



Environmental Standards Statement

2&3 Angel Square, NOMA

MEPC

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EXECUTIVE SUMMARY



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EXECUTIVE SUMMARY

This Environmental Standards Statement (ESS) has been prepared on behalf of the client, in support of the proposed development of two mixed-use commercial office buildings at 2 & 3 Angel Square at NOMA on the edge of Manchester City Centre.

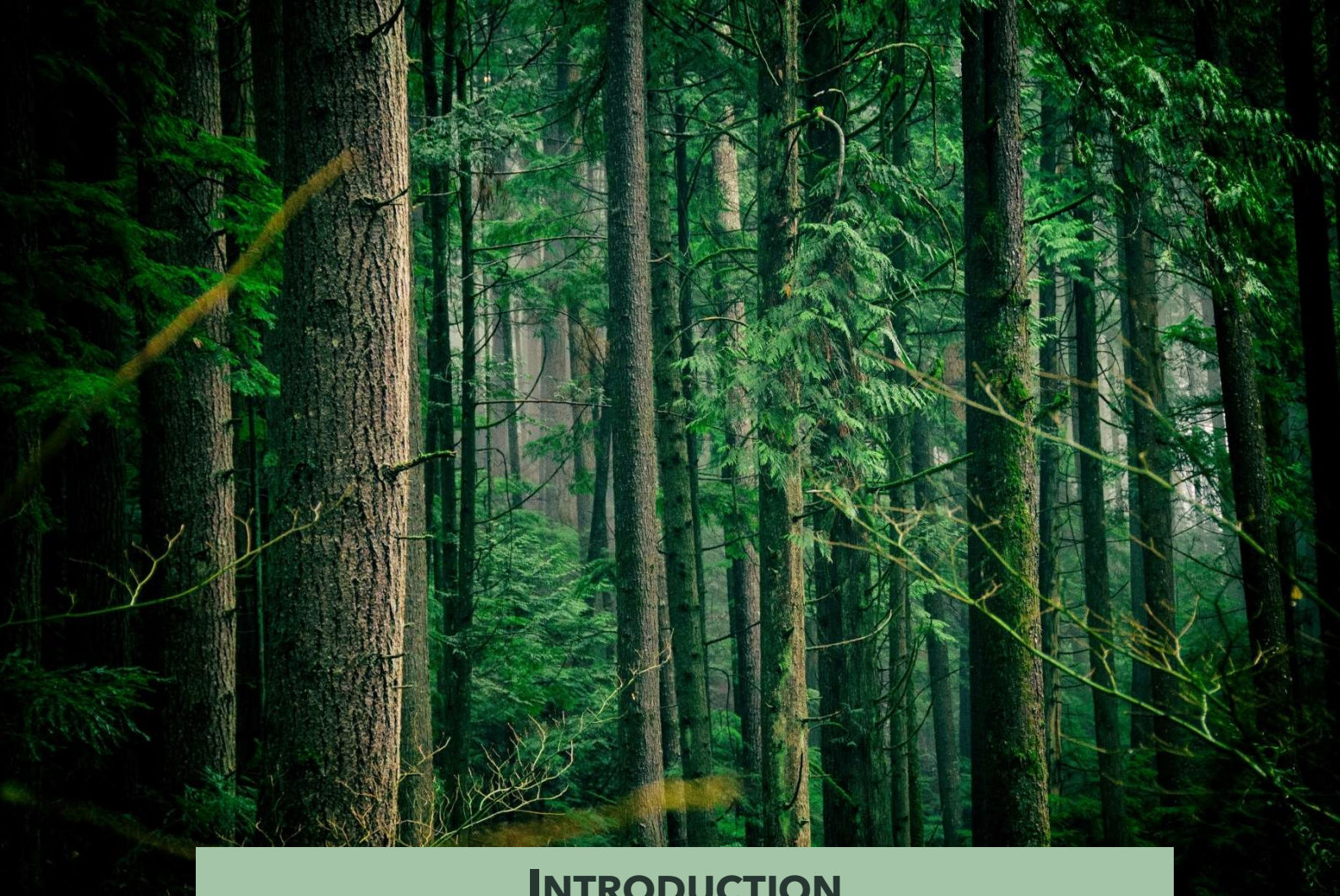
The proposed development would deliver two buildings comprising office accommodation above upper and lower ground levels providing commercial space alongside parking, plant, cycle storage and other building service infrastructure space. The external areas will be landscaped to a high standard.

The proposed development has been designed and will be delivered in accordance with exemplary practice. The applicant has committed to achieving a BREEAM rating of Outstanding, which requires the incorporation of sustainable design features in all areas of the building and demonstrates exemplary building standards. This includes careful consideration of the specification of materials with lower embodied carbon, such as a post tension slab that reduces volumes of concrete and steel, and double rather than triple glazing. A whole life carbon assessment will be undertaken to analyse the detailed design to continue this process.

The development includes the specification of a GREEN energy generation strategy, including through the provision of solar PV and Air Source Heat Pumps (ASHP) that deliver electricity and space/water heating very efficiently. The need for heating will be minimised through the use of MEAN and LEAN energy efficient strategies, including high-quality building materials that provide excellent insulation and an optimised façade design that reduces unwanted solar gain whilst maximising the potential for daylight. The building will be equipped with low flow sanitary fitting to reduce water use and waste management systems will ensure that recyclable materials and waste can be stored separately to minimise the amount going to landfill.

The site is of low ecological value, but additional enhancement measures included in the landscaping strategy are proposed for the benefit of species including bats and birds. The landscaping strategy helps to achieve this, as well as delivering shading for occupants to help adapt the building and its public realm for a warming climate and reduce flood risk through the use of sustainable drainage.

In terms of the construction stage, the developer has prepared an Outline Construction Management Plan (CMP) submitted in support of this application and will prepare a detailed Construction Environmental Management Plan (CEMP), Site Waste Management Plan (SWMP), and a Construction Traffic Management Plan (CTMP) as part of the condition discharge process to ensure best practice on site, reduce nuisance or disturbance to neighbours and protect the local environment.



INTRODUCTION



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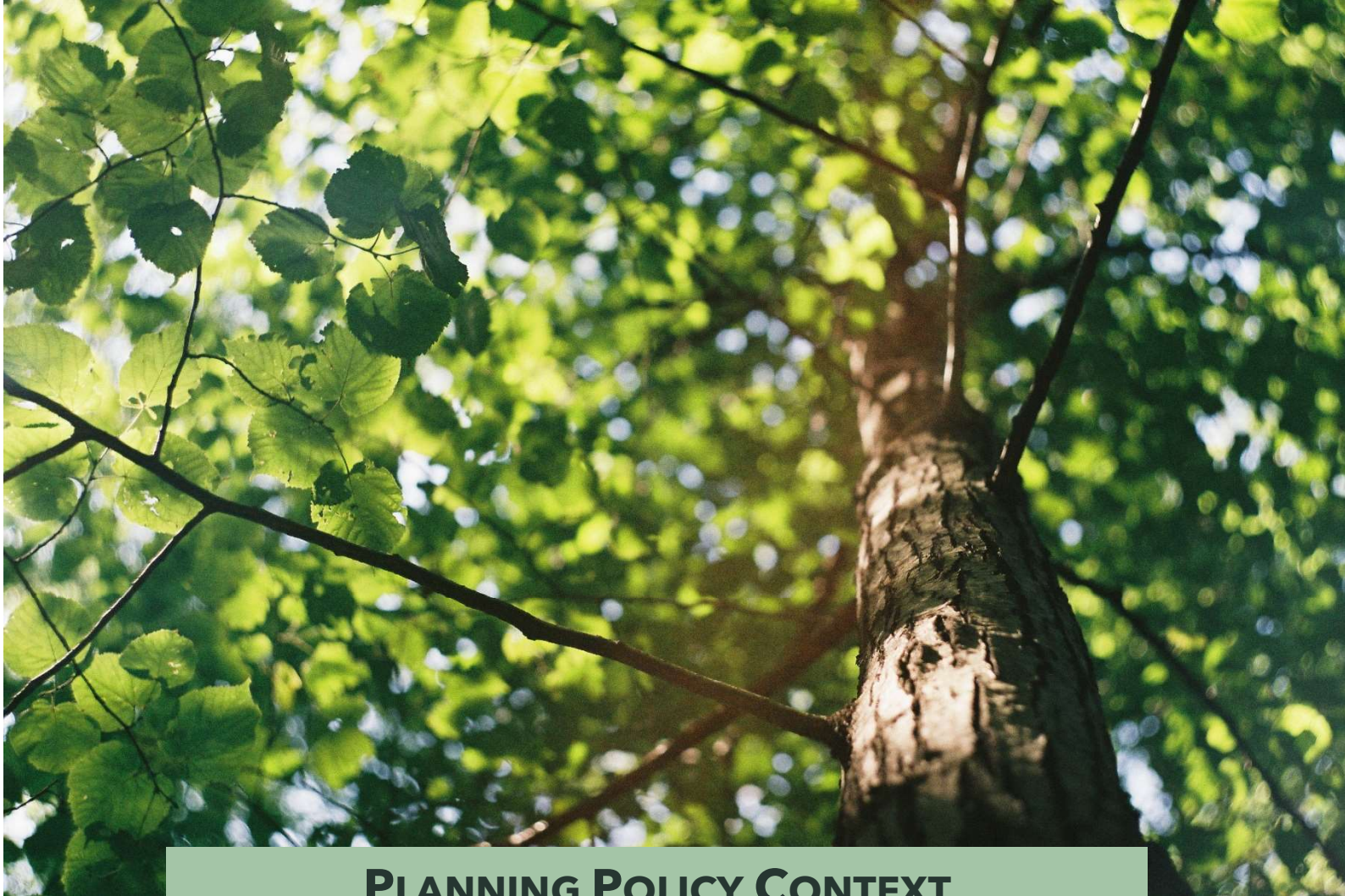
1.0 INTRODUCTION

This Environmental Standards Statement (ESS) has been prepared on behalf of MEPC in support of the proposed development of 2 & 3 Angel Square, which is part of the NOMA development in Manchester City Centre proposing office space and ground floor commercial space.



Graphic 1: Visualisation of the Proposed Development

This report is an Environmental Standards Statement (ESS) submitted in accordance with the local planning policy requirements of Manchester City Council. It presents details of the environmental performance of the building in accordance with criteria set out in the Council's Guide to Development Supplementary Planning Document.



PLANNING POLICY CONTEXT



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2.0 PLANNING POLICY CONTEXT

This section of the ESS identifies the national and local planning policies that are of relevance to environment and sustainability standards in the built environment.

Building Regulations

Part L of the Building Regulations outline the energy efficiency standards that all new build developments must comply with. Part L has four different applications:

- **Building Regulations L1A:** Conservation of fuel and power in new dwellings
- **Building Regulations L1B:** Conservation of fuel and power in existing dwellings
- **Building Regulations L2A:** Conservation of fuel and power in new buildings other than dwellings
- **Building Regulations L2B:** Conservation of fuel and power in existing buildings other than dwellings

Part L2A of the Building Regulations was updated in 2021 and came into effect on 15th June 2022, superseding the 2013 iteration of Part L2A. It is widely regarded that compliance with Part L2A 2021 equates to a 30% improvement over Part L2A 2013. Therefore, if a building can show at least this margin of improvement over Part L2A 2013 it can be assumed to be demonstrating compliance with Building Regulations Part L2A 2021.

