is not significant.
- On Link 4, Fairfield Street west, there will be a direct, temporary Negligible adverse effect which is not significant.

Non-motorised User Amenity

18.63. The 2023 IEMA Guidance suggests that the widely accepted thresholds (see below) are expressed as a starting point and therefore they have been adopted in considering the significance of effect. However, the IEMA guidelines state that any assessment of amenity should pay full regard to specific local conditions, therefore further analysis is presented below.

18.64. The threshold for considering significance of a change in Non-motorised User Amenity is where AADT (or HDV) on a road link is halved or doubled.

18.65. On Link 2, Hoyle Street, the HDV flow will increase from 2 in Scenario 1 (Baseline) to 33 in Scenario 3 (peak construction). Although this is a 1,531% increase in HDV movements, this is from a very low baseline of just 2 per day. The footway width on Hoyle Street is currently sub-standard and therefore the Non-motorised User Amenity will be particularly vulnerable to large increases in HDV, however, the layout of the Proposed Development will route pedestrians and cyclists through the Site and Mayfield Park, offering alternative routes with much higher Amenity. Therefore, although the Non-motorised User Amenity on Hoyle Street will decrease as a result of the Proposed Development, overall the Proposed Development offers a significant increase in Amenity in this area as pedestrians will be diverted through the park, addressing the loss of amenity on Hoyle Street. As a result of these considerations, there will be a direct, temporary Minor adverse effect which is not significant.

18.66. On Link 4, Fairfield Street west, HDV movements increase by 30%, and therefore the significance does not need to be considered further, as traffic does not either halve or double, which as above is the threshold for further study.

Fear and Intimidation on and by Road Users

18.67. During the Construction Phase, there will be additional vehicular traffic travelling to / from the Site associated with the construction workforce, deliveries of materials, etc. Increases in traffic can potentially result in increases in fear and intimidation.

18.68. The extent of fear and intimidation is dependent on heavy vehicle composition, the speed vehicles are passing and proximity of traffic to people. Based on the criteria and process set out in Table 18.4, Table 18.5

and Table 18.6 the process to undertake to understand the impacts has been completed and is provided in Appendix 18.6 for Link 2 and Link 4.

18.69. The sensitivity of vehicle drivers / occupants, pedestrians and cyclists on Link 2, Hoyle Street, is considered to be Medium. The magnitude of change, based on the analysis in Appendix 18.6, is considered to be Negligible. Therefore, there is likely to be direct, temporary Negligible effect which is not significant.

18.70. The sensitivity of vehicle drivers / occupants, pedestrians and cyclists on Link 4, Fairfield Street west, is considered to be High. The magnitude of change, based on the analysis in Appendix 18.6, is considered to be Negligible. Therefore, there is likely to be Negligible effect which is not significant.

Road User and Pedestrian Safety

18.71. During the Construction Phase, there will be additional vehicular traffic travelling to / from the Site associated with the construction workforce, deliveries of materials, etc. Increases in traffic can potentially result in reductions in safety.

18.72. To assess the impact of Construction Phase traffic on Road User and Pedestrian Safety the IEMA Guidelines recommend reviewing where existing collision clusters exist, and then assessing the implications when development traffic is added.

18.73. Increase in construction traffic in theory increases the chance of collisions occurring. The identified collision clusters are set out below:

- The junction of Fairfield Street east (Link 5) / Pin Mill Brow / Ashton Old Road (Link 7) / Chancellor Lane (Link 8)
- A6 London Road north (Link 10)

18.74. The change in AADT on the road links in these collision clusters has been assessed (see Appendix 18.5) comparing Scenario 3 (Peak Construction) with Scenario 1 (Baseline) and it has been identified that none of these links experience an increase in AADT of more than 30% (indeed the greatest increase on these links is just 1%).

18.75. The sensitivity of vehicle drivers / occupants, pedestrians and cyclists on the approaches to the above junctions is High due to their location within a collision cluster zone. The magnitude of change is considered to be negligible on all links in the collision clusters. Therefore there is likely to be a direct, temporary, Negligible adverse effect which is not significant on Links 5, 7, 8 and 10.

Operational Phase

18.76. To understand the impact of the Proposed Development during its Operational Phase, the AADT and HDV movements in the study area in Scenario 4 have been assessed, when both Phase 1 (Plot J) and Phase 2 (Plot K) are occupied, and compared against movements in Scenario 1 (Baseline). This is presented in Appendix 18.7.

18.77. As shown in Appendix 18.7 there are two links which will experience either an AADT or HDV increase of 30% or more during the Operational Phase (Rule 1):

- Link 1, Baring Street, AADT increase of 68% (from 301 to 505) and HDV increase of 2,278% (from 1 to 24).
- Link 2, Hoyle Street, AADT increase of 9% (from 2,242 to 2,446) and HDV increase of 1,139% (from 2 to 25)

18.78. There are also no links of high sensitivity which experience an AADT increase of 10% or more during the Operational Phase (Rule 2).

18.79. The above assessment forms the basis for evaluating all effects for the remainder of this Operational Phase section, for all effect types, except 'Road User and Pedestrian Safety' which uses a different metric.

18.80. The effects are now addressed in turn.

Severance of Communities

18.81. On Link 1, Baring Street, the magnitude of change will be Moderate as the AADT change is in the range 60-90% (68% increase). The sensitivity of this link is Medium. Therefore, there will be a direct, permanent, Moderate adverse effect which is significant.

18.82. On Link 2, Hoyle Street, the magnitude of change will be Negligible as the AADT increases by less than 30% (9% increase). The sensitivity of this link is Medium. Therefore, there will be a direct, permanent, Negligible adverse effect which is not significant.

Non-motorised User Delay

18.83. Non-motorised user delay is assessed as per Severance of Communities, and therefore:

- On Link 1, Baring Street, there will be a direct, permanent, Moderate adverse effect which is significant.
- On Link 2, Hoyle Street, there will be a direct, permanent, Negligible adverse effect which is not significant.

Non-motorised User Amenity

18.84. The 2023 IEMA Guidance suggests that the widely accepted thresholds (see 18.85 below) are expressed as a starting point and therefore they have been adopted in considering the significance of effect. However, the IEMA guidelines state that any assessment of amenity should pay full regard to specific local conditions, therefore further analysis is presented below.

18.85. The threshold for considering significance of a change in Non-motorised User Amenity is where AADT (or HDV) on a road link is halved or doubled.

