

Northern Gateway (JPA1.1)

Outline Planning Application

Sustainability, Energy & Carbon Statement



Sustainability, Energy and Carbon Statement

JPA 1.1 (Northern Gateway) – Outline Planning Application

Northern Gateway Development Vehicle LLP

April 2025



Turley
Sustainability
and ESG

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1. Introduction

1.1 Introduction

This Sustainability, Energy and Carbon Statement has been prepared by Turley Sustainability and ESG on behalf of the Northern Gateway Development Vehicle LLP ('the Applicant' or 'NGDV'). It is submitted in respect of a cross-boundary application for outline planning permission (all matters reserved) ('the Application') for a national-scale employment development on allocated land at Heywood/Pilsworth (Northern Gateway) ('the Application Site').

The Statement provides the policy context and outlines of the proposed design to demonstrate compliance and beyond.

1.2 Site Context

The Application Site straddles the administrative boundaries of Bury Council ('BC') and Rochdale Borough Council ('RBC') (collectively referred to as 'the Councils').

Land at Heywood/Pilsworth is allocated under Policy JP Allocation 1.1 of the adopted Places for Everyone Joint Development Plan ('PfE') for a nationally significant employment development, capable of delivering around 1.2 million square metres ('sqm') of industrial and warehousing floorspace, 1,200 homes, a primary school and an appropriate range of supporting and ancillary services and facilities, such as a new local centre, hotel, leisure and conference facilities ('JPA1.1 Allocation Site').

The JPA1.1 Allocation Site is strategically located within the North-East Growth Corridor, a key focus for employment and housing growth in Greater Manchester. Encompassing approximately 634 hectares ('ha') of land across the administrative boundaries of Bury and Rochdale, it is the largest employment-focused allocations in PfE. This scale of

development positions the JPA1.1 Allocation Site as a transformative opportunity to drive economic growth, enhance connectivity, and contribute to inclusive regeneration across the northern areas of Greater Manchester.

1.3 Proposed Development

The Application Site represents a major part of the JPA1.1 Allocation Site and the Application seeks approval for up to 600,000 sqm of new employment floorspace and up to 5,000 sqm of supporting uses (as set out in the submitted Uses Schedule) on 209.8 ha of land.

Preparation and construction of the Proposed Scheme is anticipated to commence in 2026, with the construction being completed over 19 years. The Proposed Scheme is anticipated to be fully operational in 2045.

Figure 1 shows the Application Site within the JPA1.1 Allocation Site boundary.

The description of development is as follows ('the Proposed Scheme'):

"Application for outline planning permission (all matters reserved) for a national-scale employment development, comprising Storage & Distribution (Use Class B8) and Industrial (Use Classes B2, E(g)(ii) and E(g)(iii)) uses (including, but not limited to, Logistics, Manufacturing Processes and Data Centres), with supporting ancillary uses including Hotel (Use Class C1), Commercial, Business & Service (Uses Class E(a-g)), Education (Use Class F1(a)), Local Community (Use Class F2(a-c)) uses, Sui Generis uses (in accordance with the Uses Schedule), and associated demolition works, landscaping, drainage, ecological enhancements, highway works, cycleway and footpath linkages and other ancillary infrastructure".

Figure 2 shows the Parameters Plan: Uses for the Proposed Scheme, which defines the maximum extent of developable area within the Application Site, alongside associated landscape buffers and non-developable areas.

1.4 Document Structure

This Sustainability, Energy and Carbon Statement reports the environmental benefits of the Proposed Scheme to respond primarily to energy and carbon related local policy.

Other aspects of sustainability, including economic and social benefits are reported within the Economic Benefits and Social Value Statement submitted separately to support the application.

Chapter 2 of this Statement sets out the local and national sustainability planning objectives.

Chapter 3 sets out the energy strategy of the Proposed Scheme, and how this responds to local planning policy.

Chapter 4 sets out how the Proposed Scheme addresses whole lifecycle carbon emissions and incorporates circular economy principles.

Chapter 5 communicates how the Proposed Scheme is resilient to climate change.