Manchester Core Strategy (Manchester City Council, July 2012)

Manchester's Core Strategy (CS) was adopted on 11th July 2012 and is the key Development Plan Document in the Local Development Framework (LDF).

Policy DM 1 - Development Management requires all development to have regard to a number of development principles. Subject to scheme viability, developers will be required to demonstrate that new nondomestic development to achieve a BREEAM Rating of 'Very Good' or for domestic development to achieve the Code for Sustainable Homes standard.

Policy EN 4 'Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development' states that 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



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

Policy EN 5 - Strategic Areas for low and zero carbon decentralised energy infrastructure include:

- The Regional Centre, which also includes the Oxford Road Corridor and Eastlands;
- District Centres and associated major development sites;
- Airport Strategic Site;
- Strategic housing location; and,
- Strategic employment locations.

Within these areas 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 Site is itself located on the edge of Manchester City Centre, within the City Centre Fringe and the Regional Centre.

Policy EN 6 'Target Framework for CO₂ reductions from low or zero carbon energy supplies' sets out the CO₂ emission reduction targets that proposed developments must meet.

For 'electricity intense buildings' (Target 2), which applies to commercial uses with a high proportion of emissions from electricity use (>45kg CO₂/m²), developers should demonstrate at least 10% increase on the requirements of Part L 2010 through the submission of an Energy Statement with planning applications.

A 10% improvement over above the Part L2A 2010 is widely regarded as equivalent to achieving 6% improvement over Part L2A 2013 standard, based on the government impact assessment study for the wider sectors.

Policy EN 8 - Adaption to Climate Change requires all new development 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; and,
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

CS Policy T 1 – Sustainable Transport aims 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, the Council will support proposals that:

- Improve choice by developing alternatives to the car;
- Promote regeneration and economic vitality by relieving traffic congestion and improving access to jobs and services, particularly for those most in need and for those without a car;
- Improve access to transport services and facilities in order to enable disabled people and people with mobility impairments to participate fully in public life;
- Improve pedestrian routes and the pedestrian environment;
- Improve and develop further Manchester's cycle network (for example the Manchester Cycleway and the Trans Pennine Trail); and,
- Facilitate modes of transport that reduce carbon emissions e.g. by incorporating charging points for electric vehicles, subject to their appropriate design and location.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2021 is a material consideration. The NPPF (amended July 2021) replaces all previous PPSs and PPGs.

The NPPF states that the planning system should play an active role in guiding development to sustainable solutions. At the heart of the 2021 updated NPPF lies the 'presumption' in favour of sustainable development; the golden thread running through plan-making and decision taking (para. 8). There are three dimensions to sustainable development, as stated within the NPPF: economic, social and environmental. These dimensions give rise to the need for the planning system to perform a number of roles:

- **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 well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
- **an environmental objective** - to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The NPPF states that 'the purpose of the planning system is to contribute to the achievement of sustainable development' (paragraph 7). It summarises the objective of sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their needs. It goes on to state that at a similarly high level, members of the United Nations – including the United Kingdom – have agreed to pursue the 17 Global Goals for Sustainable Development in the period to 2030. These address social progress, economic well-being and environmental protection.

The NPPF places responsibility for policy making with the Local Planning Authority, who shall communicate their policies through Local Plans and facilitate the creation of Neighbourhood Plans. The NPPF states that there is a presumption in favour of sustainable development.

Paragraph 157 of the NPPF states:

In determining planning applications, local planning authorities should expect new development to:

a) 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

b) take account of landform, layout, building orientation, massing, and landscaping to minimise energy consumption.

NOMA Strategic Regeneration Framework (2020)

NOMA is underpinned by an endorsed Masterplan and SRF endorsed by MCC originally in 2009, updated in 2010, 2013, 2015 and most recently in 2020. The 2009 Masterplan and subsequent Update Reports set out a commitment to create a commercially led, mixed use destination



underpinned by core development objectives of job creation, placemaking and supporting communities.

Since endorsement of the first NOMA Framework in 2009 the development context for NOMA has evolved and NOMA has had to respond to this. For example, through the endorsement of earlier Framework updates NOMA has shifted from being a mixed residential and commercial development, to one that is now commercially led.

The 2020 SRF document provides an update on the progress to date of the NOMA regeneration project and outlines the next phases of work and investment to complete the transformation of the area, as well as the challenges ahead.

The 2020 SRF highlights that as NOMA enters into the next phase of development it needs to continue to respond to a changing context, notably the economic growth of Manchester and demand for Grade A office space; the increasing focus on sustainability and climate change; and the changing regeneration context and NOMA's pivotal role in this, particularly the Northern Gateway, New Cross and Great Ducie Street.

It forms a material consideration in the determination of planning applications within the area.

Environmental sustainability has been an overriding objective and ambition through the design and construction of buildings in NOMA. The 2020 SRF mentions that minimising the impact on the environment through design, public realm and encouraging the reduction of vehicle reliance will continue to be an integral part of the plan for the next phases of development at NOMA.

The focus is to improve upon Building Regulation requirements via a range of active and passive design measures incorporated within developments.

The Guide to Development (Manchester City Council, April 2007)

The Core Strategy requires that all new residential developments should accord with the design guidance set out in the Supplementary Planning Documents (SPD). The Guide to Development SPD provides a framework against which new development proposals will be assessed in Manchester. It includes at Section 4 a requirement that developers will be expected to submit a statement on how their proposal will achieve the environmental standards set out in the SPD. The document required is referred to as an Environmental Standard Statement (ESS) and should demonstrate the project's performance in the following categories:

- Energy Efficiency
- Renewable Energy
- Environmental Design
- Water Management and Weather Resilience
- Waste Management
- Construction Management



- Biodiversity
- Waterways

Manchester's Great Outdoors

A Green and Blue Infrastructure Strategy for Manchester aims to invest to date in the city's Green and Blue infrastructure over the next 10 years (by 2025). Four objectives have been established to enable the vision to be achieved:

- Improve the quality and function of existing green and blue Infrastructure, to maximise the benefits it delivers.
- Use appropriate green and blue infrastructure as a key component of new developments to help create successful neighbourhoods and support the city's growth.
- Improve connectivity and accessibility to green and blue infrastructure within the city and beyond.
- Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy and the local environment.

The Manchester Climate Change Framework (2020-25) (Manchester Climate Change Partnership, 2020)

On 10 July 2019, a motion asking MCC to formally declare a climate emergency was unanimously agreed. The motion declares that climate change is a serious risk to Manchester's future and committed to embedding the issue as an integral part of council decision-making - making sure that all key decisions are taken with the city's target of becoming zero-carbon by 2038 in mind. The council has agreed the following:

- To deliver the 2038 target and determine if an earlier target can be possible.
- Encourage involvement in all wards by April 2020 through meetings as part of the Our Manchester strategy.
- Review all policies, processes and procedures to ensure the council can become carbon neutral. Present an action plan by March 2020 detailing how the city can stay within its carbon budget.
- Make climate breakdown and the environment an integral part of activity throughout the council, including all decision making, ensuring key decisions take into account the impact on achieving the zero-carbon target.
- Investigate measures to ensure future procurement is carbon neutral. Increase the percentage of social value with an additional environmental element.
- Work with suppliers to green their supply chains and support local production.
- Investigate and introduce measures to help reach domestic zero carbon levels including addressing fuel poverty and retrofitting existing homes.

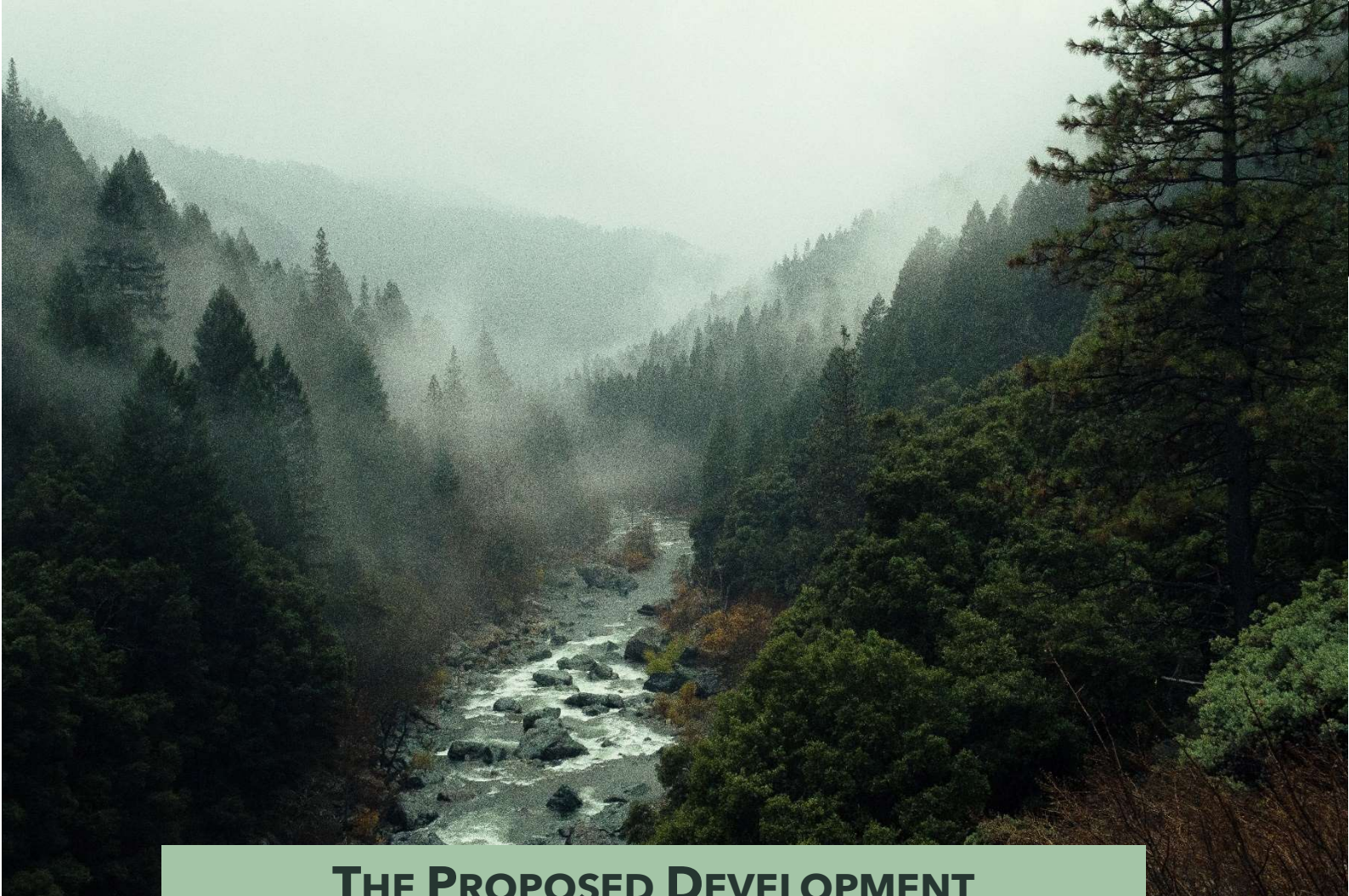


- Investigate ways to ensure that future local plans place a mandatory requirement for all new development to be net zero carbon by the earliest possible date.

