RIDGE

Environmental Standards Statement

OCTAGON HOUSE MANCHESTER

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OCTAGON HOUSE MANCHESTER

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1. INTRODUCTION

This Environmental Standards Statement has been prepared by Ridge & Partners LLP on behalf of Octagon Project Manchester ('the Applicant') in support of a full planning application for the Octagon House development. The Statement demonstrates how the development of the proposed energy and sustainability strategy takes into consideration and responds to the requirements of local planning policy and the 2022 Building Regulations.

The primary objective of this report is to contribute to the development of a low carbon and sustainable strategy for the site which will be carried through to detailed design, construction, and operation.

2. DEVELOPMENT PROPOSALS

The project is a proposed redevelopment of the existing Octagon House and new build on the corner of Carmoor Road and Hathersage Road, in Manchester.



Figure 1 – Location of the Octagon Development (Source: Hodder & Partners)

The development comprises the *'Full planning application for the refurbishment and extension of Octagon House and the erection of buildings of up to 11 storeys in height to accommodate a mix of uses comprising Purpose Built Student Accommodation bedrooms (205 studios and 35 apartments accommodating 255 bedrooms) (Sui Generis Use Class); Key Worker accommodation (Sui Generis Use Class) (211 units); Residential units (16 no) (Use Class C3); 2,568 sq m of healthcare use (including the retention of an existing healthcare facility on site) (Use Class Ee); and 394 sq m of commercial or community uses (Use Classes Ea, Eb, Eciii, Ee, Ef, F1e, F2b, F2c) with associated site access, car and cycle parking and landscaping.'*

3. POLICY CONTEXT

3.1. National Planning Policy Framework

The Government's planning policies for England are set out in the National Planning Policy Framework (NPPF) published in August 2026. Section 2 of the NPPF highlights sustainability as a critical issue which underpins all planning polices, stating that "the purpose of the planning system is to contribute to the achievement of sustainable development".

Aligning with the U.N. definition, the NPPF defines sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs", and outlines the three pillars of sustainability which must be pursued in tandem to ensure developments are truly sustainable:

- An **economic objective**, to help build a strong, responsive, and competitive economy, by ensuring that sufficient land of the right types is available in the right places, and at the right time to support growth, innovation, and improved productivity; and by identifying and coordinating the provision of infrastructure.

- A **social objective**, to support strong, vibrant, and healthy communities by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations, and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural wellbeing.

- An **environmental objective**, to contribute to protecting and enhancing our natural, built, and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

3.2. Places For Everyone Joint Development Plan

The Places for Everyone Joint Development Plan (2024) of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, and Wigan Councils sits at the foundations of proposals to improve employment opportunities for local communities, build the right homes in the right places, rejuvenate green spaces and reshape town centres. As a long-term plan for jobs, new homes, and sustainable growth, it will enable the region to tackle the inequalities experienced by many communities.

This section of the report summarises the policies within the Plan relevant to climate change and environmental sustainability, and to the proposed development site.

Policy JP-Strat9: Southern Areas
The economic competitiveness, distinctive local neighbourhood character and environmental attractiveness of the southern areas will be protected and enhanced. There will be a strong emphasis on making as much use as possible of suitable previously developed (brownfield) land and promoting the roles of the areas' town centres and its other key assets, including education and training facilities enabling people to gain access to employment opportunities. There will be an emphasis on improving transport connections and accessibility by public transport, cycling and walking, ensuring access to key employment opportunities in this area.

Policy JP-S1: Sustainable Development
Development should aim to maximise 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. In bringing forward previously developed sites for development, particular attention

will be paid to tackling land contamination and stability issues, ensuring that appropriate mitigation and remediation is implemented to enable sites to be brought back into use effectively.

Policy JP-S2: Carbon and Energy

The aim of Policy JP-S2 is to deliver a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions. This will be supported through a range of measures, including:

- Promoting retrofitting of existing buildings with measures to improve energy efficiency and generating 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 which applies:
    - From adoption: to regulated operational carbon emissions
    - From 2028: to all emissions 'in construction'.

    Starting from 2025, it will also be expected that carbon emissions from unregulated energy sources will be quantified and minimised. Reported through an energy statement, development proposals will be required to set out how this has been achieved in accordance with the energy hierarchy, which, in order of importance, seeks to:
    i. Minimise energy demand
    ii. Maximise energy efficiency
    iii. Use renewable energy
    iv. Use low carbon energy
    v. Utilise other energy sources

    Furthermore, from 2025, any residual carbon emissions that cannot be fully mitigated on-site should be offset, in agreement with the relevant local planning authority through a financial contribution to a carbon offset fund. As an interim measure, development should be consistent with the 2022 Part L Building Regulations, unless superseded by changes to building regulations and/or national or local planning policies.

  - Incorporate adequate electric vehicle charging points in line with Part S of the Building Regulations, unless superseded by relevant Local Plan policies, to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site.

  - Where practicable, prioritise connection to a renewable energy/heating/cooling network or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date.

  - 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, in

accordance with Table 5.1 of the Plan. In summary, this requires houses to meet the following best practice thresholds from 2025:

- Space heating demand of 30kWh/m^2 (houses) or 25kWh/m^2 (flats)
- At least 20% energy demand reduction in the total heat required for hot water heating
- Photovoltaic installation to equal at least 40% of ground floorspace

With regards to renewable energy generation, priority should be given to photovoltaic (PV) installation, where technically feasible. Alternative technologies will also be considered appropriate where the equivalent generation is evidenced.

- For non-residential developments, achieve at least BREEAM Excellent standard (or equivalent) for issue Energy 01 "Reduction of energy use and carbon emissions", rising to 'BREEAM Outstanding equivalent from 2028 (for issue Energy 01).

- Include a detailed energy statement to demonstrate via site relevant evidence how the development has sought to maximize reductions in carbon emissions in line with relevant policy targets, including the minimisation of overheating risks and appropriate measures for post occupancy evaluation. Whole life cycle emissions should be considered where possible. Districts may set out specific carbon emission reduction and energy demand targets within Local Plans.

Please note that the June 2022 release revision of "Approved Building Regulations Part L 2021" will be referred to as "Part L 2022" throughout this report, in accordance with the naming convention used in Policy JP-S-2.

Policy JP-S3: Heat and Energy Networks

The provision of decentralised energy infrastructure is critical to the delivery of the objectives for low carbon growth, carbon reductions, and an increase in local energy generation. The following measures will assist in achieving this:

1. Delivery of renewable and low carbon energy schemes will be supported, with particular emphasis on the use of decentralised energy networks in areas identified as "Heat and Energy Network Opportunity Areas". These have been identified where:
   a. Existing heat/energy networks are operational or have been commissioned;
   b. Proposals for new heat networks/energy networks are being progressed, or future opportunities have been identified in city-region master planning;
   c. Sufficient density of existing heat demand occurs; and
   d. Significant future development is proposed at the strategic development locations.
2. Within the identified "Heat and Energy Network Opportunity Areas", unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions or such connection is not practicable or financially viable, it is expected that:
   a. New residential developments that are '10 dwellings or more' or other developments over 1,000m^2 floorspace shall:
      i. Connect to an existing or planned heat/energy network or be designed to enable future connection (where within 500m of such a network); and/or
      ii. Install a site-wide or communal heat/energy network solution.
   b. An expectation that new industrial development will demonstrate that opportunities for using waste heat locally have been fully examined, and included in proposals;

c. An expectation that where publicly owned buildings and assets adjoin new major development sites, opportunities for these buildings and assets to connect to site-wide proposals will be considered; and
d. An expectation that any site-wide networks will be designed so as to enable future expansion to adjoining buildings or assets as appropriate.