18.86. On Link 1 and Link 2 the AADT will not be halved or doubled. On Link 1 and 2 the HDV will more than double.

18.87. On Link 1, Baring Street, the HDV flow will increase from 1 in Scenario 1 (Baseline) to 24 in Scenario 4 (full Operation). On Link 2, Hoyle Street, the HDV flow will increase from 2 to 25. Although this is a 2,278% and 1,139% increase in HDV movements on these respective Links, this is from a very low baseline of just 1-2 HDV movements per day.

18.88. The layout of the Proposed Development will route pedestrians and cyclists through the Site and Mayfield Park, offering alternative routes to Hoyle Street and Baring Street with much higher Amenity. Therefore, although the Non-motorised User Amenity on Baring Street and Hoyle Street will decrease as a result of the Proposed Development, overall the Proposed Development offers a significant increase in Amenity in this area, addressing the loss of Amenity on Baring Street and Hoyle Street. As a result of these considerations, there will be a direct, permanent Minor adverse effect which is not significant on Link 1 and Link 2.

Fear and Intimidation on and by Road Users

18.89. During the Operational Phase, there will be additional vehicular traffic travelling to / from the Site associated with deliveries and servicing of the Proposed Development.

18.90. The extent of fear and intimidation is dependent on heavy vehicle composition, the speed vehicles are passing and proximity of traffic to people. Based on the criteria and process set out in Table 18.4, Table 18.5

and Table 18.6 the process to undertake to understand the impacts has been completed and is provided in Appendix 18.8 for Link 1 and Link 2.

18.91. The sensitivity of vehicle drivers / occupants, pedestrians and cyclists on Link1, Baring Street, is considered to be Medium. The magnitude of change, based on the analysis in Appendix 18.8, is considered to be Negligible. Therefore, there is likely to be a direct, permanent Negligible effect which is not significant.

18.92. The sensitivity of vehicle drivers / occupants, pedestrians and cyclists on Link 2, Hoyle Street, is considered to be Medium. The magnitude of change, based on the analysis in Appendix 18.8, is considered to be Negligible. Therefore, there is likely to be a direct, permanent Negligible effect which is not significant.

Road User and Pedestrian Safety

18.93. During the Operational Phase, there will be additional vehicular traffic travelling to / from the Site associated with the deliveries and servicing of the Proposed Development.

18.94. To assess the impact of Operational Phase traffic on Road User and Pedestrian Safety the IEMA Guidelines recommend reviewing where existing collision clusters exist, and then assessing the implications when development traffic is added.

18.95. Increase in traffic in theory increases the chance of collisions occurring. The identified collision clusters are set out below:

- The junction of Fairfield Street east (Link 5) / Pin Mill Brow / Ashton Old Road (Link 7) / Chancellor Lane (Link 8)
- A6 London Road north (Link 10)

18.96. The change in AADT on the road links in these collision clusters has been assessed (see Appendix 18.7) comparing Scenario 4 (Full Operation) with Scenario 1 (Baseline) and it has been identified that none of these links experience an increase in AADT of more than 30% (indeed the greatest increase on these links is just 1%).

18.97. The sensitivity of vehicle drivers / occupants, pedestrians and cyclists on the approaches to the above junctions is High due to their location within a collision cluster zone. The magnitude of change is considered to be negligible on all links in the collision clusters. Therefore, there is likely to be a direct, permanent, Negligible adverse effect which is not significant on Links 5, 7, 8 and 10.

Cumulative Effects

18.98. Appendix 18.1 provides a table which explains which Committed Developments have been scoped in and out of the Cumulative Effects assessment and why.

18.99. The Transport Assessments for the scoped-in Committed Developments were interrogated to derive the AADT and HDV movements related to those developments.

18.100. This assessment looks at the changes between the following three scenarios:

- Scenario 1: Baseline (existing Site, including developments currently under construction);
- Scenario 5: Baseline with Proposed Development Phase 1 and Phase 2 operational and cumulative developments; and
- Scenario 6: Baseline with Cumulative Development only. This provides a scenario to which to compare the future scenarios which do include the Proposed Development, meaning that the impact of the Proposed Development can be isolated and analysed.

18.101. AADT and HDV flows, and the changes between the above scenarios, are presented at Appendix 18.9.

18.102. None of the links of high sensitivity will receive an increase in AADT of 10% or more (Rule 2 of IEMA Guidelines) when Cumulative Projects are added to the network along with Proposed Development traffic.

18.103. Two links receive an increase in AADT or HDV of 30% or more (Rule 1 of IEMA Guidelines), this is Link 1 Baring Street and Link 2 Hoyle Street.

18.104. The impact on Link 2 Hoyle Street is of the same nature as the Proposed Development on its own, so the conclusion is as per those reported under the Operational Phase assessment above.

18.105. For Link 1 Baring Street, the HDV impact is the same with and without the Committed Developments, however the total AADT will increase. With the Proposed Development alone there will be an increase in AADT on Baring Street of 68% (from 301 to 505); with the Committed Developments alone AADT will increase by 826% (from 301 to 2,788); and with the Committed Developments the increase in AADT will be 894% (from 301 to 2,992).

18.106. Severance of Communities: with the addition of Committed Development and Proposed Development traffic there is a Major magnitude of change for this effect, with a 894% increase in AADT, from 301 to 2,992. The sensitivity of receptors along this link is Medium. Therefore, there will be a direct, long-term, Major adverse effect which is significant.

18.107. Non-motorised User Delay: this effect is assessed and reported as per Severance of Communities above.

18.108. Non-motorised User Amenity: with the addition of Proposed Development traffic only, there will be a direct, long-term Minor adverse effect which is not significant on Link 1, Baring Street. This is because HDV flows more than double. With the addition of the Committed Developments to the Baseline there is an 826% increase in AADT on Baring Street. This is a considerable increase, however the Baseline flows are very low and the future year flows, when the Committed Developments are Operational, with and without the Proposed Development, will still have only a Minor adverse effect which is not significant, especially when considering the improvement in Amenity in the wider Mayfield area, i.e. including Phase 1a development. Therefore, the Cumulative Effect is unchanged from the effect of the Proposed Development alone.

18.109. Fear and Intimidation on and by Road Users: With the Proposed Development only there is a Negligible adverse effect which is not significant. With the Committed Development and Proposed Development (Scenario 5) there is also a Negligible adverse effect which is not significant. Therefore, the Cumulative Effect is unchanged from the effect of the Proposed Development alone. This analysis is presented in Appendix 10.