In March 2020 the Executive adopted the Manchester Climate Change Framework 2020-2025. The five-year framework sets out measures that MCC will take in order to reduce carbon emissions from its buildings, energy use and transport. The measures include retrofitting buildings to improve energy efficiency, increasing the use of Electric Vehicle Vehicles, and seeking 100% renewable energy. Whilst this has also not been formally adopted into planning policy, it is a key consideration for future development proposals.

The Framework is built on eight key principles that are embedded throughout the document.

- Setting our objectives and targets in line with the latest science and the Paris Agreement
- Contributing to Manchester's social, environmental, and economic goals
- Ensuring that social justice is at the heart of our approach
- The need for urgent action by everyone who lives, works, and studies in Manchester, from our young people to our older people
- Everyone who lives, works, and studies in Manchester enabled to act through support, incentives, standards, and infrastructure provided by Manchester City Council, Manchester's strategic partners, Greater Manchester Combined Authority, UK Government, and their agencies
- Advice, guidance, and progress monitoring from independent experts
- Contributing to Greater Manchester, UK, and international commitments
- The need for Manchester's growth and development to be zero carbon and resilient to the changing climate.



THE PROPOSED DEVELOPMENT



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3.0 THE PROPOSED DEVELOPMENT

The 0.8ha Angel Square site comprises previously developed land between Manchester's inner-city ring road (A665), Rochdale Road and Angel Street.

The development of 2 & 3 Angel Square will contribute the next phase of NOMA's regeneration of the Angel Square area. NOMA is a 20-acre Masterplan creating new offices, shops, restaurants, and homes in what is currently a predominantly under-utilised area of Manchester. This development will be a significant addition to the areas local vernacular and help create a new vibrant inner-city district.

The proposed development comprises two office buildings with commercial ground floor uses, as follows:

- **2 Angel Square** - lower and upper ground plus 14 storeys (LG + UG + 12); and
- **3 Angel Square** - lower and upper ground plus 13 storeys (LG + UG + 11).

The primary access to the office provision for both 2 and 3 Angel Square is from Angel Square at the lower ground level. The 2 commercial units within the upper ground floor for 2 Angel Square are accessed off Thread Street. The 2 standalone commercial units on 3 Angel Square are accessed directly from Angel Street, with a flexible cinema / seminar space and ancillary gym accessed off Thread Street.

Within both buildings, the Plant is located in the lower ground level so that the upper ground floor space and the amount of glazing is maximised. Plant, waste and cycle access are all located in the least prominent, northeast corner of the plans for both buildings.

There is cycle storage in the lower ground floor providing 122 cycle spaces for 2 Angel Square and 148 cycle spaces for 3 Angel Square with additional space and provision for electric bikes and maintenance. Enhanced cycling provision is provided to encourage more sustainable modes of transport and promote health and well-being. Directly adjacent to the cycle store in both buildings are high quality changing facilities, lockers, and drying rooms. Extra provision has been provided for future expansion of the showers should further be needed. Space will be used for storage in the meantime. A laundry is provided within the changing areas to wash towels as part of the management service.

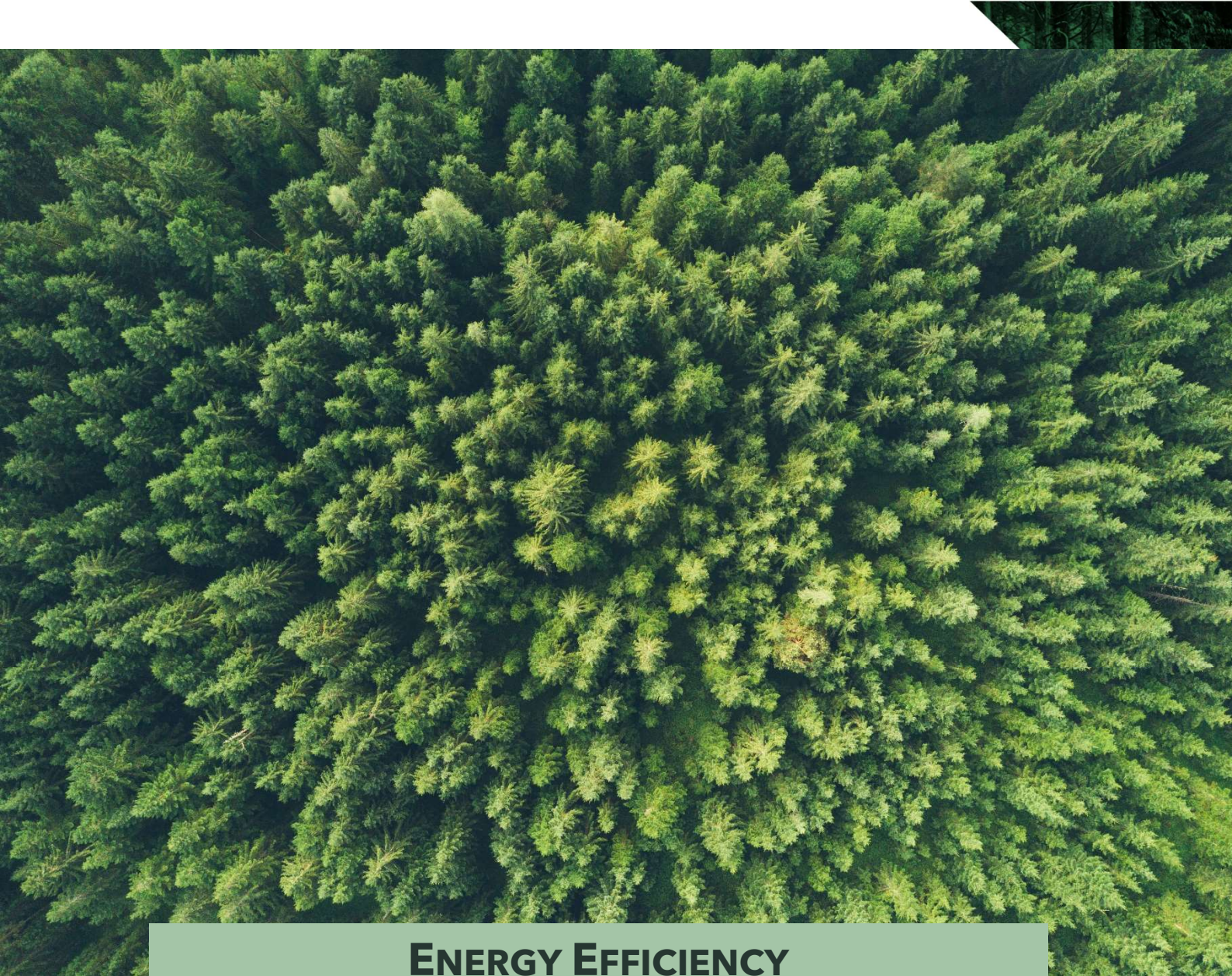
All upper floors in both buildings comprise flexible office space that can be configured to user requirements. On top floors, roof terraces are provided for tenant and visitor use. At 2 Angel Square, this will include the potential for flexible restaurant/office use.

Approximately 200sqm's of photovoltaics are located around the roof at 2 Angel Square and 610sqm's of photovoltaics are located around the roof at 3 Angel Square. The arrays will be sat



below the top of the surrounding louvre screen and will be concealed. Final details will be agreed via the discharge of a relevant condition.

Landscaping proposals include the creation of publicly accessible areas comprising hard and soft landscaping. This will incorporate stone paved circulation and seating areas around the buildings as well as planted garden areas that will incorporate running water linking the green spaces and providing features of interest. The planting schemes have been designed to take account of the local climactic conditions, with shade tolerant species proposed between buildings and sun loving species presented in the open areas of Angel Square. The landscaped areas will be publicly accessible but managed and maintained by the management company for the proposed development.



ENERGY EFFICIENCY



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4.0 ENERGY EFFICIENCY

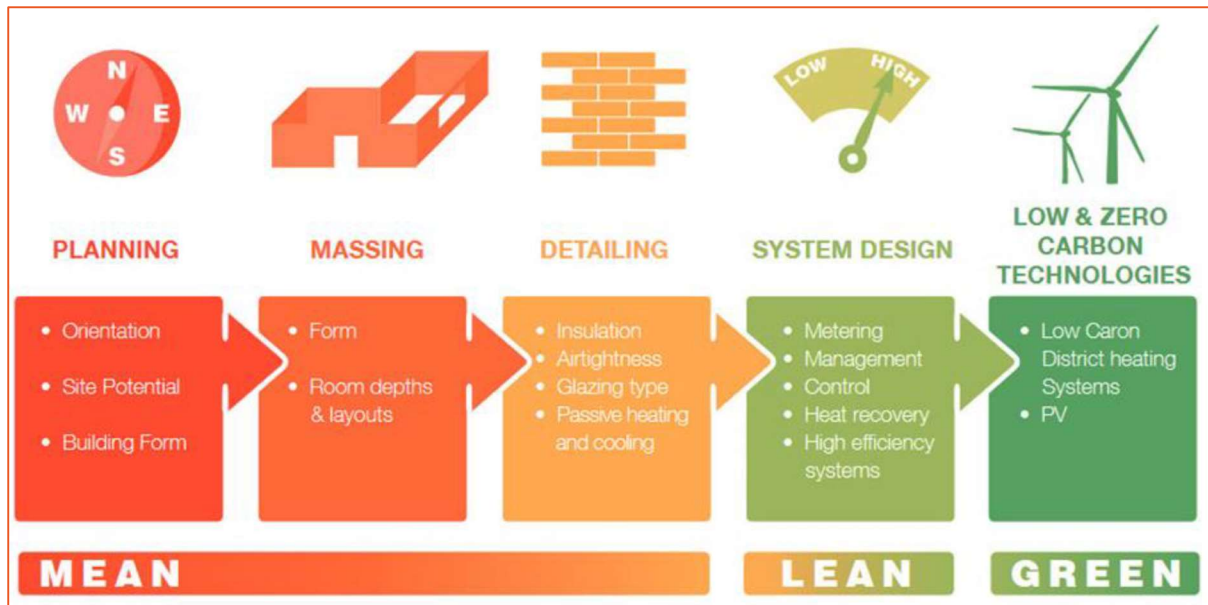
The Guide to Development SPD requires that in Environmental Standards Statement, developers should show how they have considered the steps necessary to reduce energy demand at the earliest stages of design. It goes on to state that developers should aim to reduce CO₂ emissions by at least 25% more than the requirements of the Building Regulations, which, at the time of publication, were set out in the Approved Document Part L (2006) – ‘Conservation of Fuel and Power.