Policy JP-S4: Flood Risk and the Water Environment
An integrated catchment-based approach will be taken to protect the quantity and quality of water bodies with reference to the North West River Basin Management Plan and managing flood risk, by:

1. Returning rivers to a more natural state, where practicable;
2. Working with natural processes and adopting a natural flood management approach to slow the speed of water drainage and intercept water pollutants;
3. Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;
4. Expecting developments to manage surface water run-off through sustainable drainage systems and as close to source as possible. Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable. District local plans should consider setting more detailed surface water drainage policies to reflect local circumstances, including alternative surface water discharge rates, such as in areas with critical drainage issues;
5. Ensuring that sustainable drainage systems:
    a. Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;
    b. Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;
    c. Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and
    d. Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.
6. Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment; and
7. As a minimum, residential development should meet the mandatory water efficiency standard of 125 litres/person/day as set out in Building Regulations. District local plans may and should consider setting a tighter water efficiency standard of 110 litres/person/day where there is a clear local need with reference to national guidance on housing optional technical standards.

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;
- 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.

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. Application of the following measures will help achieve this:

- Development and implementation of the Zero Waste Strategy for Greater Manchester which promotes overall reduction in the levels 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.

Policy JP-G6: Urban Green Space

To ensure there is an appropriate scale, type, quality and distribution of accessible urban green space that can support a high quality of life and other important green infrastructure functions:

- Existing urban green space will be protected and enhanced in balance with other considerations;
- We will work with developers and other stakeholders to deliver new high quality urban green spaces.

Development should be designed to support the positive use of nearby green spaces, such as by offering a high-quality setting, providing natural surveillance, and facilitating easy access by walking and cycling.

Policy JP-G8: A Net Enhancement of Biodiversity and Geodiversity

Through local planning and associated activities, a net enhancement of biodiversity resources will be sought, including, where relevant, by:

1. Increasing the quality, quantity, extent and diversity of habitats, particularly priority habitats identified in national or local biodiversity action plans and those that support priority species;
2. Improving connections between habitats, to protect and enhance the provision of corridors, ecological networks (including Nature Recovery Networks) and steppingstones that enable the movement of species, especially as the climate changes;
3. Enhancing the management of existing habitats, including through habitat restoration, avoiding habitat fragmentation and combating invasive species;
4. Protecting sites designated for their nature conservation and/or geological importance, with the highest level of protection given to international and then national designations;
5. Facilitating greater access to nature, particularly within urban areas;
6. Supporting the development and implementation of the Great Manchester Wetlands Nature Recovery Network; and
7. Safeguarding, restoring and sustainably managing our most valuable soil resources, tackling soil degradation/erosion and recovering soil fertility, particularly to ensure protection of peat-based soils and safeguard 'best and most versatile' agricultural land.

Development will be expected to:

a. Follow the mitigation hierarchy of:
   i. Avoiding significant harm to biodiversity, particularly where it is irreplaceable, through consideration of alternative sites with less harmful impacts, then
   ii. Adequately mitigating any harm to biodiversity, then
   iii. Adequately compensating for any remaining harm to biodiversity
b. Avoid fragmenting or severing connectivity between habitats;
c. Achieve a measurable net gain in biodiversity of no less than 10%
d. Make appropriate provision for long-term management of habitats and geological features connected to the development;
e. Where appropriate, development should: mitigate air pollution impacts on Manchester Mosses SAC; mitigate urban edge, functionally linked land and recreation disturbance impacts on the South Pennine Moors SAC/SPAs; and assess and potentially mitigate boat movement, water pollution, and light spillage and shading impacts on the Rochdale Canal SAC; and
f. Development proposals should be informed by the findings and recommendations of the appropriate biodiversity/ecological assessment(s) in the PfE evidence base and/or any updated or appropriate biodiversity/ecological assessments submitted as part of the planning application process.

Policy JP-P1 Sustainable Places

Greater Manchester aims to become one of the most liveable city regions in the world, consisting of a series of beautiful, healthy and varied places, each having the following key attributes that all development, wherever appropriate, should be consistent with:

1. Distinctive, with a clear identity that:
   a. Conserves and enhances the natural environment, landscape features, historic environment and local history and culture;
   b. Enables a clear understanding of how the place has developed; and

   c. Respects and acknowledges the character and identity of the locality in terms of design, siting, size, scale and materials used
2. Visually stimulating, creating interesting and imaginative environments which raise the human spirit through the use of green space, public art and quality design
3. Socially inclusive:
   a. Responding to the needs of all parts of society;
   b. Enabling everyone to participate equally and independently;
   c. Providing opportunities for social contact and support; and
   d. Promoting a sense of community
4. Resilient, capable of dealing with major environmental events
5. Adaptable, able to respond easily to varied and changing needs and technologies
6. Durable, being built to last and using robust materials that reflect local character, weather well and are easily maintained
7. Resource-efficient with:
   a. A low carbon footprint;
   b. Efficient use of land;
   c. Minimised use of new materials;
   d. High levels of recycling
8. Safe, including by designing out crime and terrorism, reducing opportunities for anti-social behaviour and by ensuring that developments make appropriate provision for response and evacuation in the case of an emergency or disaster.
9. Supported by critical infrastructure, such as energy, water and drainage and green spaces
10. Functional and convenient, enabling people and uses to act efficiently with minimal effort, and responding to needs relating to servicing, recycling facilities, refuse collection and storage
11. Incorporating inclusive design within all spaces with support for tackling inequality and poverty to form part of creating sustainable places
12. Legible, being easy to understand and navigate, with the protection and enhancement of key views and new development well-integrated into the place
13. Easy to move around for those of all mobility levels, particularly by walking and cycling, with enjoyable routes free from obstacles and disorienting stimuli, and with places to rest
14. Well-connected to other places, particularly by public transport and digital infrastructure enabling everyone to take advantage of the employment, cultural and leisure opportunities across Greater Manchester and beyond
15. Comfortable and inviting, with indoor and outdoor environments:
   a. Offering a high level of amenity that minimises exposure to pollution; and
   b. Addressing microclimate issues such as sunlight, indoor air quality, overheating, shade, wind and shelter
16. Incorporating high quality and well managed green infrastructure and quality public realm, with:
   a. Opportunities for recreation and outdoor play for children, and interaction between the generations;
   b. Public and private spaces clearly distinguished;
   c. Development clearly defining, and promoting activity within, public spaces;
   d. High quality landscaping with schemes
17. Well-served by local shops, services and amenities, including education and health facilities.

3.3. Manchester Core Strategy (2012 – 2027)

Adopted in 2012, the Manchester Core Strategy is a key document within the wider Manchester Local Plan. It sets the out the long-term strategic policies for Manchester's future development forms the framework that planning applications are assessed against. A summary of key policies relevant to the development are provided within this section.