18.110. Road User and Pedestrian Safety: With the addition of Committed Development traffic the increase in AADT on the links in the collision clusters does not increase by more than 30%. The maximum increase in AADT is 28% on Link 10, A6 London Road, with all other increases less than 5%. Therefore, the Cumulative Effect is unchanged from the effect of the Proposed Development alone, i.e. there will be a Negligible adverse effect which is not significant on Links 5, 7, 8 and 10.

Mitigation Measures

Construction Phase

18.111. Whilst there are no moderate / major adverse effects and therefore mitigation isn't strictly necessary a Construction Environment Management Plan (CEMP) will be secured via planning condition. Further details are set out in Chapter 5 of this ES, the CEMP will includes mitigation through the provision of:

- A construction logistics / traffic management plan; and
- Construction travel plans, to encourage construction workers to use sustainable modes of travel.

18.112. As part of the CEMP and the above plans, the following specific measures will be implemented:

- Off-Site roads to remain clean and clear of debris at all times during the works;
- Signage will be provided for all construction work traffic such that the traffic impacts of the development do not compromise the safety and operation of the local highway network or pedestrians or other road users' safety;
- Appropriate signing of the delivery routes to ensure vehicles use the approved routes to / from the Site;
- Installation of temporary warning signs, where appropriate, in the vicinity of the accesses both for vehicles and other road users;
- Set up of the temporary accesses to ensure that vehicles have appropriate visibility;
- Implementation of segregated routes to separate construction workers / traffic and future Site users;
- Creation of delivery vehicle holding areas on-Site;
- Temporary traffic management for short periods when the delivery of abnormal / oversized loads may cause an obstruction to the public highway;
- Use of traffic marshals, where appropriate;
- Wheel washing facilities for departing vehicles; and
- Where possible, hoarding during the construction stage will not entirely cover footways / cycle routes. However, if this is necessary then alternative safe routes will be provided. Clear advertising will also be provided for any routes that are closed, and signposting will be provided for suitable alternative routes. If any temporary diversions for pedestrian / cyclist routes are required on the adjacent roads, these will be discussed and agreed upon with MCC.

Operational Phase

18.113. Although already part of the design of the Proposed Development, and therefore considered embedded the mitigation, the new pedestrian and cycling routes through the Proposed Development will offer alternative routes to those currently available on Baring Street and Hoyle Street, which will improve the Non-motorised User Amenity and reduce the impact of Severance of Communities on the peripheral road links to the site which will experience an increase in AADT and HDV flow.

18.114. The following embedded mitigation would be delivered regardless of the EIA findings, and will improve sustainable travel options:

- A Framework Travel Plan will be in place, which will encourage and enable residents to travel by sustainable modes. This will be monitored by planning condition. Note that as the only parking will be off-site and not part of the Proposed Development, the success of the Travel Plan would only affect the Baseline/Committed Development flows arising from off-site car park, and not the Proposed Development itself, for which only servicing and delivery trips have been assessed.
- Provision of secure cycle stores for residents and employees and provision of visitor cycle parking.

Residual Effects

Construction Phase

18.115. Residual effects are reported where they are significant, this is taken to mean Moderate or Major adverse or beneficial effects. For the Construction Phase, there are no significant residual effects.

Operational Phase

18.116. Residual effects are reported where they are significant, this is taken to mean Moderate or Major adverse or beneficial effects. For the Operational Phase significant residual effects are summarised in Table 18.10.

Table 18.10 – Residual effects for transport

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Severance of Communities	Link 1	Routing of pedestrians and cyclists via Proposed Development	Development Delivery	Direct, permanent, Moderate adverse
Non-motorised User Delay	Link 1	Routing of pedestrians and cyclists via Proposed Development	Development Delivery	Direct, permanent, Moderate adverse

Monitoring

18.117. As part of the Framework Travel Plan implementation, residents will be surveyed about their travel habits. This provides useful sustainable transport monitoring information and will be shared with MCC annually.

Reference List

18.118. This ES Chapter has been prepared in reference to the following:

- IEMA Guidelines: Environmental Assessment of Traffic and Movement, 2023

19. Summary of Residual Impacts

19.1. This section contains a summary of the residual effects of the Proposed Development in relation to each topic area, extracted from each chapter.

Climate Change Resilience and GHG Emissions

Comparison with UK and Manchester Carbon Budgets

Significance of effects assessment

19.2. Table 6.10 and Table 6.11 set out the assessment of residual effect significance for the construction and operational stages respectively in accordance with the IEMA GHG Guidance.

Table 6.10 - Assessment of residual effect significance during the construction stage

Receptor	Compliance with existing and emerging policy	Residual effect significance
Global atmosphere	The Proposed Development has been considered in relation to local, regional, and national policy. The key construction phase mitigation measures which are relevant to this GHG emissions assessment include: • The implementation of circular economy principles; • WLC workshops and assessments guiding the design process; • The use of low carbon and recycled materials; • The use of structural elements that are efficient and highly utilised; and • Façade elements will be chosen to reduce both embodied carbon and the heating energy demand of the Proposed Development. It is considered that the Proposed Development is consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore, in line with the IEMA GHG Guidance, this is considered to be a minor adverse effect. In line with the guidance, this effect is considered to be not significant.	Minor adverse, direct, long term and permanent

Table 6.11 - Assessment of residual effect significance during the operational stage

Receptor	Compliance with existing and emerging policy	Residual effect significance
Global atmosphere	The Proposed Development has been considered in relation to local, regional, and national policy. The key operational phase mitigation measures which are relevant to this GHG emissions assessment include:	Minor adverse, direct, long term and permanent

Receptor	Compliance with existing and emerging policy	Residual effect significance
	• The use of clean energy renewables, monitoring and nature-based solutions; • The use of SuDS to reduce water use and ensure long-term efficacy; • The promotion of active travel; • Generation of hot water with ASHPs; • The use of building materials that are optimised to reduce heat loss in winter months, and minimise heat gains in the summer; and • The undertaking of an overheating analysis to reduce the reliance on air conditioning. It is considered that the Proposed Development is compliant with the applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore, in line with the IEMA GHG Guidance, this is considered to be a minor adverse effect, which is considered to be not significant.	

19.3. Planning Conditions are therefore expected in relation to the submission of a Circularity Strategy, post-construction review energy certificates, a construction management plan, and travel planning.