Manchester City Council’s (MCC) core strategy (Policy EN6: Target Framework for CO₂ reductions from low or zero carbon energy supplies) requires for ‘electricity intense buildings’ that they achieve at least 10% improvement on Building Regulations Part L2A 2010 – equating to at least a 6% improvement over Building Regulations Part L2A 2013.

Further to the MCC core strategy target and the above, compliance with the new version of Part L2A 2021 will be required, as effective from 15th June 2022. However, as SBEM-accredited software which can demonstrate compliance with the new regulations has not yet been released, an energy model directly referencing Part L2A 2021 compliance criteria cannot currently be produced. It is therefore currently not physically possible to demonstrate compliance with the new Part L2A version. As such, this Report is prepared against the requirements for improvement over Building Regulations Part L2A 2013. However, it is generally regarded that compliance with Part L2A 2021 equates to a 30% improvement over Part L2A 2013. Therefore, if a building can show at least this margin over Part L2A 2013 it can be assumed to be demonstrating compliance with Building Regulations Part L2A 2021.

Buro Happold were commissioned to produce an Energy Strategy for the project, with the objective of reducing energy demand and maximising building efficiency. Furthermore, the project engineers, Cundall, and architects, Cartwright Pickard, were instructed to undertake a review of the options for minimising the embodied carbon in construction materials and contributing to the energy efficiency objectives for the building.

This process of design review and improvement has involved the application of the ‘Mean, Lean and Green’ approach to reducing energy demand through sustainable construction and building design (mean), improving the efficiency of building services systems (lean), and using renewable energy sources (green). The approach taken is summarised in the following section.

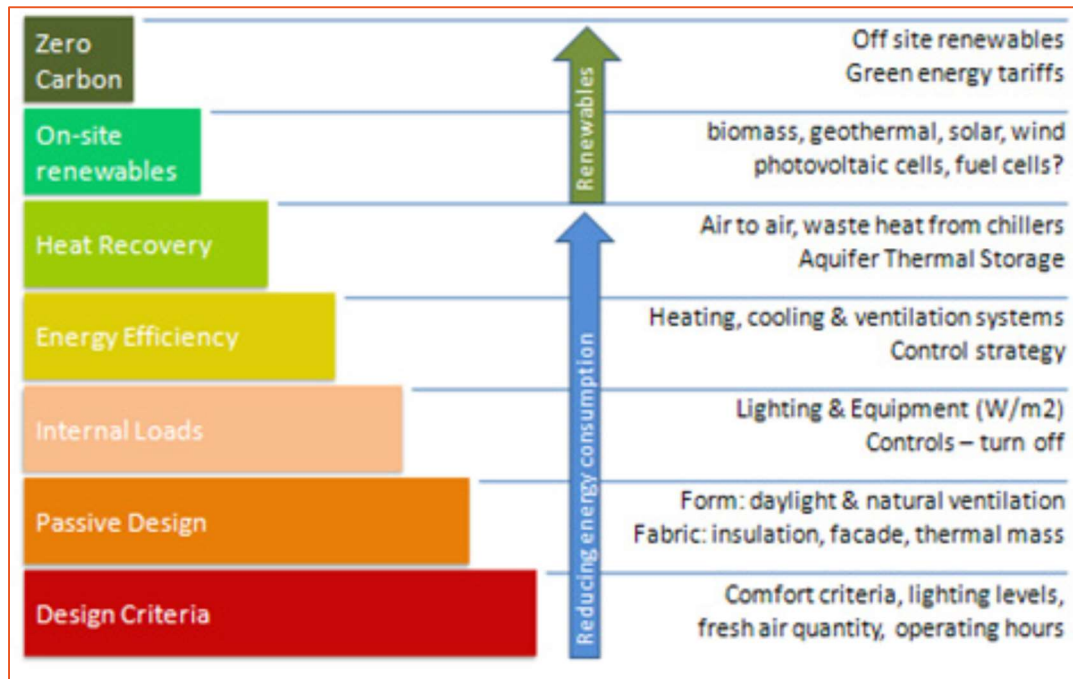


Graphic 2: Passive Design Approach

The steps to achieving net zero carbon has also been considered by the design team in the development of the proposals. This process involves:

- The consideration and incorporation of passive design solutions, where feasible.
- The incorporation of energy efficiency measures through the design of services and improved fabric performance.
- Calculation of the predicted design energy consumption rates and associated annual CO2 emissions for the development in comparison with the Building Regulations.
- Assessment of the viability of incorporating low and zero carbon energy sources

The process is summarised in Graphic 3, below, and way in which the design contributes to the process are discussed in the following sections. The final stage, as shown in the graphic below, relates to operation uses such as the use of green energy tariffs. This stage of the journey to net zero would be controlled by building occupants but the applicant and design team have focused on taking all steps up to this point through the sustainable design process.



Graphic 3: Steps to Zero Carbon

Mean

The energy demand of the building has been reduced through optimisation of the building's construction and fabric, and through the implementation of the following passive design measures:

- **Building Fabric** - All elements of the design, from the building structure, mechanical and electrical equipment down to the internal finishes, have been subject to extensive analysis to strip away unnecessary materials.

During the early design stages, key building elements, which are known to be carbon hotspots, such as the superstructure and façade have been carefully considered to ensure the option with the lowest embodied carbon are chosen if favourable against other decision-making factors. Superstructure options suitable for the development were reviewed and it was found that a concrete frame with post tension slab was found to have the lowest embodied carbon. This system reduces concrete and steel quantities compared to conventional concrete slabs. Reduction in concrete and steel leads to a 42% embodied carbon reduction compared to a conventional slab.

In order to prioritise the specification of sustainable building materials, a whole life carbon assessment will be undertaken to demonstrate the steps taken and the predicted carbon performance of the development. This will make reference to embodied and operational carbon targets set by the UK Green Building Council, the Council's Core Strategy and the building regulations.

All windows will be double rather than triple glazed to minimise embodied carbon.



All externally exposed fabrics will be insulated to achieve U-Values surpassing the mandatory standards required by Part L.

- **Optimised glazing Area** - thermal analysis has been carried out to determine the glazing area on each elevation. For example, north-facing elevations have a higher glazing percentage than south-facing elevations.
- **High Performance Glazing** - quality double glazing will be present across the constructions, again achieving U-Values surpassing the mandatory standards required by Part L. Additionally, low-emissivity film could be applied to provide a reduction in solar gains which will reduce risk of overheating during summer months.
- **Improved Air Tightness** - it is proposed that the building's envelope airtightness will be designed to high standards, minimising unintentional inward or outward leakage, and therefore reducing potential for excess heat losses during the winter months.
- **Natural Daylight** - generous glazing areas have been applied to the building's occupied areas, to maximise available natural daylight and reduce the energy consumption of artificial light systems.
- **Zoning** - The control of the HVAC system will be thoughtfully zoned to allow different thermal and fresh air demands to be compartmentalised, permitting optimum flexibility and load balancing.

Lean

Energy and carbon demand can be further reduced using energy efficient building services systems, such as:

- **Air Source Heat Pumps (ASHP)** - MEP systems have been selected using an options appraisal that considered embodied carbon and operational energy. ASHP's are proposed and provides heating and cooling at high efficiencies and ensures effectual delivery throughout the building distribution, minimising loss. This compliments the passive fabric strategy and further reducing building energy and fuel use.
- **Heat Recovery** - High efficiency heat recovery devices harness the energy within exhausted air and recirculate it back into the building to reduce heating and cooling loads.
- **Free Cooling** - by utilising chilled air delivery strategies in the offices and stage areas, there is a significant opportunity for free cooling when the external temperature is below the design condition temperatures.
- **Demand Controlled Ventilation** - Methods of controlling ventilation air flow may be utilised to respond to occupancy and internal temperature. These controls will be linked to the building management system and CO₂ and temperature sensors will be provided to occupied zones. The ventilation strategy comprises the use of floor and roof mounted Air Handling Units (AHUs) for office spaces, mechanical ventilation for car parks, plant rooms and bike stores, and MVHR units for landlord provided amenities such as the gym, business



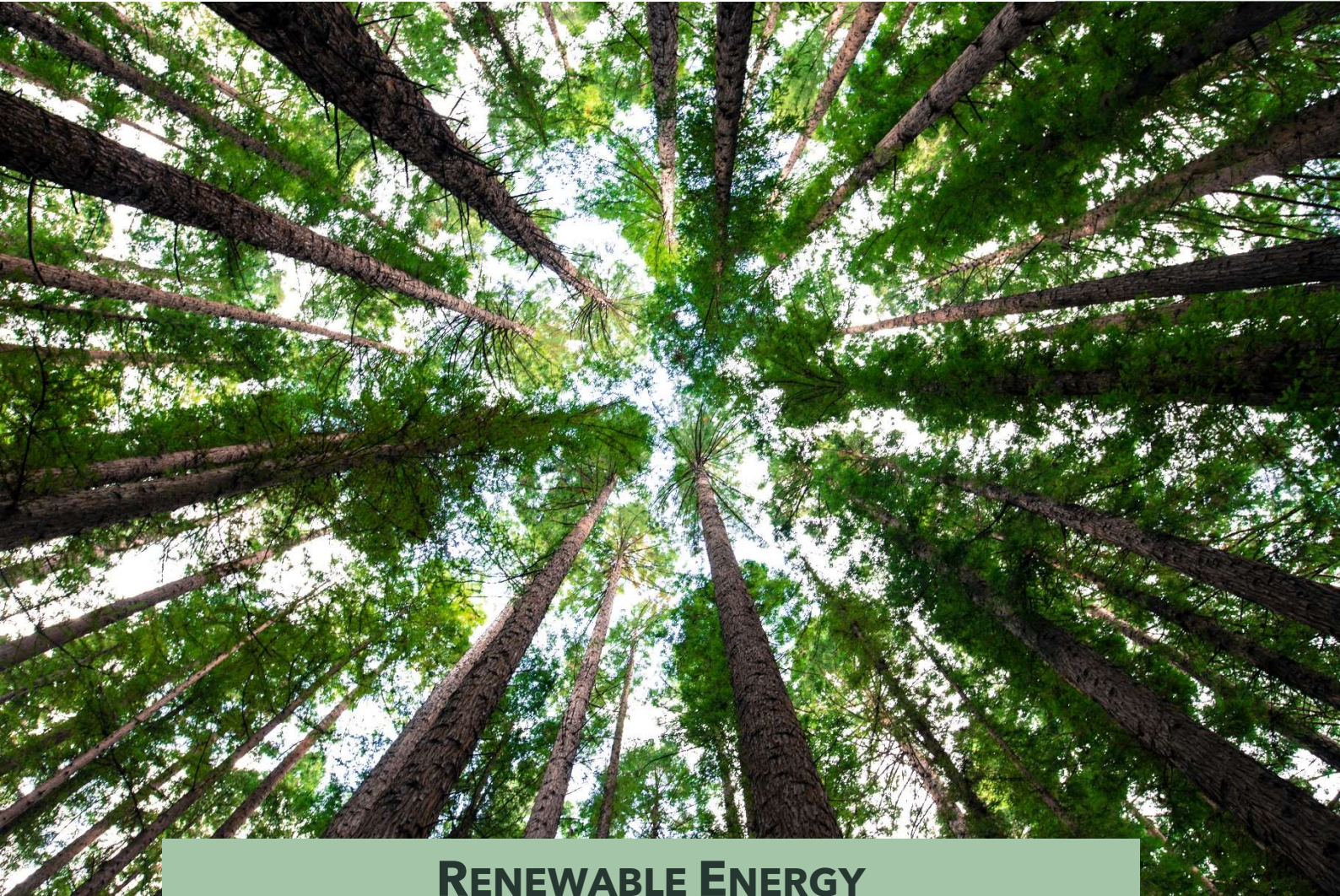
lounge and WCs. Commercial units will be fitted out by future occupiers. This strategy complies with Part F of the building regulations and ensures that the air quality and occupant comfort within the buildings is satisfactory. The ventilation strategy avoids any adverse effects on neighbouring properties by:

- Avoiding exhausting onto neighbouring buildings or locations where people are likely to be present; by exhausting at roof level where possible.
 - Installing noise attenuation equipment on ventilation plant to comply with the acoustic criteria.
 - Ensuring carbon filtration is used in kitchen exhaust systems to mitigate potential odours.
- **Energy Efficient Lighting** - LED lighting can incorporate automatic controls that respond to daylight and human presence to minimise the buildings electrical lighting load.