CS Policy DM 1: Development Management
All development should have regard to a number of development principles for which more detailed guidance may be given within a supplementary planning document. It also states that, "subject to scheme viability, developers will be required to demonstrate that new non-domestic development to achieve a BREEAM Rating of 'Very Good' or for domestic development to achieve the Code for Sustainable Homes standard".

Policy EN4: Reducing CO2 Emissions by Enabling Low and Zero Carbon Development
It must be demonstrated that the energy hierarchy has been applied to:

- Reduce the need for energy through design features that provide passive heating, natural lighting and cooling.
- Reduce the need for energy through energy efficient features such as improved insulation and glazing.
- Meet residual energy requirements through the use of low or zero carbon energy generating technologies.

(Note: That the above section of Policy EN 4 is now replaced by Places for Everyone (PfE) Policy JP-S2)

Furthermore, the following is also required:

- 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.
- The use of building materials with low embodied carbon in new development and refurbishment schemes must be considered.

Policy EN5: Strategic Areas for Low and Zero Carbon Decentralised Energy Infrastructure
This policy sets a requirement for key developments to consider being part of or providing an anchor to a new local energy network.

Within specific strategic areas (including the Oxford Street corridor) new development, regeneration and retrofit projects, will be expected to take place in the context of more detailed proposals for decentralised low and zero carbon energy infrastructure in the form of energy proposals plans. The Council will work with all relevant stakeholders, which may include developers, landowners, residents,

community groups, private sector partners, utilities companies, neighbouring authorities, and other public sector bodies, as appropriate, to bring forward such plans.

Where investment or development is being undertaken into or adjacent to a public building/asset or district heating network, full consideration shall be given to the potential role that these can have in providing an anchor load within a decentralised energy network or in creating opportunities for CO2 reduction funded by contributions.

Policy EN 6: Target Framework for CO2 Reductions from Low or Zero Carbon Energy Supplies
Residential developments of 10 or more units will be expected to achieve a minimum performance target as shown in the table below, 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 CO_2 emissions for all phases of the development'.

Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible, a 15% increase on Part L 2010
Target 2: Electricity intense buildings	+15%increase on Part L 2010
Target 3: Micro generation area	+15% increase on Part L 2010

(Note: Most of Policy EN 6 is now replaced by PfE Policy JP-S2)

Policy EN 8 Adaptation to Climate Change
All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rainwater permeability.
- Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways.
- The need to control overheating of buildings through passive design.
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

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 EN6, subject to sufficient evidence to quantify their contribution to compliance.

(Note: The first and fourth bullet points of Policy EN 8 are now replaced by PfE Policies JP-S2, JP-S4 and JP-G8)

Policy EN 14 Flood Risk
The following requirements are stated within Policy EN 14:

- In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).
- In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA.
- All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.
- Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.
- The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.

(Note: The third bullet point of Policy EN 14 is now replaced by PfE Policy JP-S4)

Policy EN 15 Biodiversity and Geological Conservation
The Council will seek to maintain or enhance sites of biodiversity and geological value throughout the City. Particular consideration will be given to:

- sites with international or national designations for their biodiversity value. Manchester contains one Site of Special Scientific Interest (SSSI) (Cotteril Clough); there is a Special Area of Conservation (SAC) and an SSSI just over the border in Oldham (both on the Rochdale Canal within Oldham).
- other sites of biodiversity value, including Sites of Biological Importance (SBIs) and Local Nature Reserves (LNRs); Manchester currently has 35 SBIs (including the Rochdale and Ashton Canals) and 7 LNRs; priority habitats found within Manchester, as listed in the Manchester Biodiversity Strategy, and included in the Greater Manchester Biodiversity Action Plan (GM BAP).
- protected and priority species, as listed in the Manchester Biodiversity Strategy and included in the Greater Manchester Biodiversity Action Plan (GM BAP).
- sites that are recognised for their geological importance;
- the Council's objective to protect and conserve the City's existing trees and woodlands and the aim for a net increase in trees across the City.

Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate, with reference to:

- the Manchester Biodiversity Strategy, which provides further details of priority habitats within Manchester and opportunities for biodiversity enhancement including corridors such as the Mersey, Medlock and Irk River valleys, the canals and disused railway lines and areas of managed greenspace particularly in parks.

- the Green Infrastructure Framework for Greater Manchester, which encompasses an ecological framework that seeks to guide and inform habitat creation and repair, including identifying large 'biodiversity opportunity areas' including the Moston Brook Corridor and Knutsford Vale;
- the Open Space, Sport & Recreation Study, which identifies areas where there is a deficit of natural and semi-natural greenspace, opportunities for green corridors and other linkages.
- Manchester's Climate Change Action Plan.
- the Strategic Flood Risk Assessment (SFRA) for Manchester.
- the Habitats Regulations Assessment (HRA) for Manchester, which gives detailed consideration to Special Areas of Conservation (SACs), including the Rochdale Canal SAC just outside the district boundary.
- the River Basin Management Plan for the Northwest.
- the Manchester Tree Strategy.

Any adverse impacts on biodiversity will need to be justified against the wider benefits of the proposal, assessed against other LDF policies. Where adverse impacts are unavoidable, developers will be required to provide appropriate mitigation and/or compensation.

Development should wherever possible seek to maintain, enhance, or restore existing geology.

(Note: "Either on-site or adjacent to the site" in the second paragraph and the last sentence of Policy EN 15 are now replaced by PfE Policy JP-G8)

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 plant.

When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas.

(Note: "and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport" from first sentence of Policy EN 16 is now replaced by PfE Policy JP-S5)

Policy EN 19 Waste
The Council will:

- Require all developers, including those of new waste management facilities within the District, to demonstrate the proposal's consistency with the principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal)
- Require all developers to submit a waste management plan to demonstrate how both construction and demolition waste will be minimised and recycled on site wherever possible and how the sustainable waste management needs of the end user will be met.
- Promote the development of innovation and technological advancement within the sustainable waste management industry, aiming to achieve a closed-loop waste management system.

- Require waste management practices to have full regard to the environmental, social & economic impacts of such development and encourage long-term benefits in improving the environment, the regeneration of areas in need of investment and co-location with other employment uses where appropriate.
- Encourage communities to take responsibility for the waste created by provision of accessible facilities.

3.4. Guide to Development in Manchester Supplementary Planning Document

Adopted in 2017, the Guide to Development in Manchester Supplementary Planning Document (SPD) is a material planning consideration for applications. That said, it is not part of the Development Plan. Whilst it references policies from the old Local Plan (UDP), which have been superseded, it is still useful as a general guide to development. It includes a section on environmental standards, with sub sections on energy efficiency, renewable energy, environmental design, water management and weather resilience, waste management, construction management, biodiversity, and waterways.

4. RESPONSE TO CLIMATE CHANGE

4.1. Introduction

This section of the report summarises the proposed design response to potential climate change impacts, in line with Manchester City Council's policies identified in Chapter 3, notably the Places for Everyone Plan policy JP-S2 and Manchester Core Strategy policies EN4, EN6 and EN8.