Daylight, Sunlight and Overshadowing

Operational Phase

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation - Overall Magnitude of Change and Duration (Temporary/Permanent)	Is the Effect Significant?
Adverse reduction in daylight amenity	25-41 Paddock Street & 21 Thirsk Street	None	n/a	Minor Adverse (Permanent)	No
	80 84 85 Brydon Avenue 86-92 96 Cotter Street	None	n/a	Minor Adverse (Permanent)	No
	94 Cotter Street	None	n/a	Minor Adverse (Permanent)	No
	82 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	86 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	79 Brydon Avenue	None	n/a	Negligible (Permanent)	No

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation - Overall Magnitude of Change and Duration (Temporary/Permanent)	Is the Effect Significant?
	37-49 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	11-35 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	81 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	83 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	10-42 Fairfield Street	None	n/a	Negligible (Permanent)	No
	Bulls Head Hotel 84 London Road	None	n/a	Negligible (Permanent)	No
	Star & Garter Fairfield Street	None	n/a	Negligible (Permanent)	No
	Piccadilly Point	None	n/a	Minor Adverse (Permanent)	No
	Unite Students Mill Point	None	n/a	Negligible (Permanent)	No
Adverse reduction in sunlight amenity	25-41 Paddock Street & 21 Thirsk Street	None	n/a	Negligible (Permanent)	No
	80 84 85 Brydon Avenue 86-92 96 Cotter Street	None	n/a	Negligible (Permanent)	No
	94 Cotter Street	None	n/a	Negligible (Permanent)	No
	82 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	86 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	79 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	37-49 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	11-35 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	81 Brydon Avenue	None	n/a	Negligible (Permanent)	No
	83 Brydon Avenue	None	n/a	Negligible (Permanent)	No

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation - Overall Magnitude of Change and Duration (Temporary/Permanent)	Is the Effect Significant?
	10-42 Fairfield Street	None	n/a	Negligible (Permanent)	No
	Bulls Head Hotel 84 London Road	None	n/a	Negligible (Permanent)	No
	Star & Garter Fairfield Street	None	n/a	Negligible (Permanent)	No
	Piccadilly Point	None	n/a	Negligible (Permanent)	No
	Unite Students Mill Point	None	n/a	Negligible (Permanent)	No
Adverse increase in shadow	Mayfield Park	None	n/a	Negligible (Permanent)	No

19.4. No conditions are required in order mitigate in relation to daylight, sunlight and overshadowing as all mitigation is embedded into the design as primary mitigation.

Townscape and Visual Impact

19.5. The Table below, extracted from Chapter 8, sets out the impact of the Proposed Development during the operational phase and in the cumulative view.

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
1 London Road				
Sensitivity (VR)	Low		Plot 1	
Sensitivity (T)	Low		Plot 3	
Magnitude (VR)	Mod. beneficial			
Magnitude (T)	Mod. beneficial			
Significance of effect	Minor beneficial	Not Significant		Neg beneficial
2 Mancunian Way				

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
Sensitivity (VR)	Low		Plot 1	
Sensitivity (T)	Low		Plot 3	
Magnitude (VR)	Major beneficial			
Magnitude (T)	Major beneficial			
Significance of effect	Mod beneficial	Significant		Minor beneficial
3 Manor Street				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Medium			
Magnitude (VR)	Neg beneficial			
Magnitude (T)	Neg beneficial			
Significance of effect	Neg beneficial	Not Significant		Neg beneficial
4 Ardwick Green Park				
Sensitivity (VR)				
Sensitivity (T)	High		Plot 3	
Magnitude (VR)	Medium			
Magnitude (T)	Major beneficial			
Significance of effect	Major beneficial			
	Mod. beneficial	Significant		Minor beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
5 Cotter Street				
Sensitivity (VR)	Medium			
Sensitivity (T)	Medium		Plot 3	
Magnitude (VR)	Mod beneficial			
Magnitude (T)	Mod beneficial			
Significance of effect	Mod. beneficial	Significant		Mod beneficial
6 Mancunian Way				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Low			
Magnitude (VR)	Major beneficial			
Magnitude (T)	Major beneficial			
Significance of effect	Mod beneficial	Significant		Mod beneficial
7 Fairfield Street				
Sensitivity (VR)	Low		Plot 9	
Sensitivity (T)	Low			
Magnitude (VR)	Mod beneficial			
Magnitude (T)	Mod beneficial			
Significance of effect	Minor beneficial	Not Significant		Minor beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
8 Chapel Town Street				
Sensitivity (VR)				
Sensitivity (T)	Low		Plot 2	
Magnitude (VR)	Low		Plot 3	
Magnitude (T)	Minor beneficial		Plot 6	
Significance of effect	Minor beneficial			
	Neg beneficial	Not Significant		Neg beneficial
9 Piccadilly Station				
Sensitivity (VR)	Low			
Sensitivity (T)	Medium			
Magnitude (VR)	Minor beneficial			
Magnitude (T)	Minor beneficial			
Significance of effect (T)	Minor beneficial	Not Significant	None	Minor beneficial
Significance of effect (VR)	Neg beneficial	Not Significant		Neg beneficial
10 Baring Street				
Sensitivity (VR)	Medium		Plot 1	
Sensitivity (T)	Medium		Plot 2	
Magnitude (VR)	Mod. beneficial			
Magnitude (T)	Mod. beneficial			
Significance of effect	Mod. beneficial	Significant		Neg beneficial

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
11 Mayfield Park				
Sensitivity (VR)	Medium		Plot 2	
Sensitivity (T)	Medium		Plot 3	
Magnitude (VR)	Major beneficial			
Magnitude (T)	Major beneficial			
Significance of effect	Mod beneficial	Significant		Minor beneficial
12 Grosvenor Street				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Medium			
Magnitude (VR)	Minor beneficial			
Magnitude (T)	Minor beneficial			
Significance of effect	Minor beneficial	Not Significant		Neg beneficial
13 Sackville Street				
Sensitivity (VR)	Low		Plot 2	
Sensitivity (T)	Med/Low			
Magnitude (VR)	No change			
Magnitude (T)	No change			
Significance of effect	No change	Not Significant		No change
14 Great Street				

Location	Development Only (Residual Impact)	EA significance	Relevant Cumulative Scheme	Cumulative Effect
Sensitivity (VR)	Low		Plot 3	
Sensitivity (T)	Low			
Magnitude (VR)	Mod beneficial			
Magnitude (T)	Mod beneficial			
Significance of effect	Minor beneficial	Not Significant		Minor beneficial
15 Bridge over Rochdale Canal				
Sensitivity (VR)	Medium		Plot 3	
Sensitivity (T)	Medium		Plot 7	
Magnitude (VR)	No change		Plot 20	
Magnitude (T)	No change			
Significance of effect	No change	Not significant		No change

19.6. No conditions are required in order mitigate in relation to townscape and visual impact assessment as all mitigation is embedded into the design as primary mitigation.