Green

Based on these design principles (and the use of green energy technologies, notably roof mounted solar PV, as described in section 5, below), Buro Happold modelled the performance of the building in line with the Approved Part L methodology. This method compares Actual and Notional building carbon emissions, which are represented by calculated Building Emission Rating (BER) and Target Emission Rating (TER). To achieve minimum compliance, the BER for each building must be lower than its relevant TER.

This assessment demonstrated that the proposed design for 2 Angel Square would achieve a 42.9% improvement over the TER and 3 Angel Square would achieve a 44.8% improvement. This confirms that the buildings will comfortably exceed the local planning requirements set out in Policy EN6 of the Core Strategy.



RENEWABLE ENERGY



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5.0 RENEWABLE ENERGY

The Guide to Development SPD requires that developers reduce energy demand and the harmful impact of using energy from non-renewables. Developers should aim for at least 20% of final site energy demand to be met by on-site renewable energy technologies.

Buro Happold has undertaken a preliminary Low-zero carbon technology feasibility study in addition to the efficiency measures discussed above. Their desktop analysis shows that the provision of Solar PV would be the most applicable LZC technology for the proposed building. As such, solar PV arrays are specified at roof level for each building, with 200sqm and 610sqm being installed in 2 and 3 Angel Square respectively.

The other appraised LZC options have been ruled out for the following reasons:

- Biomass systems have characteristics which render the technologies unsuited for this project such as air quality concerns.
- Solar thermal systems come with high standing losses, which heavily offset the benefit of the systems.
- Due to the height of the building, ground-source heat pumps are unable to meet the heating and cooling loads of the building and would have to be combined with air-source heat pumps; it is therefore more cost effective and better for embodied carbon to just use air-source heat pumps.
- The use of Combined Heat and Power would prove unfeasible as the proposed building is predicted to have a low and intermittent hot water demand.



ENVIRONMENTAL DESIGN



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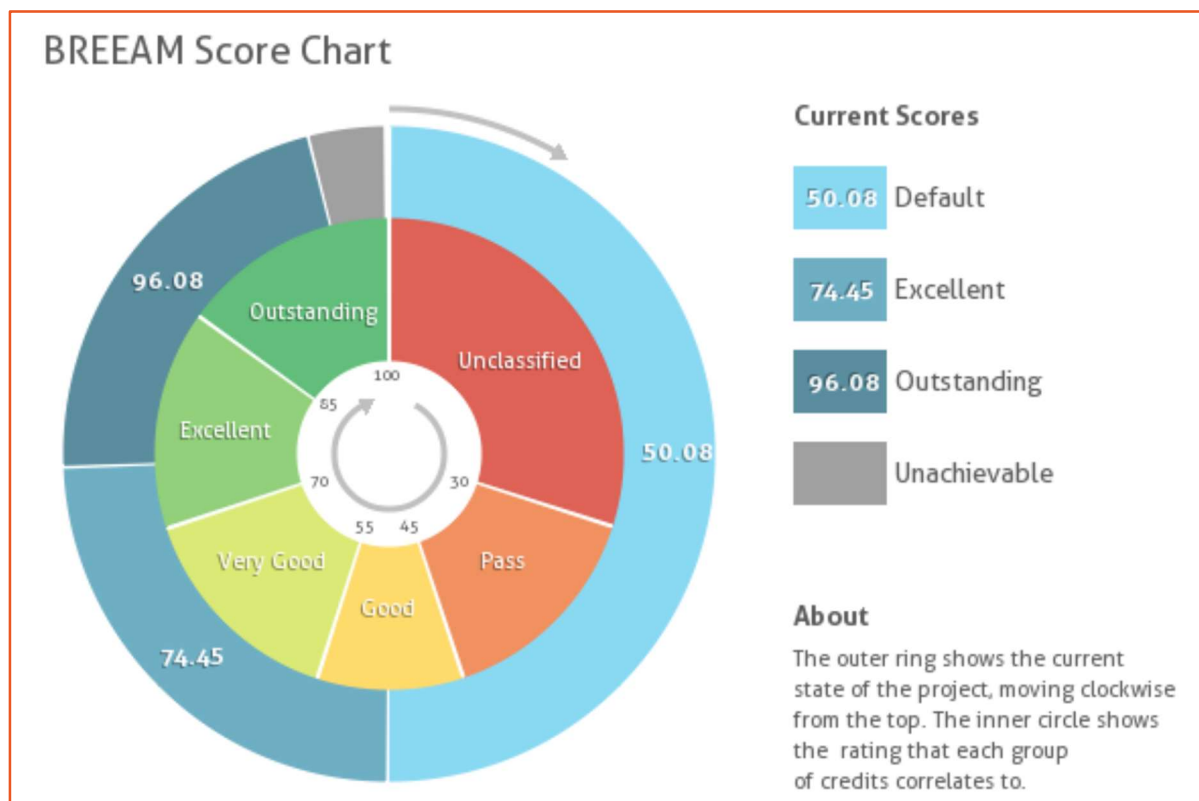
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6.0 ENVIRONMENTAL DESIGN

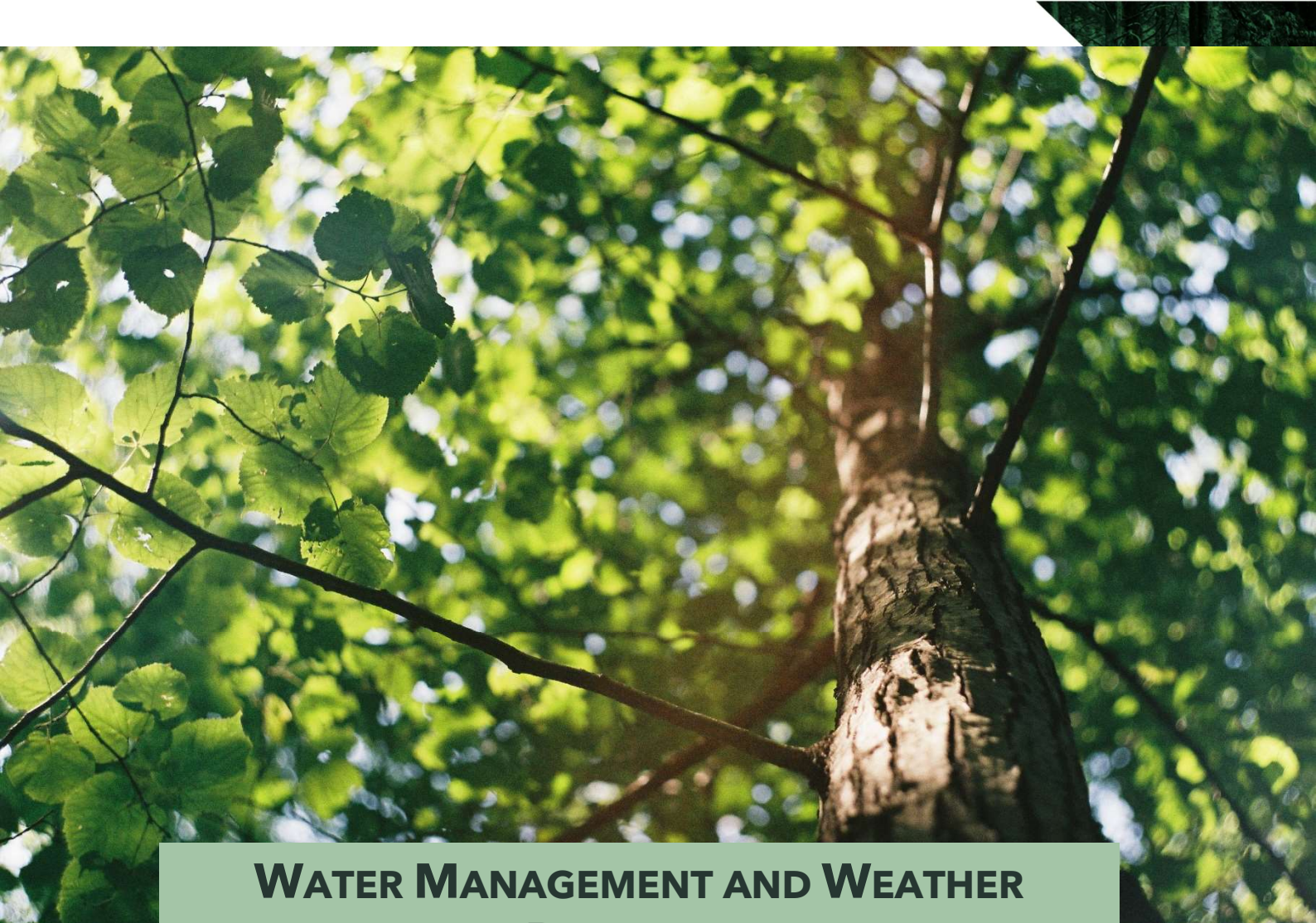
The Guide to Development SPD requires that to demonstrate energy efficiency in non-residential developments, the City Council would encourage developers to use the Building Research Establishment Environmental Assessment Method (BREEAM) which is used to assess environmental performance. Developments should be achieving a design and post-construction rating of "very good."

The applicant has commissioned a BREEAM Pre-Assessment for the project, which has been completed by Mainer Associates and is presented as part of the planning application submission. This Pre-Assessment has been completed in regular consultation with the project design team and confirms that the project will achieve an 'Outstanding' rating, as illustrated in the graphic below. The client has confirmed that it is aiming to achieve a BREEAM rating of Outstanding.