4.2. Carbon Reduction

Carbon reduction is key to tackling climate change. The term "carbon", in relation to climate change, covers all greenhouse gas emissions, and is measured in terms of CO2 equivalent. The carbon emissions associated with the development include embodied carbon, construction related carbon, and operational carbon. Operational carbon is associated with the energy used to heat, cool, light and ventilate the building, known are "regulated energy", and also the energy associated with unregulated systems, such as plug-in equipment. A further, and indirect, source of operational carbon emissions are associated with people's transport to, from and within the development. In addition, there are also significant carbon emissions associated with the construction of the building, including embodied carbon within the materials used for construction.

This section outlines the steps taken to reduce construction and operational emissions.

4.2.1. Operational Carbon Emissions

Operational CO_2 emissions associated with the day-to-day running of the development will be minimised in line with the energy hierarchy, thus conforming to the requirements of Manchester Core Strategy Policy EN 4 "Reducing CO2 Emissions by Enabling Low & Zero Carbon Development" and the Places for Everyone Framework Policy JP-S2 (summarised in Sections 3.2 and 3.3). Ridge and Partner's Energy Strategy Report and Ventilation Statement both dated June 2026, provides full details of how this is achieved.

A summary of the Energy Strategy report is provided within this section of the Statement. Please note that the June 2022 release revision of "Approved Building Regulations Part L 2021" will be referred to as "Part L 2022" throughout this report in accordance with the naming convention used in Policy JP-S-2.

This design strategy has been developed in line with the energy hierarchy, as outlined below:

- Be Lean: Reduce energy demand through passive measures and construction techniques.
- Be Clean: Supply energy cleaning and efficiently through the incorporation of high efficiency systems and effective controls.
- Be Green: Incorporate renewable and low carbon energy sources to meet any residual energy demand.

Further details are provided in the following sections.

4.2.1.1. Passive Design Measures ("Be Lean")

A number of measures have been applied to reduce the energy demand associated with the development. In the first instance, the development will include the implementation of passive design measures and optimise the building envelope in terms of orientation, air tightness, and insulation.

The proposal is targeting a low carbon classification through a holistic low energy design concept as it will be designed with a fabric first approach whereby Passivhaus design standards are aspired to for all fabric U-values and air permeability targets, whilst consideration is given to building orientations, solar shading devices and natural means of ventilation. A summary of U-values and air permeability targets applied to residential units is provided in Tables 1 and 2.

Table 1: Proposed U-values

BUILDING FABRIC ELEMENT	PART L NOTIONAL U-VALUE (W/M²K)	PROPOSED TARGET U-VALUE (W/M²K)
Walls	0.18	0.16
Floors	0.18	0.1
Roof	0.13	0.16
Windows	1.4	1.01
Doors	1.6	1.36

Table 2: Proposed air permeability target

AIR PERMEABILITY PART L NOTIONAL	TARGET AIR PERMEABILITY
5 m³/m²/hr	3 m³/m²/hr

4.2.1.2. Energy Efficient Services ("Be Clean")

The following Energy efficiency measures have been established to meet the energy demand of the building;

- Mechanical Ventilation Heat Recovery (MVHR) will be installed within all flats, bedrooms/studios and communal/amenity spaces apartments and communal spaces. MVHR provides filtered air into a building whilst retaining most of the energy that has already been used in heating the building. The re-use of the heat in the mechanical ventilation systems could provide a significant step towards reducing CO^2 emissions.
- LED Lighting will be utilised to minimise energy consumption and CO_2 emissions associated with lighting in the proposed development.
- Demand Operated Systems will be used where the ventilation, lighting, heating, and cooling is provided in spaces that may not always be in use in the form of occupancy sensors. To reduce energy consumption, these will shut down the systems serving these spaces when they are not required and turn them back on instantly when they are required.
- Variable Speed operation of mechanical plant: All pumps and fans will be provided with variable speed motors to allow the modulation of energy systems during periods of lower demand to conserve energy.
- Power Management: allocation of spare plant space will be made for future introduction of power factor correction into the proposed development to allow users to control the amount of electrical power consumed by devices, this will follow a survey undertaken after 6 months of operation.
- Building Management Systems (BMS) will be considered for installation for the Development to optimise the function of the ventilation, heating, and cooling systems within the amenity areas to minimise energy use.

4.2.1.3. Meeting Demand Efficiently ("Be Green")

The final aspect of the design has been to establish what renewable and low carbon technologies can be adopted. A review of possible technologies has been completed. Air Source Heat Pumps (ASHP) will be used to generate hot water to the individual apartments as well as heating and cooling to the amenity areas of the development.

4.2.1.4. Operational Carbon Emissions (Results)

Energy saving from the use of renewable technologies is provided in Table 3 below.

Table 3: Energy saving from renewables for Octagon House.

BUILDING	CO_2 EMISSION RATE ($KGCO^2/M^2$ ANNUM)		PRIMARY ENERGY RATE (KWH_{PE}/M^2 ANNUM)		RESULT
	BUILDING	TARGET	BUILDING	TARGET	
Block A	11.39	12.69	122.22	135.99	Pass
Block B	12.32	13.7	132.16	146.87	Pass
Block C	10.82	12.06	115.97	129.3	Pass
Block D	10.92	12.62	116.87	134.67	Pass

4.2.2. Transport

The Transport Assessment and Travel Plan have been prepared by SLR to provide an overview of the existing transport conditions associated with the site, and the outline sustainable transport measures considered to reduce transport-related emissions associated with the new development.

4.2.2.1. Public Transport

The site benefits from two bus stops within a five-minute walk. These stops are on Upper Brook Street, around the junction with Hathersage Road, with the southbound stop Manchester Royal Infirmary. There are several stops around 800m to 1km away from the centre of the site where additional services can be found. Resident's may walk to these stops for other specific destinations not covered by routes 41, 50, 191 and 197. These stops are on Stockport Road and Oxford Road offering a combined frequency of less than 5 minutes to Manchester city centre. It can be concluded that bus public transport accessibility is good.

Regarding rail services, Manchester Oxford Road and Piccadilly Stations are approximately 2.5km and 2.6km to the north of the site. These train stations are key nodes on the national rail network, offering services to national destinations including London, Birmingham, Nottingham, Glasgow, Edinburgh, and Cardiff. In addition, regional services to destinations in the north of England and local services within Greater Manchester can be reached. The closest Manchester Metrolink tram stops are Manchester Picadilly and St Peter's square, 2.6km and 2.8km. It is therefore possible to travel to the site by tram from local and regional destinations as part of a multi-modal trip.

The site achieves a Greater Manchester Accessibility Level (GMAL) score of 6-8. The western part of the site has a GMAL of 8, and the eastern part has a GMAL of 6, indicating that the site is in a highly accessible location from any point in Greater Manchester, with good connections to public transport services.

4.2.2.2. Amenities

The site is located within a highly accessible urban area, with a range of local services and amenities available within convenient walking distance. Within approximately 500m of the site, residents have access to nearby bus stops on Upper Brook Street and Plymouth Grove, a convenience store, Tesco Express, bars, restaurants and takeaways, health facilities and places of worship. The wider 1km walking catchment provides further access to public transport stops on Stockport Road and Oxford Road, additional food retail including Lidl, a pharmacy, further healthcare provision, food and drink uses, and nearby consular services. The 2km catchment extends to surrounding residential, commercial and university areas, providing access to a broader range of services and facilities. Pedestrian infrastructure surrounding the site is considered good, with footways on both sides of key routes, signalised crossings with dropped kerbs and tactile paving, good visibility, a 20mph speed limit on Hathersage Road and comprehensive street lighting.