Wind Microclimate

19.7. The Table below, extracted from Chapter 9, sets out the impact of the Proposed Development during the operational phase once both phases are completed.

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Seating areas to the west of Plot J (directly adjacent)	High	Similar summer conditions as in Baseline (suitable for sitting); slightly windier winter conditions as in Baseline.	Negligible	Negligible (suitable for intended use: sitting in summer)
Seating areas between J2 and J1	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible (suitable for intended use year-round)

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Seating area at northeast corner of J2	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible
Seating area at northeast corner of J1	High	Similar summer conditions as in Baseline (suitable for sitting); slightly windier winter conditions as in Baseline.	Negligible	Negligible (suitable for intended use: sitting in summer)
Seating areas on Plot J podium	High	Wind conditions suitable for intended use (sitting).	N/A	N/A
Seating areas on Plot K podium	High	Wind conditions suitable for intended use (sitting).	N/A	N/A
Seating areas to the east of Plot K (directly adjacent)	High	Slightly windier summer conditions as in Baseline; windier wind conditions in winter as in Baseline. Conditions suitable for intended use (sitting in summer), except for seating affected by wind acceleration on southeast corner of J1.	Negligible, except for seating near J1 southeast corner (large adverse)	Negligible (seating mostly suitable for intended use: sitting in summer); exception of seating close to southeast corner of K1 (major adverse) which requires mitigation
Seating areas between K2 and K1	High	Similar summer conditions as in Baseline (suitable for sitting); slightly calmer winter conditions as compared to Baseline; seating areas now suitable for sitting year-round.	Negligible	Negligible (suitable for sitting all-year round)
Seating areas to the west of Plot K	High	Similar wind conditions as in Baseline; conditions suitable for intended use (sitting).	Negligible	Negligible
Cycle stand to northeast of J1	Moderate	Similar summer wind conditions as in Baseline; slightly windier winter conditions as in Baseline, but still suitable for intended use (standing).	Negligible	Negligible
Cycle stand between J2 and J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand between K2 and K1	Moderate	Similar summer conditions as in Baseline; slightly calmer winter conditions as compared to Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Cycle stand to the south of J1	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand to the north of Plot K	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Cycle stand to the west of K2	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Entrances Plot J	High	All entrances suitable for intended use (standing), except for one entrance to the west of J2 with slightly windier winter conditions (this is a back-of-house refuse room door though therefore less critical); and one at the southeast corner of J1 (plant room doors; not accessed by public).	Negligible – Small adverse (two doors)	Negligible – Minor/Moderate adverse (refuse and plant room door)
Entrances Plot K	High	All entrances suitable for intended use (standing), except for one entrance to the east of K1 with slightly windier winter conditions (this is an emergency door, therefore not a permanent public access door).	Negligible – Small adverse (one door)	Negligible – Minor/Moderate adverse (emergency door)
Entrances on Plot J podium	High	Wind conditions up to one category better than intended use (standing).	N/A	N/A
Entrances on Plot K podium	High	Wind conditions up to one category better than intended use (standing).	N/A	N/A
EV charging zones between K2 and K1	Moderate	Similar summer conditions as in Baseline; slightly calmer winter conditions as compared to Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Loading bay along Hoyle Street	Moderate	Similar wind conditions as in Baseline; up to one category better than intended use (standing).	Small beneficial	Minor beneficial
Drop-off / loading bays along Mancunian Way	Moderate	Similar wind conditions as in Baseline, up to one category better than intended use (standing), with exception of loading bay to the southwest of Plot K. As loading bays are expected to be only for short-term use, pedestrian walkthrough conditions are accepted as well.	Negligible - Small adverse (one loading bay)	Negligible – Minor adverse (loading bay; short-term use)

Receptor	Sensitivity	Description of effect	Magnitude of change/impact	Effect significance
Safety exceedance at southeast corner of K1	High	Adverse effect with zone of unsafe conditions for cyclists and frail people at the southeast corner of K1. This effect requires mitigation.	Large adverse (safety exceedance)	Major adverse (requires mitigation)
Existing Mayfield Park (off-site receptor)	Low	Similar wind conditions as in Baseline; up to two categories better than intended use (pedestrian walkthrough).	Medium beneficial	Minor beneficial
Existing Mayfield Park Playground (off-site receptor)	High - Moderate	Similar summer wind conditions as in Baseline; slightly windier winter conditions as in Baseline, but still suitable for intended use (sitting to standing).	Negligible	Negligible

19.8. In relation to Wind Microclimate, further details are to be secured by way of condition in order to confirm the wind mitigation required where safety exceedances have been identified.

Human Health

Construction Phase

19.9. The impact on human health during the construction phase has been provided below, as set out in Chapter 10 of this ES.

Likely Health Impact	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Impact
Construction impacts such as dust, noise, and vibration.	Local residents	Follow the recommendations outlined in Appendix 16.2 of the Air Quality ES Chapter, and Noise and Vibration ES Chapter.	Implementation as outlined in Appendix 16.2 of the Air Quality ES Chapter. A Construction Environmental Management Plan (CEMP) will further outline mitigation options.	Neutral

Operational Phase

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
No affordable units included in the Proposed Development	Local residents	If the levels of profit change based on the agreed metrics, then	Engagement with Manchester City Council	Neutral

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
		affordable housing could be provided. The Applicant should seek to work with Manchester City Council to address the viability of affordable housing and via grant funding. A further review of viability will be undertaken later in the construction phase.		
The Proposed Development could lead to demand for an additional 92 primary school places. The baseline indicates that at the time of writing, there may not be sufficient capacity to accommodate this increase in demand. The total number of spaces available (see Chapter 11) is between 201 and -110, with the latter discounting 5% of total enrollment. However, this additional primary school demand is based on a GLA guide, which assumes a higher rate of children per household compared to that in Manchester City Centre Wards (only 2% of households have dependent children in Manchester). It should also be noted that some schools are demonstrating a downward trend in the number of applications for school places.	Local children & young people	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing primary school places in the local area.	Engagement with Manchester City Council	Neutral

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
The Proposed Development could lead to an additional 1,951 people requiring healthcare through GP services (1,875 additional residents and 76 new local employees). The baseline assessment indicates that existing patient to GP ratio is higher than average, and additional residents will place additional pressure on the healthcare services. However, it is noted that the population is younger in the Piccadilly Ward, which may alleviate some of the pressure on healthcare services.	Local residents	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing GP services in the local area.	Engagement with Manchester City Council	Neutral

19.10. In relation to human health, a Construction Management Plan will be required in order to mitigate construction phase effects.