Graphic 4: BREEAM Score Chart

This ambition by the applicant exceeds the planning policy requirements and demonstrates a commitment to delivering an exemplar sustainable development through compliance with an industry leading benchmarking tool.



WATER MANAGEMENT AND WEATHER RESILIENCE



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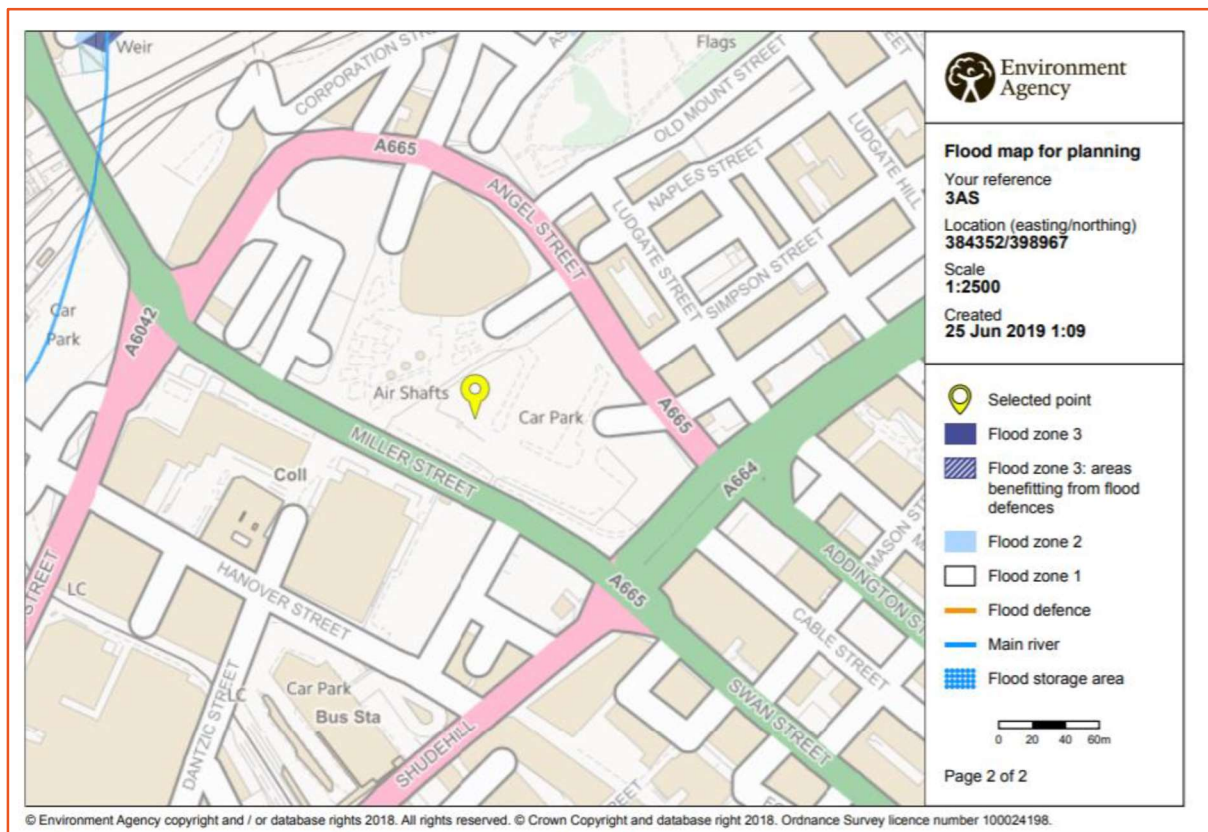


7.0 WATER MANAGEMENT AND WEATHER RESILIENCE

The Guide to Development SPD states that environmental standards statements should show how water is to be managed in the most environmentally effective way.

Drainage and Flood Risk

The site is located in an area of low flood risk, as illustrated on the graphic below. It comprises previously developed land, of which is over 80% is currently impermeable due to the presence of hardstanding.



Graphic 5: Flood Risk Map

A Drainage Strategy for the proposed development has been prepared by Buro Happold. The strategy identifies that the completed development would result in an increase in the amount of impermeable surfacing due to the construction of buildings and areas of hard landscaping. However, this will be offset through the use of permeable paving, where the jointing between stone surfacing will be permeable and overlaid on a subbase that permits infiltration into the proposed system. Infiltration into the ground is not suitable given the Site is mostly underlain by clay; as confirmed in the Ground Conditions Report submitted in support of the planning application.



Due to the existing topography, the site is comprised of 4 separate catchments, which will require the specification of 4 below ground attenuation tanks, with a total storage capacity of 500litres. This will enable the storage of surface water and its subsequent controlled discharge from the site at approved greenfield runoff rates. Following attenuation, surface water flows are anticipated to discharge to the existing combined public sewer located within the boundary.

Landscaping

The proposals include exemplary landscaping proposals including the creation of planted garden terraces to take account of the existing topography, which will also include running water features. The hard landscaping will include Natural Stone, Dutch Clay and Yorkstone paving, laid with permeable jointing and a permeable subbase to enable water to permeate through to the ground below, reducing runoff rates and mimicking natural processes.

Water Use

In terms of the efficient use of water within the building, the applicant has committed to achieving at least 3 credits for the Wat 1 water consumption BREEAM credit. This requires the specification of low flow shower and tap fittings throughout and the use of low/dual flush toilets. The objective is to achieve a water consumption that is 40% less than the 'baseline' water consumption of a typical building.

Wind

Extensive work has been undertaken to model potential wind impacts of the proposals to ensure these impacts were addressed as the designs developed, taking into consideration building form, street planning, use of materials and landscaping features. This has informed our designs as it has enabled us to propose planting and other mitigation measures in the most appropriate locations. The results of our wind reports identify that there will be a beneficial impact to the existing conditions around One Angel Square and the sites of 2 & 3 Angel Square as a result of these proposals.

Outside Space

In a warming climate, it is likely that outside spaces will become more important as a component of the workplace in addition to providing a social function. Therefore, the proposed development includes outside spaces to all levels as well as a large, shared terrace to upper floors. This will allow building occupants to take breaks or hold meetings or gatherings outside. This has further relevance given the recent pandemic and the benefit outside meeting spaces are now understood to provide under such circumstances.



WASTE MANAGEMENT



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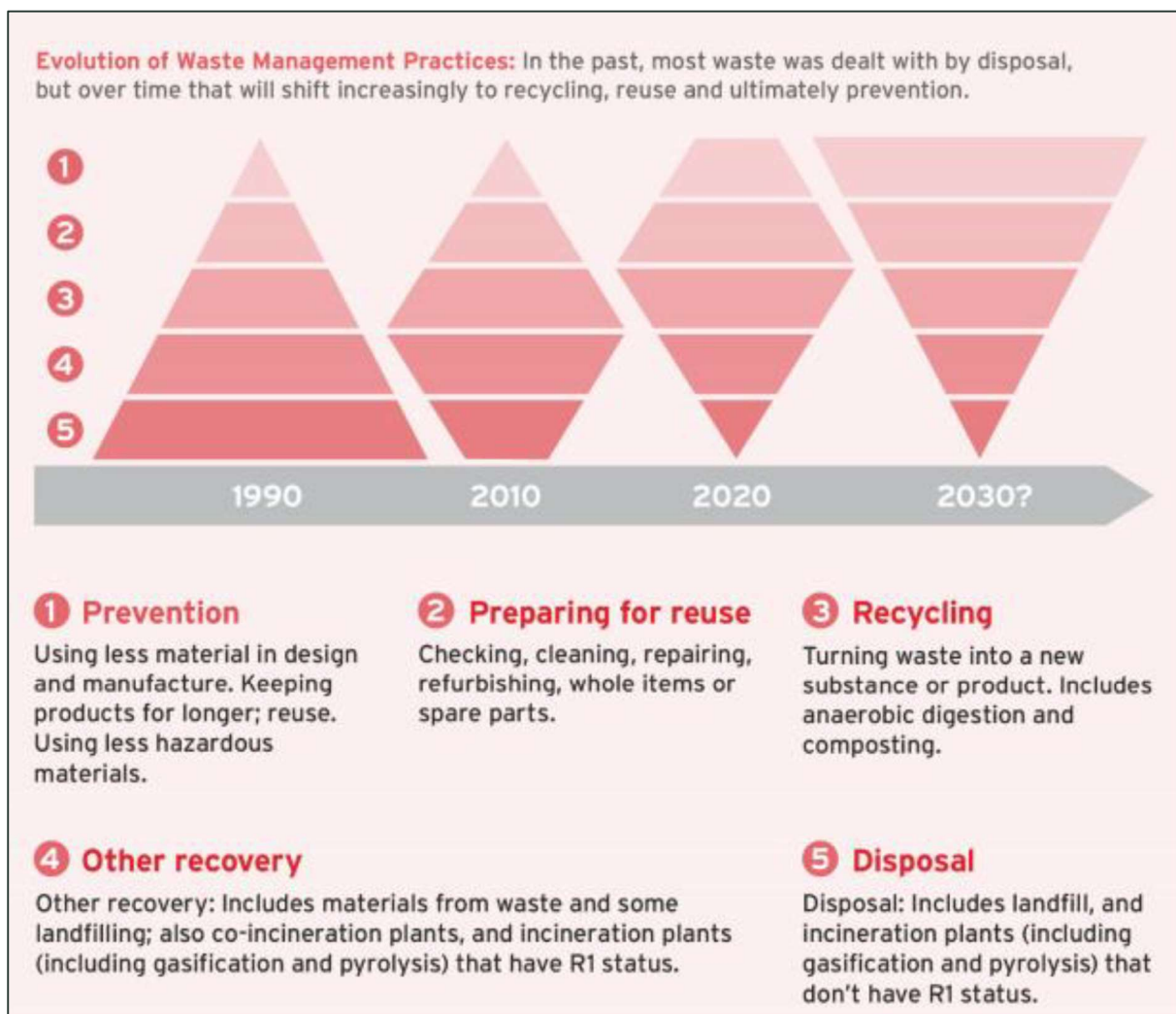


8.0 WASTE MANAGEMENT

The Guide to Development SPD requires that all developments should have a waste management strategy included in the Environmental Standards Statement.

Operational Waste Management

The waste hierarchy, as illustrated below, gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill). The project Waste Management Strategy (WMS), prepared by Curtins, adheres to the above guidance, prioritising recycling.



Graphic 6: Waste Hierarchy

The WMS has calculated potential waste arisings based upon MCC requirements set out in the Waste Storage and Collection Guidance for New Developments. This has concluded that 2 Angel Square requires the following for office use at 2 Angel Square:



- Non-recyclable Waste - 5 x 1100L
- Dry Mixed Recycling - 5 x 1100L + 1 x 660L
- Glass Recycling - 2 x 1100L

The commercial retail uses of the Proposed Development are located at upper ground floor level and would have 566 sqm (NIA) of flexible commercial retail floorspace across two units. In addition, there is a flexible office and / or restaurant use at Level 12 of 2 Angel Square comprising 1,129 sqm. The total retail and restaurant use for 2 Angel Square would therefore have an approximate GIA of 1,695 sqm.