Overall, the site is considered highly accessible on foot and benefits from convenient access to a wide range of amenities, supporting sustainable travel and reducing reliance on private car use.

4.2.2.3. Active Travel and Pedestrian and Cyclist Networks

The site is well placed to support active travel, with good pedestrian connectivity and access to an established local cycling network. The surrounding area benefits from pedestrian infrastructure including

footways, signalised crossings, dropped kerbs, tactile paving, good visibility and street lighting, supporting safe and convenient walking routes to nearby amenities, public transport stops and surrounding residential, commercial and university areas. Cycling also has strong potential to accommodate local journeys, particularly trips within 5km of the site. This catchment includes Manchester city centre, the University campuses, key rail and bus stations, and surrounding areas.

The local cycle network provides a range of route options for future residents, including on-road cycle lanes on Plymouth Grove and Stockport Road, cycle and bus shared lanes on Anson Road, signposted on-road routes on Conyngham Road, Lower Park Road and Birch Grove, and segregated cycle lanes on Wilmslow Road. The Wilmslow Road corridor provides a continuous connection between Manchester Oxford Road and Didsbury, enabling safe access towards the city centre and wider cycle network. Additional on-road cycle lanes and traffic-free routes are available through the University campuses to the north and north-east, while nearby 20mph streets further support safer cycling conditions. The Greater Manchester Beryl cycle hire scheme also operates in the area, with docking facilities located adjacent to the site access on Hathersage Road.

The development will further support active travel through the provision of 106 cycle parking spaces, comprising 84 covered, access-controlled long-stay spaces and 22 uncovered short-stay spaces. The covered cycle parking will be distributed across external covered and internal store locations, including provision for larger bicycles, while short-stay Sheffield stands will be provided at multiple locations around the site. Existing site accesses will be retained, a new access will be introduced on Carmoor Road, and Curzon Road will be reinstated to improve local permeability between Carmoor Road and Bax Road. In addition, on-site car parking will be significantly reduced from 230 to 50 spaces. Overall, the site benefits from good active travel connectivity and the proposals include measures that will encourage walking, cycling and cycle hire use, helping to reduce reliance on private car travel.

4.2.2.4. Private Car Parking

The proposals will significantly reduce on-site car parking from 230 existing spaces to 50 formal spaces, removing 180 spaces overall and supporting a low-car approach to the development. The retained and proposed parking will primarily serve the Central Manchester Dialysis Unit, including 19 retained spaces and a new 31-space car park to support its expanded operations, with limited provision also available for staff, management and disabled residents. No general parking will be provided for the residential element, making the scheme almost car-free. Parking will be managed through permits, site management controls, signage and warden monitoring to prevent unauthorised parking, with short-stay permits available where required. The proposals also include five electric vehicle charging bays, equivalent to 10% of total provision, and four disabled bays located close to the Block D and Dialysis Unit entrances.

4.2.2.5. Travel Plan

A travel plan has been produced by SLR to encourage sustainable transport practices and reduce transport emissions associated with the development. As confirmed in the report, the travel plan initiatives, include the following:

- Encouraging walking
- Encouraging cycling
- Encouraging public transport use
- Encouraging car sharing
- Encouraging sustainable travel

A Travel Plan Coordinator will be responsible for implementing and managing the Travel Plan following redevelopment. Their role will include overseeing the day-to-day operation of the plan, maintaining relevant information, databases and administration, liaising with key partners, leading delivery of the Travel Plan, and acting as the main point of contact for residents and stakeholders. The Coordinator will also promote the purpose, benefits and opportunities of the Travel Plan, including the individual measures designed to encourage sustainable travel choices.

4.3. Climate Change Adaptation

As the scheme design develops, the team will ensure that the effects of climate change on the development are mitigated wherever possible as directed by Policy EN8 'Adaptation to Climate Change'. The change in climate will be considered when designing both the external envelope and the building services and the buildings will be future proofed where reasonably possible.

The potential impacts of climate change considered include:

- Increased temperatures (including the heat island effect)
- Flood risk
- Increased weather volatility
- Impacts on water resources
- Changes in ground conditions

The heat island effect occurs when a development is significantly warmer than surrounding rural areas. Sustained high temperatures can have impacts on health, local microclimate/weather conditions and energy use (for cooling).

4.3.1.1. Overheating

An Overheating Assessment has been produced by Ridge & Partners to analyse the performance of the proposed development against a future climate change environment, with a target to ensure the relevant thermal comfort criteria is met as future temperatures continue to rise.

The proposed design will utilise a summer bypass mechanical ventilation heat recovery (MVHR) system for each of the dwellings. The MVHR system will operate if the air temperature is greater than 16 Degrees Celsius and the outside air temperature is less than the room temperature, to prevent habitable rooms within the dwellings from overheating.

Based on the results of a full thermal dynamic model analysis conducted for the development, in accordance with 'CIBSE AM11 Building Energy and Environmental Modelling', all habitable rooms comply with the thermal comfort criteria as set out in CIBSE TM59:2017.

4.3.2. Flood Risk

Rising sea levels and increases in average winter precipitation, as well as a general increase in the frequency, duration and intensity of rainfall may result in flood risks. Methods for adapting to increased flood risk include, but are not limited to:

- Flood resilient buildings and materials
- Managing flood pathways
- Use of sustainable drainage systems

It is thought that extreme weather events may occur as a result of climate change, including storms, high winds, cold events, and heatwaves. The confidence level in predictions for these is low and there are a number of diverging projections. However, it is important to ensure the Development is designed so that it will be resilient against future extreme weather wherever possible. This will be taken into consideration when specifying materials and structural detailing.

The above has been considered as part of the Flood Risk Assessment and Drainage Strategy report produced by Ridge & Partners (document reference 5033325 Octagon House FRA & Outline Drainage Strategy), which confirms that the site is located in flood zone 1. This means the site is located within an area of low probability of flooding from all sources. The report indicates that no flood water flows will be affected, and no flood water will be displaced. Additionally, safe access and egress can be gained to and from the proposed building up to the 1000-year return period.

In accordance with the requirements of the NPPF, a surface water drainage strategy has been developed for the proposal to demonstrate that surface water runoff can be effectively managed within the site without increasing the risk of flooding to the site and elsewhere. Surface water drainage from the site will be managed with discharge to the combined sewer network. The surface water discharge rates will be restricted to brownfield calculated rates with a betterment reduction of 50%, which accords with the LLFA requirements.

Rainwater reuse will be considered as a supplementary water management approach for the development to reduce overall runoff volumes and potable water demand. Permeable paving may be utilised in areas where infiltration is unfeasible, such as trafficked areas. The use of rain gardens and bioretention features will be considered for integration within the landscape design to provide above ground storage conveyance and surface water treatment. Shallow geocellular storage and oversized pipes are proposed to provide below-ground attenuation to the site.

Surface water runoff post development will be restricted to the existing brownfield calculated rate with a 50% reduction for all return periods, providing a significant betterment over the existing brownfield condition. A maintenance regime will be implemented to ensure long-term system performance, including regular inspection and cleansing of gullies, pipework, and attenuation systems. The responsibility of the site maintenance will lie with a management company or site owner.