Socio-Economic

19.11. The Proposed Development is assessed to have an overall beneficial effect on the local population, increasing economic activity through additional local spending and provision of new homes.

Construction Phase

19.12. Table 11.20 in Chapter 11, provided below, summarises the residual effects of the Proposed Development during demolition and construction.

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Creation of 199 new additional construction jobs	Regional Workforce	None required	n/a	Moderate beneficial (significant), long-term and temporary effect on the Manchester economy

Operational Phase

19.13. Table 11.21 in Chapter 11, provided below, summarises the residual effects of the Proposed Development during operation.

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
An increase in the residential population could lead to additional local spending	Local businesses	None required	N/A	Moderate beneficial (significant) long-term permanent effect at the local level. Minor beneficial (not significant), long-term permanent effect at all other spatial levels.
Generation of 143 net new additional jobs once complete and operational	Local employment	None required	N/A	Moderate beneficial (significant) long-term permanent effect
Provision of up to 879 new units of different sizes	Local residents	None required	N/A	Major beneficial (significant), long-term permanent effect.
No affordable units included in the Proposed Development	Local residents	If the levels of profit change based on the agreed metrics, then affordable housing could be provided. The Applicant will work with Manchester City Council to address the viability of affordable housing through both grant funding opportunities and through later stage reviews of the viability appraisal to consider whether there is an opportunity for off-site affordable housing contributions.	Engagement with Manchester City Council	Negligible
The Proposed Development could lead to demand for an additional 92 primary school places. The baseline indicates there is not sufficient capacity to	Local children & young people	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing primary school places in the local area.	Engagement with Manchester City Council	Negligible

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
accommodate this increase in demand				
The Proposed Development could lead to demand for an additional 17 secondary school places. The baseline indicates there is sufficient capacity to accommodate this increase in demand.	Local children & young people	None required	N/A	Negligible effect
The Proposed Development could lead to an additional 1,965 people requiring healthcare through GP services. The baseline assessment indicates that existing patient to GP ratio is higher than average, and additional residents will place additional pressure on the healthcare services.	Local residents	The Applicant should seek to work with Manchester City Council to address the potential overcapacity of existing GP services in the local area.	Engagement with Manchester City Council	Negligible
Up to an additional 1,875 people could reside in the local area as a result of the Proposed Development, increasing the pressure on green space. The Proposed Development includes 499 sqm of open space, of which 222 sqm is open to the public.	Local Residents	None required	N/A	Negligible effect
The Proposed Development could lead to an additional 369 children and young people in the area, requiring an additional 87.9 sqm of	Local children & young people	None required	N/A	Negligible effect

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
play space for children and 12.7 sqm of play space for young people. The site is within close proximity to one park (Mayfield Park) with facilities for children and young people. The Proposed Development does not include any formal play space, but there are opportunities for informal play throughout the development with the inclusion of stepping stones, boulders and low walls.				

Ecology

19.14. Table 12.10 in Chapter 12 summarises the residual effects during construction and Table 12.11 summarises the residual effects during operation of the Proposed Development.

Construction Phase (Scenario 2 and 3)

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	River Medlock	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Pollution from indirect pollutants	Priority deciduous woodland habitat	Airborne dust, siltation, pollution and management	CEMP to be secured through planning condition and	Negligible

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
including air-borne dust, sediment, chemical/ oil and fuel spills.	and open mosaic habitat	of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	implemented by contractor.	
Pollution from indirect pollutants including air-borne dust, sediment, chemical/ oil and fuel spills.	Semi-natural habitats identified within Mayfield Park	Airborne dust, siltation, pollution and management of waste and construction materials will be controlled and managed in keeping with national guidelines, and will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Habitat loss	Scattered young trees on Site	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company. Requirements of a LEMP/ HMMP required for management and maintenance of habitats.	Negligible
Habitat loss	Other neutral grassland on Site	Compensation through post-development habitat creation and management.	Creation secured through detailed landscaping plans and will be implemented by the contractor and/or specialist management company. Requirements of a LEMP/ HMMP required for management and maintenance of habitats.	Negligible

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Disturbance to foraging and commuting bat	Bats	Noise, vibration, and lighting will be managed in keeping with national and local guidelines, and will be detailed in the CEMP to avoid disturbance to foraging and commuting bats	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Disturbance to roosting bats		Noise, vibration, and lighting will be managed in keeping with national and local guidelines and will be detailed in the CEMP to avoid disturbance to roosting bats.	CEMP to be secured through planning condition and implemented by contractor.	Negligible
Killing and injury of birds by the destruction of active nests	Breeding birds	Avoidance of harm to birds, their nests and young to prevent an offence under legislation, will be ensured through following the recommendations outlined in this EIA which will be detailed in the CEMP	CEMP to be secured through planning condition and implemented by contractor.	Negligible

Operational Phase (Scenario 4)

Table 12.11 Summary of residual effects during operation

Likely Significant Effect	Receptors)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/permanent)
Increased lighting on Site	Mayfield Park existing habitats	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan	Implementation of lighting plan within and adjacent to the EIA Site.	Negligible

Likely Significant Effect	Receptors)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/permanent)
	and River Medlock	produced for Mayfield Park to minimise impacts from external and obtrusive light spill.		
Increased lighting on Site	Foraging and commuting bats	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise impacts from external and obtrusive light spill.	Implementation of lighting plan within and adjacent to the EIA Site.	Negligible
Creation of habitats to compensate for loss of habitat during construction and to improve the overall Site for BNG and wildlife	Creation and management of new habitat on Site	A detailed lighting plan should be prepared for the EIA Site similar to the lighting plan produced for Mayfield Park to minimise impacts from external and obtrusive light spill.	Implementation of lighting plan within and adjacent to the EIA Site.	Minor beneficial, permanent

Ground Conditions

Construction Phase

19.15. There are limited potential risks to people and the environment associated with the Proposed Development and the ground conditions on-site during the construction phase (Scenarios 2 and 3). Mitigation measures, implemented as part of the Remediation Method Statement and any subsequent remediation strategy for Area C (as required) and the contractor's Construction and Environment Management Plan will ensure appropriate design and construction during development.