The following bins would be accommodated for commercial retail use at 2 Angel Square:

- Non-recyclable Waste - 3 x 1100L
- Dry Mixed Recycling - 3 x 1100L
- Glass Recycling - 1 x 1100 + 1 x 660L
- Organic Food Recycling - 1 x 1100L

The following bins would be accommodated for office use at 3 Angel Square:

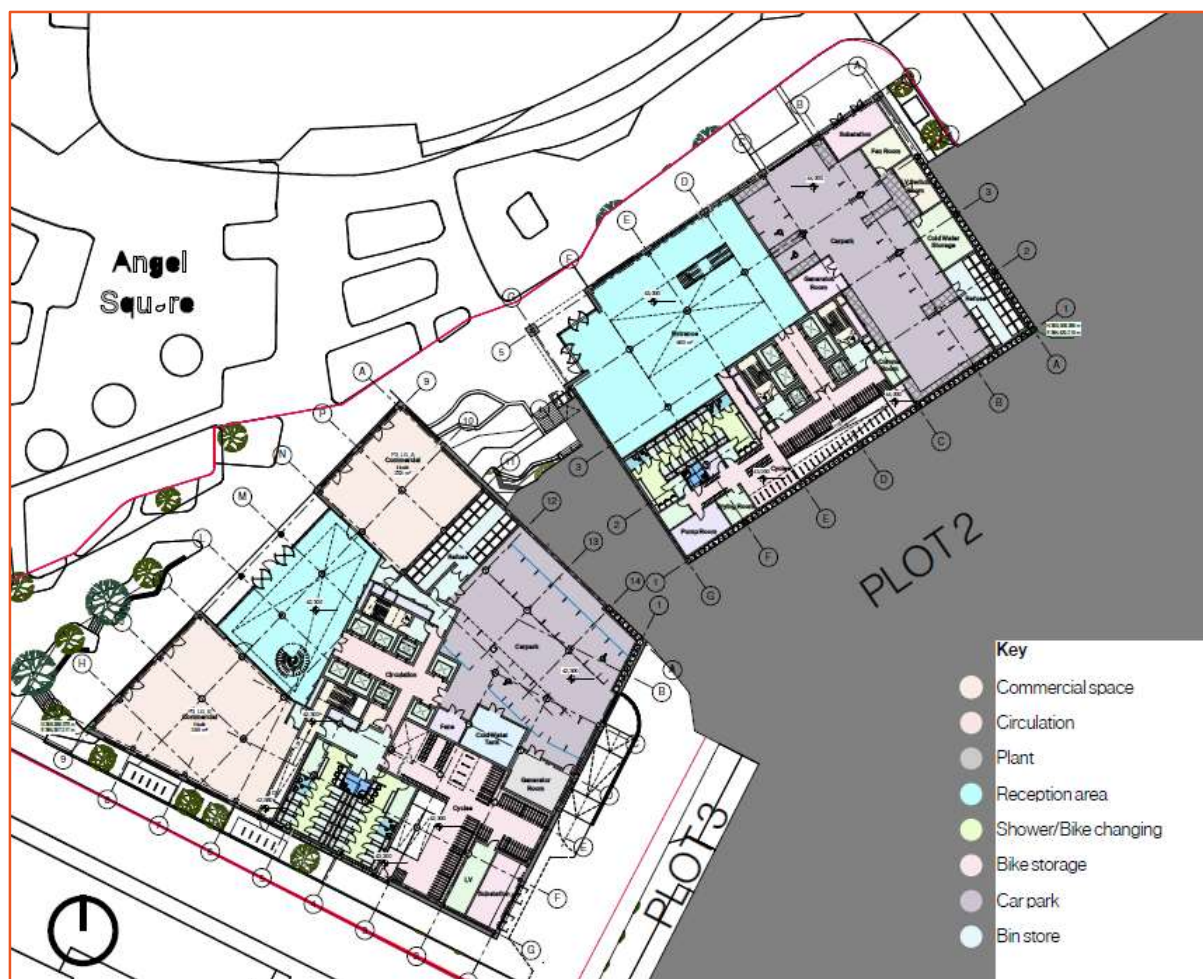
- Non-recyclable Waste - 6 x 1100L
- Dry Mixed Recycling - 7 x 1100L
- Glass Recycling - 3 x 1100L

The commercial retail uses of 3 Angel Square are located at lower and upper ground floor level and would have 1,097 sqm (NIA) of flexible commercial retail floorspace across two units.

The following bins would be accommodated for commercial retail use:

- General Waste - 2 x 1100L
- Dry Mixed Recycling - 2 x 1100L
- Glass Recycling - 1 x 660L
- Organic Food Recycling - 1 x 660L

The bin storage area is located at lower ground floor level, as shown on the exert from the Lower Ground Floor GA Plan, below.



Graphic 7: Lower Ground Floor General Arrangement

It is proposed that the collections would be undertaken by a private company, with collection frequency proposed to be 5 times per week for 2 Angel Square and 5 times per week for 3 Angel Square.

Waste collections have been calculated as 5 times a week for both uses as a worst case. Depending on final commercial retail use, this could be reduced to 3 times a week or less for the commercial retail uses.

Bins will be maintained, cleaned, and transferred from the storage room to the external collection point for roadside collection by the management company. The management company would also monitor recycling rate and promote recycling amongst building occupants.

In addition to the centralised storage, offices and commercial areas will include spaces for the short-term storage and sorting of waste and recyclables before transfer to the main waste storage area.



Construction Waste Management

The following core waste management principles should be applied for the wastes generated during all phases of the proposed development:

- All waste producers must fully comply with current applicable waste legislation with specific reference to the 'duty of care' requirements and the application of the waste hierarchy. Specific adherence should include storage and handling of waste on site and ensuring the regulatory controls are applied for the re-use, recycling, or recovery of waste on-site.
- No waste generated from the proposed development should be recovered or deposited outside the boundary of the site unless at a waste management facility that operates to a valid environmental permit for the waste issued or an applicable registered waste exemption.
- All waste removed from the proposed development must be undertaken by organisations that are pre-registered with the Environment Agency and hold an applicable Waste Carriers Licence.
- All off site waste movements must be undertaken with appropriate waste documentation (waste transfer notes for inert / non-hazardous waste & waste consignment notes for hazardous waste materials). This documentation should describe in full the waste, its amount, details of all applicable waste holders (waste producer, carrier, waste outlet etc.).
- Allocation of on-site space should be put in place by all waste producers to provide a suitable area for the temporary storage of applicable waste containers and / or stockpiles. All waste storage areas should be clearly signed and labelled to avoid any potential waste cross-contamination. Impermeable surfaces (concrete etc.) with containment maybe required to prevent localised ground contamination should material loss and spillage occur (especially if storing bulk hazardous liquid waste).
- Waste containers should be allocated based on the types of waste to be generated and how they will be handled in line with the waste hierarchy. For examples scrap metal, dry mixed recyclables (paper, card, plastic bottles, cans, glass etc), timber / wood, residual waste (non-recyclable), gypsum-based materials, ACM etc.
- Flammable waste materials should be stored away from buildings or plant / machinery and assessed to reduce the risk of fire and the spread of fire.
- Hazardous waste should be stored away from other waste that are not compatible.
- Hazardous waste should not be mixed with non-hazardous waste for the purposes of downgrading the material hazard classification. This is especially the case with hazardous / non-hazardous soils.
- Raw materials should be stored and protected from possible damage or exposed to weather, which could lead it to becoming waste before being utilised.



- 'Just in time' procurement and buying only the required quantity of materials ensures that raw material is delivered at the time when it is needed and only in sufficient quantities. This would prevent waste from unused or spoiled items because of bulk purchasing.
- Any damaged or off-specification materials should be returned to suppliers where possible, to reduce the amount of waste held on site.
- Local raw materials and waste management suppliers should be considered, in the first instance, to minimise the effects by reducing emissions related to transportation.

To supplement the core measures detailed above, a Site Waste Management Plan (SWMP) will be prepared as part of the condition discharge process for the construction (build) phase incorporating all key contractors to record any decisions given to resource efficiency when designing and planning all build phase works. Any details and assumptions on the nature of the proposed development such as its design, construction methods, materials to be employed should be done to minimise the quantity of waste produced coupled with maximising the amount of waste re-used, recycled, or recovered should be enclosed within the SWMP.

The SWMP must provide information on each anticipated waste type from the various development phases, including the applicable European Waste Catalogue (EWC) code and waste description. Initially the SWMP should provide a detailed estimate of the quantity of waste types along with the most appropriate waste management option taking into consideration current legal compliance and the application of the waste hierarchy. This can be undertaken utilising the BRE Smart Waste SWMP software. Furthermore, utilising the BRE Smart Waste software provides automatic alignment to BREEAM to show how credit requirements have been achieved (should this be applicable).

The SWMP will also accurately monitor the actual types and quantities of waste arisings and the SWMP must be continually updated accordingly. Comparisons should be made of actual waste arisings amounts against those initially projected along with some statistical analysis and interpretation against best practice waste management targets.

The SWMP should reference all applicable contractors (or be produced by each of the applicable contractors) and also identify members of staff that are responsible for waste management and ensure that all appropriate training is in place so that site personnel are aware of the core waste management measures and the application of the SWMP requirements.



CONSTRUCTION MANAGEMENT



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9.0 CONSTRUCTION MANAGEMENT

The Guide to Development SPD states that Site Waste Management Plans (SWMP) should be implemented to reduce the quantity of waste generated, and to increase re-use and recycling. It also promotes the reuse of materials, whilst discouraging the use of damaging chemicals. Furthermore, the SPD states that activities carried out during the construction of new developments have the potential to cause significant environmental impact and that the means to mitigate these should be presented.

The applicant has confirmed that a CEMP will be developed as part of the condition discharge process once a contractor has been appointed to address construction methods and working practices. An Outlined Construction Management plan has been submitted as part of this planning application which discusses issues such as site hours of work. The detailed CEMP will also include a number of measures designed to ensure that any impact from noise, dust and vehicles is minimised.

Some of the key measures to be included in the CEMP are summarised below:

Ecology

- any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season.
- Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist.

Drainage and Contamination

- Compounds will have hard surfacing to prevent infiltration.
- Areas of localised contamination identified during the ground investigation will be remediated/ removed as appropriate.
- A procedure will be put in place to manage previously unidentified contaminated ground that is encountered during the works; and,
- Any surplus soil arising from levelling or excavation works that has visual or olfactory evidence of contamination will be stored in sheeted stockpiles placed on hardstanding or sheeting pending its removal or treatment.
- Impacts due to incorrect storage and spillage will be mitigated by the following:
 - Design of a Drainage Plan for the site.
 - Compounds will comprise hardstanding.
 - Environmental training for all personnel.
 - Designated re-fuelling areas on hardstanding with interceptor drainage, bunds, plant nappies or similar.
 - Spill kits will be readily available.