The risk of pollution associated with discharge from the site post-development has been identified as low. The drainage strategy will incorporate an appropriate SuDS management train including source control and below ground attenuation to provide treatment and settlement prior to controlled discharge.

The drainage strategy has demonstrated that with the application of site-appropriate SuDS techniques the surface water runoff will not increase from the pre-development regime, this ensures that the proposed development will therefore not increase the flood risk onto its locality up to and including the 100-year plus 45% increase in rainfall allowance due to climate change event. In consideration for the careful design of the drainage elements no residual flood-related risk will remain after the Development is completed.

5. OTHER AREAS OF ENVIRONMENTAL & SUSTAINABILITY PERFORMANCE

5.1. Introduction

The wider sustainability measures to be incorporated into the project, in line with the requirements of national, regional, and local planning policy, are summarised within this section of the report.

5.2. Materials and Waste

A Circular Economy (CE) Statement has been developed to address how the proposed development will sustainably source, conserve and increase the efficiency of resources, in addition to exploring how waste will be managed sustainably and eliminated as far as possible.

A detailed design analysis was undertaken to identify opportunities to develop an efficient and lean design to minimise the quantity of materials used. The efficiency of the structural frame will be scrutinised to avoid over specification and the building weight will be minimised through the application of the following:

- Piled foundations have been prioritised over pad foundations as they typically use less material;
- The size and number of piles have been optimised to reduce material usage;
- Lightweight internal partitions will be specified;
- Lightweight finishes and limited screed will be used where possible.

Sustainable use of resources includes both efficient use of materials and minimisation of waste. The Development will be designed to be durable and resilient to increase the longevity of the building. This will help to reduce the need to repair and replace materials resulting from damage to exposed elements of the building and landscape. Examples explored by the design team include the selection of brick as the material for the façade design and the high-corrosion resistance provided by aluminium specified for the window systems.

The proposed development will seek to minimise as much municipal waste as much as possible in line with best practice efficiency benchmarks and through the provision of a centralised residential waste storage area, with dedicated space for recyclable and general waste. This waste facility will be designed to demonstrate compliance with Policy EN 19 'Waste' of the MCC Core Strategy and Policy JP-S7 'Resource Efficiency' of the JDMP.

The proposed development will seek to minimise construction waste as much as possible, resource efficiency targets are to be developed and set for the waste generated during construction. This will be delivered through the project-specific Site Waste Management Plan that covers on-site construction waste, off-site manufacturing waste and accurately records waste arisings and waste management practices.

5.3. Construction Management

As detailed within the Construction Management Framework produced June 2026 by Knockmoy Consultancy, it is anticipated that low carbon and sustainable materials will be considered further in the design process, where the use of materials with Environment Product Declarations (EPDs) will help drive the specifications. EPDs communicate the environmental performance of products, allowing specifiers

to make informed decisions regarding materials from both a performance and environmental perspective.

Additionally, it is stated within the Framework Construction Management Plan that the Principal Contractor will be encouraged to minimise waste on site and recycle as much as possible. An environmental management plan will be developed by the Principal Contractor to address issues surrounding waste, environmental legislation, pollution and nuisance such as noise, vibration and dust.

5.4. Daylight & Sunlight

A Daylight & Sunlight Assessment has been produced by eb7 to assess the impact of the proposed development on neighbouring sites as well as daylight and
sunlight within the proposal itself, in accordance with BRE Guidelines.

The daylight levels of the neighbouring properties as a result of the development have been assessed using the Vertical Sky Component test (VSC), a measure of the amount of sky visible from a given point. 73% of the neighbouring windows assessed met or exceeded the guidelines as detailed by the BRE.

The daylight distribution within the rooms of the neighbouring 609 neighbouring properties as a result of the development were assessed using the No Sky Line (NSL) method. Of the properties evaluated, 411 met the requirements as per BRE Guidelines.

A large majority of the neighbouring windows and rooms that fall below BRE targets are located in the neighbouring Victoria Point blocks and serve student bedrooms. It should be noted that the blocks are set close to the site boundary and take up a large proportion of light.

The Probable Sunlight Hours (APSH) method was applied to assess that amount of sunlight that a given window is projected to be provided with over a period of a year. All main living rooms assessed fully accord with the BRE targets for both annual and winter sunlight.

An assessment of the sunlight amenity was undertaken to understand the overshadowing impact posed by the development to neighbouring properties. The survey demonstrated that 5 of the 9 spaces assessed will meet or exceed the BRE targets.

A Daylight Illuminance assessment was produced to assess the daylight and sunlight received within the proposed residential units of the development. The assessment indicated that 37% of the most constringed proposed habitable rooms meet or exceed the 2022 targets set by the BRE. Whilst direct sunlight levels are more orientation specific, 47% of the most constrained units meet the 2022 BRE targets.

An assessment of overshadowing/sunlight within the proposed areas of shared amenity space have shown that 53% of the entire amenity space provided will receive more than 2 hours of sunlight on the 21st of March, which exceeds the BRE targets.

The impact of the proposed development on neighbouring buildings has been assessed and overall, the Development will have insignificant residual effects on neighbouring properties, therefore no mitigation measures are considered necessary. As a result of the Assessment the development is considered to be designed with due regard for the amenity of the neighbouring properties.

5.5. Biodiversity

A Preliminary Ecological Appraisal (PEA), Bat Scoping Survey and Draft Biodiversity Gain Plan were undertaken by United Environmental Services Ltd to assess the ecological constraints and opportunities associated with the site and to determine compliance with Biodiversity Net Gain (BNG) requirements under the Environment Act 2021.

The site is predominantly occupied by existing buildings and hardstanding, with ecological features limited to scattered trees and small areas of introduced shrub planting. No watercourses are present on or adjacent to the site, meaning it is considered unsuitable for otter, water vole and white-clawed crayfish. A targeted bird survey was not undertaken; however, the existing trees and shrubs offer some potential for nesting and foraging birds. A bat scoping survey identified Building 1 as having low suitability for roosting bats due to the presence of a small number of potential roosting features, including gaps within weep holes and beneath sections of metal cladding. No evidence of bats was recorded during the survey. Building 2 was assessed as having negligible bat roosting potential. A single bat presence/absence survey is therefore recommended for Building 1 during the bat survey season (May–August) to confirm whether bats are using the building prior to any demolition or alteration works. The surveys also identified feral pigeons nesting within rooftop utility areas of Building 1.

Mitigations and Recommendations:

A precautionary approach should be adopted during the construction phase to ensure compliance with wildlife legislation and minimise impacts on ecological receptors. A bat presence/absence survey should be completed for Building 1 prior to works. Should bats be recorded, appropriate mitigation measures and any necessary licensing requirements will need to be implemented before demolition or refurbishment proceeds.

Vegetation clearance and any tree or shrub removal should be undertaken outside the bird nesting season (March–August inclusive) wherever possible. If works are required during this period, a suitably qualified ecologist should undertake a pre-commencement nesting bird survey to confirm the absence of active nests. Feral pigeons are known to breed throughout the year and were observed within Building 1; therefore, specialist pest control and bird management measures may be required prior to works, subject to the relevant legal requirements.