19.16. On completion of the Proposed Development, all potential operational effects are assessed to be negligible, and no supplementary measures are therefore considered necessary.

Likely Significant Effect	Receptor(s)	Mitigation Measure(s)	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Direct contact (direct and indirect) of contaminated ground	Construction Workers	Implementation of appropriate health, safety and hygiene regime (to include	All detailed in the CoCP and CEMP.	Negligible

Likely Significant Effect	Receptor(s)	Mitigation Measure(s)	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
		PPE and welfare provisions). Implementation of good construction practice.		

Operational Phase

19.17. No residual effects to people or the environment are anticipated relating to ground conditions during operation.

Water Resources

Construction Phase

19.18. Once the supplementary mitigation measures are implemented, along with good site practices, the residual construction effects to the water environment are considered to be negligible upon all receptors and temporary for the duration of the construction period.

Receptor	Likely Significant Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
River Medlock water quality	Increased sediment loads	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Accidental release of hydrocarbons and oils	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Accidental leaks and use of hazardous materials	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Dust and debris	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
	Leak or breakage of the temporary sewerage system	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
Surface water drainage network	Capacity change from increased sediment loads	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary

Receptor	Likely Significant Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Potable water services	Increased potable water demand	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary
Site users	Flood risk to site workers	Measures proposed in CEMP. See Table 14.6.	Planning condition	Negligible temporary

Operational Phase

19.19. If the mitigation measures outlined are implemented during operation, then residual adverse effects are likely to be negligible, and a minor beneficial effect is anticipated for surface water drainage capacity, which is not significant.

Receptor	Likely Significant Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
River Medlock water quality	Pollutants contained in surface water	None required	N/A	Negligible
Surface water drainage network	Surface water storage capacity	None required	N/A	Minor beneficial
Foul water drainage network	Increased foul water drainage demand	Water efficiency measures for demand management	Detailed design development and planning condition	Negligible
Potable water services	Increased potable water demand	Water efficiency measures for demand management	Detailed design development and planning condition	Negligible
Site users	Flood risk to site workers	None required	N/A	Negligible

Air Quality

Construction Phase

19.20. The conclusions on mitigation measures on construction effects are presented in Table 15.10.

Table 15.10 Summary of construction effects

Likely Significant Effect	Receptors (sensitivity)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Effects of emissions arising from traffic generated by the construction of Proposed Development on human health	Surrounding sensitive uses, e.g. residential properties and schools (high)	No mitigation is required	N/A	N/A

Operational Phase

19.21. The conclusions on mitigation measures on operational effects are presented in Table 15.11.

Table 15.11 Summary of operational effects

Likely Significant Effect	Receptors (sensitivity)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Effects of emissions arising from traffic generated by the operation of Proposed Development on human health	Surrounding sensitive uses, e.g. residential properties and schools (high)	No mitigation is required	N/A	N/A
Effect of air pollution on new exposure introduced by the Proposed Development	Future sensitive uses on-site, including residential properties (high)	No mitigation is required	N/A	N/A

Noise and Vibration

19.22. No significant or otherwise adverse effects are expected from either construction noise and vibration, or operational noise associated with the Proposed Development at any receptor, without the need for mitigation.

Heritage

Construction Phase

19.23. Table 17.6 in Chapter 17 has identified the following potential impacts of the Proposed Development on heritage assets in the Construction Phase:

- 4 x Negligible-Minor Adverse impacts
- 4 x Negligible Adverse impacts
- 9 x Neutral impacts

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
21 and 23, Manor Street (Grade II listed)	Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
25, Manor Street (Grade II listed)	Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
27, Manor Street (Grade II listed)	Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
27, Ardwick Green North (Grade II listed)	Minor-Negligible Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
Milford House (Grade II listed)	Minor-Negligible Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
31, Ardwick Green North (Grade II listed)	Negligible-Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
Former Church of St Thomas (Grade II listed)	Negligible-Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible-Minor Adverse Temporary
Drill Hall (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
War Memorial (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Fenton House (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
2 and 4, Palfrey Place (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Train Shed and Undercroft at Manchester Piccadilly Station (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Former Goods Offices to Piccadilly Station (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Police and Fire Station (Grade II* listed)	Neutral	N/A	N/A	Neutral Temporary
Star and Garter Public House (Grade II listed)	Negligible-Minor Adverse	CEMP	Ensure that CEMP is adhered to	Negligible Adverse Temporary
Manchester South Junction and Altrincham Railway Viaduct (Grade II listed)	Neutral	N/A	N/A	Neutral Temporary
Mayfield Depot (NDHA)	Neutral	N/A	N/A	Neutral Temporary

Operational Phase

19.24. Table 17.7 in Chapter 17 and provided below has identified the following potential impacts of the Proposed Development on heritage assets in the Operational Phase:

- 1 x Minor-Moderate Adverse impact
- 3 x Minor Adverse impacts
- 4 x Negligible-Minor Adverse impacts
- 9 x Neutral impacts

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
21 and 23, Manor Street (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor Adverse Permanent
25, Manor Street (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor Adverse Permanent

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
27, Manor Street (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor-Moderate Adverse Permanent
27, Ardwick Green North (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
Milford House (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
31, Ardwick Green North (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	Negligible-Minor Adverse Permanent
Former Church of St Thomas (Grade II listed)	Minor-Moderate Adverse	Embedded design quality	Ensuring design quality is achieved	Minor Adverse Permanent
Drill Hall (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
War Memorial (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Fenton House (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
2 and 4, Palfrey Place (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Train Shed and Undercroft at Manchester Piccadilly Station (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Former Goods Offices to Piccadilly Station (Grade II listed)	Neutral	N/A	N/A	Neutral Permanent
Police and Fire Station (Grade II* listed)	Neutral	N/A	N/A	Neutral Permanent

Receptor	Likely Effect	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Star and Garter Public House (Grade II listed)	Minor Adverse	Embedded design quality	Ensuring design quality is achieved	**Negligible-Minor Adverse** **Permanent**
Manchester South Junction and Altrincham Railway Viaduct (Grade II listed)	Neutral	N/A	N/A	**Neutral** **Permanent**
Mayfield Depot (NDHA)	Neutral	N/A	N/A	**Neutral** **Permanent**

Transport and Access

Construction Phase

19.25. Residual effects are reported where they are significant, this is taken to mean Moderate or Major adverse or beneficial effects. For the Construction Phase, there are no significant residual effects.