- Storage areas for materials will be identified; and,
 - Deliveries will be planned in advance.
- Surface water flows to be captured through a series of cut-off drains to prevent water entering excavations or eroding exposed surfaces.
- If dewatering of excavations is required, pumped discharges would be passed through a washout area, settlement /attenuation ponds and silt fences to capture sediments before release to a watercourse / drain.
- Stockpiles will be located away from a watercourse or site drainage system to prevent leaching of contaminants. Protective coverings will help prevent runoff stripping a stockpile. Concrete should also be stored to prevent release into drains.
- Topsoil / subsoil would be stored away from watercourses and on flat lying land (minimum 20m away on flat land). Where this is not possible and it is to be stockpiled for longer than a two-week period, the material would, as soon as possible either be covered with geotextile mats, seeded to promote vegetation growth, or drainage provided to a suitable settlement area.
- Plant wheel washing will take place in designated locations. The area will be tanked and will not be allowed to discharge into a watercourse or infiltrate to groundwater.
- Mud deposits would be controlled at entry and exits to the site using wheel washing facilities and / or road sweepers operating during earthworks or other times as considered necessary.
- Tools and plant would be washed out and cleaned in designated areas within the site compound where runoff can be isolated for treatment before discharge to surface water drainage under appropriate consent and / or agreement, or otherwise removed from site for appropriate disposal at a licenced waste management facility.
- Haul roads will be designed so that the length is kept to a minimum, but still serves its purpose. The gradient will be shallow to prevent increasing runoff velocity and, if possible, bunds and / or discrete ditches constructed to intercept the runoff. Haul roads will be sprayed regularly to keep down dust. If any section of a haul road is hard surfaced, then it will be swept on a regular basis to prevent accumulation of dust and mud. Gullies will be covered when not in use before the final bituminous running surface is laid.
- The movement of construction traffic (to / from and between main construction areas) would be controlled via defined tracks and hardstanding areas.
- Simple measures can be taken to prevent oil and hydrocarbons becoming pollutants, such as:
 - Maintenance of machinery and plant.
 - Drip trays.
 - Regular checking of machinery and plant for oil leaks.
 - Correct storage facilities.
 - Check for signs of wear and tear on tanks.



- Care with specific procedures when refuelling.
 - Designated areas for refuelling.
 - Emergency spill kit located near refuelling area.
 - Regular emptying of bunds; and
 - Tanks located in secure areas to stop vandalism.
- In accordance with the EA guidance, all fuel tanks on-site will have a bunded containment of a minimum of 110% fuel tank capacity. There would be no drainage point from the bunded catchment area and tamperproof taps / valves would be installed. All empty fuel containers or drums would be stored within a catchment area prior to their removal from the site. Oil traps would be incorporated in pertinent drainage systems to prevent accidental spillage being discharged into the surface runoff. Furthermore, spill kits would be stored at refuelling areas in the event of accidental spillage.
- Where fuelling of large machinery is required, drip trays and absorbent mats or pellets would be utilised. General maintenance would also be undertaken in a designated area and similar contamination prevention measures would be adopted.
- All runoff from the site would be intercepted and treated to remove sediment, oils, and other substances prior to discharge from the site. As construction of the proposed development progresses, the drainage system would be progressively implemented and would also include pollution prevention control systems.

Air Quality and Dust

Guidance	Comment
Site management	● Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken ● Make the complaints log available to the LA upon request ● 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 logbook ● Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes



Guidance	Comment
Monitoring	• Undertake daily on-site and off-site visual inspection to monitor dust, record inspection results, and make the log available to the LA upon request • Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the LA upon request • Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions
Site preparation	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible • Fully enclose specific operations where there is a high potential for dust production, and they are active for an extensive period • Avoid site runoff of water or mud • Keep site fencing, barriers and scaffolding clean using wet methods • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used • Cover, seed, or fence stockpiles to prevent wind whipping
Operating vehicle/machinery and sustainable travel	• Ensure all vehicles switch off engines when stationary - no idling vehicles • Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable • Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials



Guidance	Comment
Operations	• Only use cutting, grinding, or sawing equipment fitted or in conjunction with suitable dust suppression techniques • Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate • Use enclosed chutes and conveyors and covered skips • Minimise drop heights and use fine water sprays wherever appropriate • Ensure equipment is available to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods
Waste management	• Avoid bonfires or burning of waste materials
Earthworks	• Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil as soon as practicable
Construction	• Avoid scabbling (roughening of concrete surfaces) if possible • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery
Trackout	• Use water-assisted dust sweeper on access and local roads, if required • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving site are covered to prevent escape of materials • Implement a wheel washing system, if required • Access gates to be located at least 10m from receptors where possible



Noise

- Any compressors brought on to the Site to be silenced or sound reduced models fitted with acoustic enclosures.
- All pneumatic tools to be fitted with silencers or mufflers.
- Care to be taken when erecting or striking scaffolds to avoid impact noise from banging steel. All operatives undertaking such activities to be instructed on the importance of handling the scaffolds to reduce noise to a minimum.
- Most deliveries to be programmed to arrive during normal working hours only. Care to be taken when unloading vehicles to minimise noise. Delivery vehicles to be routed so minimise disturbance to residents. Delivery vehicles to be prohibited from waiting within or in the vicinity of the Site with their engines running.
- All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.
- All plant to be sited so that the noise impact at nearby noise sensitive properties is minimised.
- Local hoarding, screens, or barriers to be erected as necessary to shield particularly noisy activities; and
- Problems concerning noise from construction works can often be avoided by taking a considerate and neighbourly approach to relations with the local residents. Works should only take place during given periods, e.g., during normal construction hours and not at night.

Transport

Construction traffic movements will be controlled by a CTMP to minimise the effects of traffic on the local highway network through appropriate routing of vehicles and delivery schedules.

Waste

A SWMP will be developed in conjunction with the contractor and submitted to MCC for approval. Please refer to Section 8 Waste Management for full details.



BIODIVERSITY



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10.0 BIODIVERSITY

Developers will need to contribute to Manchester's Biodiversity Strategy by demonstrating in their Environment Standards Statement how they have taken full account of the effect of their proposed development on biodiversity.

The applicant commissioned ERAP to undertake a series of ecological surveys at the site to identify protected species and to propose means by which any adverse effects could be avoided, and ecological enhancements could be achieved.

There are no statutory or non-statutory ecological designations covering the site. The surveys identified the existing site conditions, which comprise largely hard standing and areas of vegetation including trees and shrubs, ornamental planting, amenity grassland, semi-improved neutral grassland and a former allotment. No priority habitats were identified, and only common plant species were found during the survey. The conclusion on ecological value was that the site habitats are important at the site level only.

Compensation for the loss of these habitats is proposed in the form of ornamental planting (enriched with pollinator species), living walls and via the planting of trees across the site, in accordance with the landscape proposals.

The trees and shrubs are suitable nesting habitat for passerine (perching) species of birds. The trees will be removed during the construction phase of the proposed development, and this has the potential to disturb nesting birds. All wild birds are protected while they are nesting under the Wildlife and Countryside Act 1981 (as amended). Recommendations for the protection of nesting birds and to ensure the proposals create enhancements for wildlife associated with urban areas are as follows:

- any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season.
- Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist.
- The lighting scheme will be designed with reference to current guidance, namely:
 - Guidance Note 8: Bats and Artificial Lighting in the UK (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
 - Bats and lighting: Overview of current evidence and mitigation guidance (Stone, 2014)
- The installation of bat access panels to upper floors to provide roosting opportunities.
- The installation of swift nesting boxes.
- The installation of bee hotels.



- Areas of green wall are to be integrated into the design, which will provide foraging and sheltering opportunities for invertebrates.
- The landscape planting strategy will comprise native species and species known to be of value for wildlife, particularly invertebrates.

These recommendations outline all the mandatory measures and additional actions to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.

The proposals will secure an opportunity to implement beneficial measures such as habitat creation that will safeguard habitats for wildlife such as birds and bats, with the aim of providing a net gain in biodiversity in accordance with the principles of the NPPF. It is concluded that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy. Development at the site will provide an opportunity to secure ecological enhancement for wildlife associated with urban areas.



WATERWAYS



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11.0 WATERWAYS

The Guide to Development SPD states that developers working in close proximity to the City's waterways should demonstrate how public access, environment and management will be enhanced.

The proposed development site is not adjacent to any waterways. The nearest watercourse is a section of the Irk, located approximately 250m to the north of the site. the Irwell is around 500m to the west at its nearest point.

Given the distances involved, the development has no direct influence over access to the City's waterways, but the proposed development includes significant enhancements of the public realm. The landscaping proposals are being designed to complement the existing public realm in Angel Square and also to tie in with the public realm that will surround the Angel Gardens development. This will also include running water features, providing a contextual link to the waterways of the city.

All of the spaces around the buildings will be available to the public including the central space, grand staircase and public walkways and will be made up of a good balance of hard landscaping and green areas. Although the public space will be owned and fully maintained by NOMA, the spaces will be available for members of the public to use in the same way as Sadler's Yard is open to the public. In light of the above, the increased public accessibility and permeability of the site will further encourage great use of the public realm in the city, which, whilst not directly affecting waterways, would continue to growth of a network of publicly accessible spaces in the City Centre that includes waterways.

In terms of environmental management, surface water runoff from the site will be managed through the use of attenuation basins and the use of permeable surfaces. The majority of surface water would ultimately discharge to the combined public sewer, minimising flows into local waterways. In this way, the development will improve the quality and control the rate of surface water runoff in comparison to the existing site, which will reduce the potential for flooding and for pollutants to enter local watercourses.



CONCLUSION



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12.0 CONCLUSION

Manchester City Council's Guide to Development SPD requires developers to prepare and submit an Environmental Standards Statement (ESS) with planning applications. This ESS relates to the proposed office and commercial development of 2 & 3 Angel Square by MEPC.

The ESS confirms that the proposed development will be exemplary in terms of its environmental and sustainability performance. The applicant has committed to a BREEAM rating of Outstanding.

A key part of the building's sustainable credentials is the approach taken to building energy performance and the use of renewable energy. The project engineers have designed a highly efficient building and have specified roof mounted solar PV as well as air source heat pumps for space and water heating.

The buildings include cycle storage and changing facilities to encourage sustainable transport choices and is well located in terms of public transport options.

A waste management strategy has been prepared that sets out how waste and recycling streams will be sorted and collected and how recycling will be encouraged of building occupants.

The building design also includes efficient low-flow taps, showers and WCs to minimise water use.

In terms of ecology and biodiversity, the site is of low ecological value at present but the value will be enhanced through the development process through the landscaping strategy and the installation of bird and bat boxes.

The construction process will be managed by a CEMP to minimise disruption to neighbours and ensure best practice site management. This would be supported by a SWMP that will prescribe best practice for the reduction of waste generation and the sorting and recycling of arisings.

The site is not in close proximity to any waterways and is not located in the flood risk zone. Therefore, no risks to or from watercourses are anticipated; however, surface water attenuation will ensure that the development does not present a risk to controlled surface waters.

In summary, the Applicant has committed to very high standards of building performance and best practice on site that demonstrate compliance with local and national planning policy and industry best practices.