Existing trees should be retained wherever practicable and protected throughout construction in accordance with their Root Protection Areas (RPAs). Any trees removed as part of the development should be replaced through a detailed landscaping scheme incorporating native species that provide ecological value for local wildlife. Invasive species identified on site, including wall cotoneaster and Himalayan cotoneaster, should be eradicated prior to the commencement of works to prevent their spread both within and beyond the site boundary. Overall, the development presents opportunities to enhance biodiversity through the integration of native planting, species-rich landscaping and wildlife features. Suitable measures may include the installation of bat boxes or integrated bat roosting features, bird nesting boxes (including sparrow, swift and starling provisions), insect habitat features and hedgehog connectivity measures where site constraints allow. External lighting should also be designed to minimise light spill onto retained habitats and any bat enhancement features, maintaining suitable conditions for nocturnal wildlife.

Biodiversity Net Gain

The draft Biodiversity Gain Plan prepared by United Environmental Services Ltd to demonstrate highlighted that the 1.2-hectare site currently provides 2.34 habitat units, with no hedgerow or

watercourse units present. To meet the statutory 10% Biodiversity Net Gain requirement, 2.57 habitat units are required post-development. The proposed landscape and habitat enhancements will increase biodiversity value; however, a residual shortfall remains, primarily due to the loss of tree units. As achieving the full uplift on-site is not considered feasible, the remaining deficit will be addressed through off-site biodiversity compensation. Habitat management and monitoring will be secured through the Biodiversity Gain Plan and implemented for a minimum of 30 years in accordance with statutory requirements.

Subject to the implementation of the recommended mitigation, enhancement and Biodiversity Net Gain measures, the proposed development is not expected to result in significant adverse effects on ecological receptors. The proposals are therefore considered to accord with Manchester City Council's objectives for biodiversity conservation and enhancement, including relevant ecology, green infrastructure and natural environment policies within the development plan. The scheme also aligns with the Greater Manchester Local Nature Recovery Strategy and statutory Biodiversity Net Gain requirements under the Environment Act 2021, contributing towards the protection, recovery and enhancement of biodiversity across Manchester.

5.6. Arboricultural Impact

An Arboricultural Impact Assessment was undertaken by Land Use Consultants (LUC) to assess the potential impacts of the proposed development on existing trees within and adjacent to the site. The survey identified 14 individual trees and three tree groups within the site, together with additional trees, groups and hedges outside the red line boundary that could be affected by the development. No trees are protected by Tree Preservation Orders, the site is not located within a Conservation Area, and no veteran trees or ancient woodland are present.

The proposals to refurbish Octagon House and construct three new residential buildings require the removal of 10 individual trees and two tree groups, including one Category A tree. While this will result in a notable reduction in existing tree cover and screening, particularly along Hathersage and Carmoor Road, a comprehensive replacement planting strategy should be implemented to mitigate these losses.

Trees to be retained should be protected during construction in accordance with BS 5837:2012 through the installation of tree protection fencing around Root Protection Areas (RPAs) and, where necessary, additional measures such as ground protection and stem protection. Existing hardstanding within RPAs will be retained where practicable to provide protection to underlying root systems during construction activities. Implementing these measures will support compliance with Manchester Core Strategy Policy EN9 (Green Infrastructure).

5.7. Air Quality

An Air Quality Assessment was undertaken by Hoare Lea to evaluate the potential air quality impacts of the proposed development during both the construction and operational phases. The assessment also considered the suitability of the site for the proposed residential use and identified any necessary mitigation measures. A baseline review of local air quality conditions was completed to establish existing conditions in the vicinity of the site. The assessment considered the potential impacts associated with demolition, construction activities, operational traffic, and energy plant emissions. It concluded that the site is suitable for the proposed residential development and that air quality should not be considered a constraint to planning consent. The development is considered to align with the principles of the National Planning Policy Framework (NPPF), the Manchester Local Development Framework – Core Strategy (2012), and the Manchester Air Quality and Planning Technical Guidance (2022).

Construction Phase

A qualitative assessment of potential dust impacts associated with demolition and construction activities was undertaken in accordance with Institute of Air Quality Management (IAQM) guidance. The assessment found that, without mitigation, the potential magnitude of dust emissions from construction activities could be large. However, the associated impacts are expected to be temporary and short-term in nature, occurring only during specific construction activities and under particular meteorological conditions. To minimise these effects, it is recommended that a Dust Management Plan (DMP) is prepared and approved by Manchester City Council prior to the commencement of works. The DMP should incorporate the mitigation measures set out within the IAQM Construction Dust Guidance. With the implementation of these measures, residual effects relating to dust soiling and ambient particulate matter concentrations are predicted to be *not significant* at all identified receptors.

In accordance with Part 4 of the IAQM guidance, all Non-Road Mobile Machinery (NRMM) used during construction will be required to comply with the relevant emissions standards for NO_2 and PM_{10}. Consequently, the effects of construction plant emissions on local air quality are expected to be negligible and not significant.

Operational Phase

The impact of operational traffic generated by the development was screened against the criteria contained within the Environmental Protection UK (EPUK) and IAQM Planning for Air Quality Guidance. The screening assessment demonstrated that traffic movements associated with the proposed development fall below the thresholds requiring detailed assessment. As a result, the impact of additional road traffic emissions on local air quality is considered insignificant and no further assessment or mitigation measures are required. The proposed energy strategy is primarily all-electric, with backup generators provided solely for life-safety purposes. As the development does not include combustion-based heating or primary energy generation systems, no significant local air quality impacts are anticipated from energy plant emissions. Consequently, a detailed assessment of combustion-related emissions was screened out of the assessment. The assessment also confirmed that the development will not introduce new residential receptors into areas where relevant Air Quality Objectives (AQOs) for nitrogen dioxide (NO_2) are exceeded. No exceedances of the relevant AQOs are predicted for any pollutant at the proposed development. Therefore, no additional operational mitigation measures are required.

The Air Quality Assessment concludes that, with the implementation of standard construction-phase dust control measures secured through a Dust Management Plan, all residual air quality effects associated with the proposed development will be *not significant*. Construction-related impacts are temporary and short-term, while operational traffic and energy plant emissions are not expected to adversely affect local air quality. The assessment confirms that there are no predicted exceedances of relevant Air Quality Objectives at the site and that air quality does not represent a constraint to the proposed development. The scheme is therefore considered to be compliant with the National Planning Policy Framework, the Manchester Local Development Framework – Core Strategy (2012), and the Manchester Air Quality and Planning Technical Guidance (2022).

5.8. Noise Pollution

A noise assessment has been undertaken by Sandy Brown Acoustics to assess the environmental noise conditions at the site, and the potential impact of noise associated with the proposed development at Octagon House. The assessment was conducted in accordance with the National Planning Policy Framework (NPPF), Noise Policy Statement for England (NPSE), BS 8233:2014 *Guidance on Sound*

Insulation and Noise Reduction for Buildings, BS 4142:2014+A1:2019 *Methods for Rating and Assessing Industrial and Commercial Sound*, Approved Document O and the requirements of Manchester City Council. The noise assessment concluded that the proposed residential development could provide acceptable living conditions for future occupants, subject to the implementation of several mitigation measures incorporated into the detailed design.