Operational Phase

19.26. Residual effects are reported where they are significant, this is taken to mean Moderate or Major adverse or beneficial effects. For the Operational Phase significant residual effects are summarised in Table 18.10.

Table 18.10 – Residual effects for transport

Likely Significant Effect	Receptors	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (Temporary/Permanent)
Severance of Communities	Link 1	Routing of pedestrians and cyclists via Proposed Development	Development Delivery	Direct, permanent, Moderate adverse
Non-motorised User Delay	Link 1	Routing of pedestrians and cyclists via Proposed Development	Development Delivery	Direct, permanent, Moderate adverse

20. Type 1 Cumulative Impacts

20.1. This Chapter gives consideration to 'Type 1' cumulative effects. The assessment is informed by the results of the technical assessments as set out in Chapter 6 - 18 of the ES.

20.2. 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.

20.3. 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 are provided below.

Legislation, Policy and Guidance

Legislation

20.4. 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'.

20.5. The EIA Regulations require 'a description of the likely significant effects', including cumulative effects.

20.6. 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

20.7. 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

20.8. A number of guidance documents which relate to assessing cumulative effects have been used to inform the assessment and include:

- European Commission (EC) Environment DG (May 1999), 'Study on the Assessment of Indirect and Cumulative Impacts as well as Impact Interaction', Hyder Consulting; and
- Institute of Environmental Management and Assessment (1992), Guidelines for the Environmental Assessment of Road Traffic.

20.9. 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'.

20.10. 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

20.11. 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.

20.12. 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.

20.13. 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.

20.14. 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.

20.15. 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.

20.16. 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

20.17. 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.

20.18. 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

20.19. 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.

20.20. 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 Type 1 Cumulative Effects

20.21. Listed out below is each sensitive receptor group identified in the respective residual impacts chapter, along with their construction and operational effects in relation to each topic area, excluding negligible or neutral effects, and a summary of the in combination cumulative effects in relation to each receptor group:

Local Population and Site Users

20.22. Construction Phase:

- Water Resources: Potential for flood risk to site workers (negligible with mitigation).
- Air Quality: Potential for effects from traffic emissions (no mitigation required).

20.23. Operational Phase:

- Daylight/Sunlight: Minor adverse reduction in daylight for some receptors (permanent).
- Human Health: Potential pressure on healthcare services (negligible with mitigation). Potential demand for primary school places exceeding capacity (negligible with mitigation).
- Socio-Economic: Moderate beneficial impact on the Manchester economy due to creation of construction jobs (significant, long-term, temporary).
- Air Quality:
    - Potential for effects from traffic emissions (no mitigation required).
    - Potential for effects from air pollution (no mitigation required).
- Transport:
    - Moderate adverse impact due to severance of communities (direct, permanent).
    - Moderate adverse impact due to delay (direct, permanent).

20.24. It is considered that there is the potential for a minor adverse in-combination type 1 cumulative effect on the local population and site users following mitigation applied as set out in the residual effects section.

Local Businesses

20.25. Operational Phase:

- Socio-Economic: Moderate beneficial impact on the local economy due to increased spending (significant, long-term, permanent).

Built Environment

20.26. Construction Phase:

- 4 x Negligible-Minor Adverse impacts, 4 x Negligible Adverse impacts and 9 x Neutral impacts in relation to above ground heritage

20.27. Operational Phase:

- Townscape:
    - Mancunian Way: Moderate beneficial residual impact, considered significant.
    - Ardwick Green Park: Major beneficial residual impact, considered significant.
    - Cotter Street: Moderate beneficial residual impact, considered significant.

- Heritage:
    - 1 x Minor-Moderate Adverse impact, 3 x Minor Adverse impacts, 4 x Negligible-Minor Adverse impacts and 9 x Neutral impacts

20.28. On balance the Proposed Development is expected to result in a type-1 cumulative minor beneficial effect on the built environment due to some generally major to moderate beneficial townscape effects offset by some minor adverse and negligible adverse heritage effects.

Natural Environment

20.29. Construction Phase:

- Climate Change: Minor adverse effect on the global atmosphere (direct, long-term, and permanent).
- Water Resources: Potential for increased sediment loads (negligible with mitigation). Potential for accidental release of hydrocarbons and oils (negligible with mitigation)
- Ecology:
    - Potential for pollution from indirect pollutants (negligible with mitigation) on Priority Deciduous Woodland Habitat and Open Mosaic Habitat;
    - Potential for pollution from indirect pollutants (negligible with mitigation) on semi natural habitats in Mayfield Park;
    - Loss of scattered young trees and neutral grassland on site resulting in negligible habitat loss with mitigation;
    - Potential for disturbance to foraging and commuting bats (negligible with mitigation). Potential for disturbance to roosting bats (negligible with mitigation);
    - Potential for killing and injury due to destruction of active nests (negligible with mitigation).

20.30. Operational Phase:

- Ecology:
    - Mayfield Park Existing Habitats impact via increased lighting, which is considered to be negligible impact with mitigation.
    - Foraging and commuting bats impact via increased lighting, which is considered to be negligible impact with mitigation.
    - Creation and management of new habitat on site will create a minor beneficial impact in relation to ecology.
- Climate Change: Minor adverse effect on the global atmosphere (direct, long-term, and permanent).

20.31. On balance the Proposed Development is expected to result in a type-1 cumulative minor adverse effect on the natural environment due to some generally beneficial ecological effects offset by some minor adverse and negligible adverse effects relating to greenhouse gas emissions on the global atmosphere.

Infrastructure and Utilities

20.32. Construction Phase:

- Water Resources:
    - Potential for capacity change due to increased sediment loads (negligible with mitigation).
    - Potential for increased potable water demand (negligible with mitigation).

20.33. Operational Phase:

- Water Resources:
    - Minor beneficial impact on surface water storage capacity.
    - Potential for increased potable water demand (negligible with mitigation).

20.34. On balance the Proposed Development is expected to result in a type-1 cumulative neutral effect on infrastructure and utilities as any potentially significant effects have been mitigated to a negligible effect.

Summary

20.35. The ES has been used to assess the combined cumulative effects of the Proposed Development on each sensitive receptor group. For example, local residents may experience a combination of minor adverse effects related to climate change, daylight/sunlight, and potentially increased pressure on local services. However, these effects are generally considered to be mitigated to a negligible level. The development is also expected to have a significant positive impact on the local economy and provide much-needed new housing, alongside ecological and townscape benefits.

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