The assessment confirmed that appropriate internal noise standards can be achieved within the proposed residential units through the implementation of suitable acoustic design measures. It also identified that some façades are exposed to elevated external noise levels, meaning that open windows cannot be relied upon as the primary means of cooling during certain periods. As a result, a detailed overheating assessment will be undertaken during the next stage of design to inform the final ventilation and cooling strategy.

Within the noise assessment, the following mitigation measures have been recommended:

- Enhanced acoustic glazing and façade sound insultation to achieve the internal noise criteria set out in BS 8233 and Manchester City Council Guidance.
- Acoustically attenuated ventilation systems, including attenuated trickle ventilators where appropriate.
- Mechanical Ventilation with Heat Recovery (MVHR), or equivalent systems, serving noise-sensitive rooms where required.
- Solar control measures, including high performance glazing, shading devices and optimised façade design to reduce overheating risk.
- Passive cooling measures and alternative ventilation strategies where open windows cannot be relied upon due to external noise levels.
- Careful specification and positioning of rooftop plant equipment to minimise noise impacts on neighbouring receptors.
- Installation of acoustic screens, enclosures and attenuation packages where required.
- Selection of low-noise plant equipment and operational controls, including reduced night-time operation where necessary.
- Further detailed acoustic assessment of rooftop plant at the detailed design stage to ensure compliance with BS4142 and Manchester City Council requirements.

Overall, the noise assessment concluded that, subject to implementation of the recommended mitigation measures, the development will provide an acceptable standard of acoustic comfort for future occupants whilst avoiding adverse impacts on neighbouring properties. The proposals are therefore capable of complying with the NPPF, NPSE, BS 8233, BS 4142, Approved Document O and Manchester City Council's *Assessment and Prediction of Noise* guidance.

5.9. Geo-Environmental

A desk top study has been conducted by Ridge and Partners LLP in accordance with the Environment Agency's Land Contamination Risk Management (LCRM) guidance to assess the potential for land contamination and any risks to the proposed residential development.

The assessment identified several historical land uses with the potential to have impacted the ground quality, including former electricity depot operations, a historical garage, electricity substations, demolished buildings, former roads and potentially infilled ponds. Potential contaminants with these historic uses include heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos containing materials (ACMs), hydrocarbons, ground gases and polychlorinated biphenyls (PCBs). However, no visual

evidence of contamination was identified during the site walkover survey, including within the area of the former garage.

Overall, the contamination risks were assessed as Moderate at worst-case level, indicating that while contamination may be present, significant harm is considered unlikely and any risks can be appropriately managed through further investigation and remediation.

To ensure the site is suitable for the proposed residential use, the following measures have been recommended within the desk top study:

- Undertake an intrusive ground investigation to confirm the presence, extent and nature of any contamination and to assess groundwater conditions.
- Carry out contamination testing to determine whether remediation is required and to assist with the classification of any excavated material for reuse or disposal.
- Assess the potential presence of ground gases associated with areas of made ground and historic infilled features.
- Investigate potential localised contamination from historic garage activities and electrical infrastructure including hydrocarbons and PCBs.
- Test ground conditions to determine the suitability of foundation solutions and whether sulphate resistant concrete will be required.
- Implement any remediation measures identified through the intrusive investigation and agree these with the Local Planning Authority where necessary.
- Prepare and submit a validation report following completion of the works to demonstrate that the site is suitable for its intended residential use and does not present unacceptable risks to human health, controlled waters of future site users.

Overall, the desktop study has concluded that the site can be made suitable for the proposed residential development through further intrusive investigation. The recommended investigation and remediation strategy will ensure compliance with the NPPF and Manchester City Council Policy EN18 (Contaminated Land and Ground Stability), demonstrating that the site is suitable for the proposed residential use and that any contamination risks are appropriately managed.

6. CONCLUSION

Sustainability is a key driver for the design and delivery of the Octagon House development, with consideration given to national and local planning policy throughout all stages.

Construction carbon emissions (embodied carbon)

- An assessment of the embodied carbon associated with the RIBA Stage 2 Concept Design of the dwellings has been undertaken in line with the RICS best practice methodology.

Operational energy and carbon

- The development is designed to be highly energy-efficient, using a fabric-first approach with insulation, airtightness and glazing standards that exceed Building Regulations Part L requirements.
- The scheme is fully electric with no gas, supporting Manchester's ambition to phase out fossil fuels and transition towards a zero-carbon future.
- Air Source Heat Pump hot-water systems are provided to all apartments, delivering efficient, low-carbon domestic hot water and space heating.

- The proposals follow the Energy Hierarchy: first reducing energy demand through high-performance building design, then meeting demand efficiently, and finally incorporating low-carbon and renewable energy technologies.
- The overall strategy ensures the development delivers a highly energy-efficient, low-carbon scheme with significantly reduced energy demand and substantial reductions in operational carbon emissions.

Transport

- A Framework Travel Plan has been produced to support the provision of sustainable transport measures and reduce transport-related carbon emissions.
- The site is well connected to public transport links and local amenities, and active travel will be encouraged through high quality public realm design and appropriate levels of cycle parking provision.
- Overall, the site is considered highly accessible on foot and benefits from convenient access to a wide range of amenities, supporting sustainable travel and reducing reliance on private car use.

Climate change adaptation

- The Flood Risk Assessment confirms the site is located within Flood Zone 1 and has a low risk of flooding from all sources, including rivers, sea, surface water and reservoirs.
- The proposed drainage strategy considers the increases in the storm intensities of 40% for the 1 in 100-year events, which is consistent with the effects of climate change for a development with a design life of 100 years, as outlined in NPPF.

Materials and waste:

- Further sustainable material selection will be informed through reviews of Environment Product Declarations (EPDs) prior to specification.
- It is anticipated that low carbon and sustainable materials will be considered further in the design process, where the use of materials with EPDs will help drive the specifications.
- The Principal Contractor will be encouraged to minimise waste on site and recycle as much as possible. An construction environmental management plan will be developed by the Principal Contractor to address wider issues surrounding materials and waste.

Daylight & Sunlight

- The impact of the proposed development on neighbouring buildings has been assessed and overall, the Development will have insignificant residual effects on neighbouring properties, therefore no mitigation measures are considered necessary.
- As a result of the Daylight & Sunlight Assessment the development is considered to be designed with due regard for the amenity of the neighbouring properties.

Biodiversity:

- A precautionary approach has been detailed for the construction phase of the development to ensure compliance with wildlife legislation and minimise impacts on ecological receptors.
- Enhancement measures have been provided for the development to create new habitats as well as increase the biodiversity and amenity value.

Air Quality:

- There will be no significant adverse impacts on local air quality will occur from the construction phase or operational phase of the project, as the proposed development is considered to be compliant with the NPFF and MCC planning policies EN 16 Air Quality and JP-S5: Clean Air.

Noise Pollution:

- With the proposed mitigation, internal noise levels will meet the required standards, and the development will comply with Manchester City Council requirements.

Geo-Environmental:

- The desktop study has concluded that the site can be made suitable for the proposed residential development through further intrusive investigation.
- The investigation and remediation strategy recommended within the Survey will ensure compliance with the NPPF and Manchester City Council Policy EN18 (Contaminated Land and Ground Stability), demonstrating that the site is suitable for the proposed residential use and that any contamination risks are appropriately managed.