Chapter 6 provides an overview of building accreditation which will be sought to support the sustainability credentials and benefits of the Proposed Scheme.

Chapter 7 provides a summary of the report and sustainability benefits delivered.

The completed Energy and Carbon Proforma, as required, is provided in **Appendix 1**.

Please note, that the terms 'carbon', 'carbon dioxide (CO₂)' and 'greenhouse gas (GHG)' are used interchangeably in this Statement depending on the terminology of the referenced document.

Figure 1: The Application Site within the PfE JPA1.1 Allocation Boundary

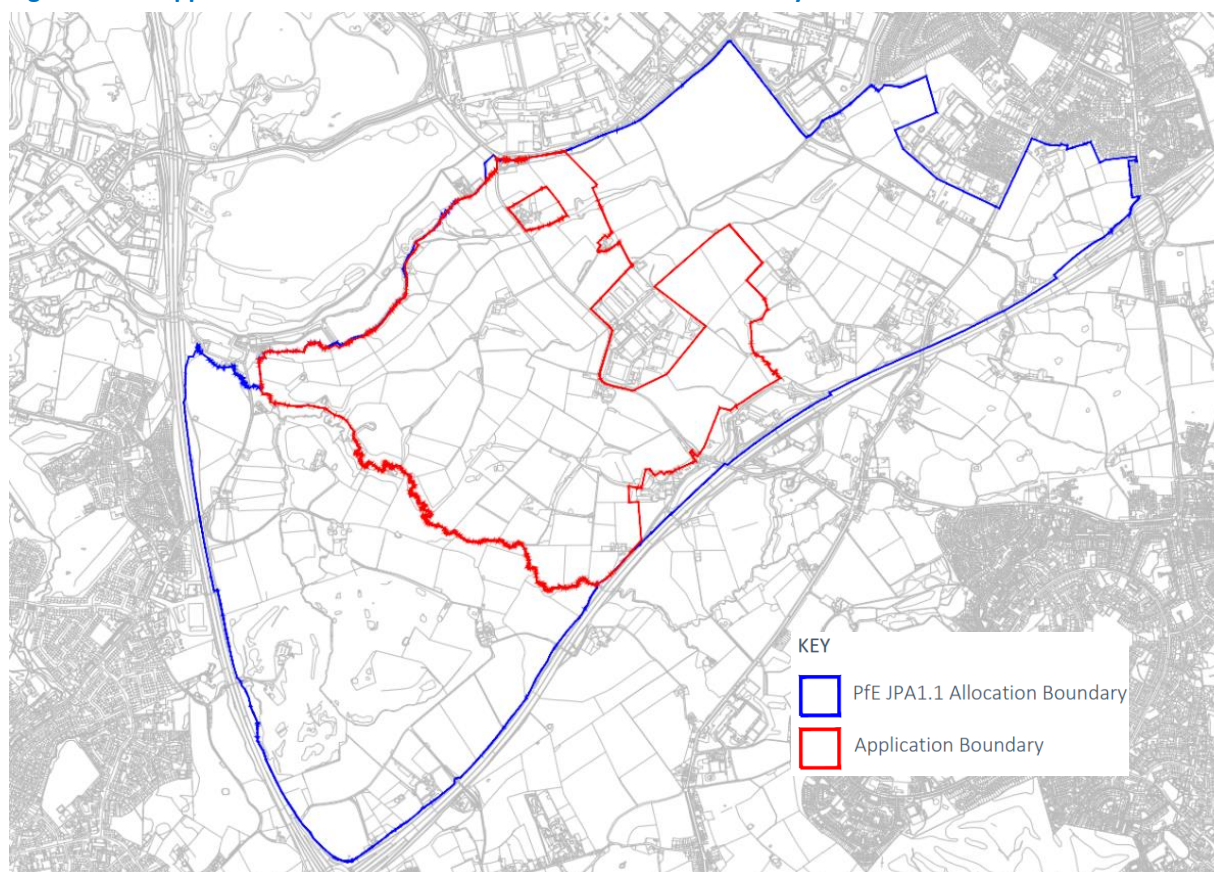
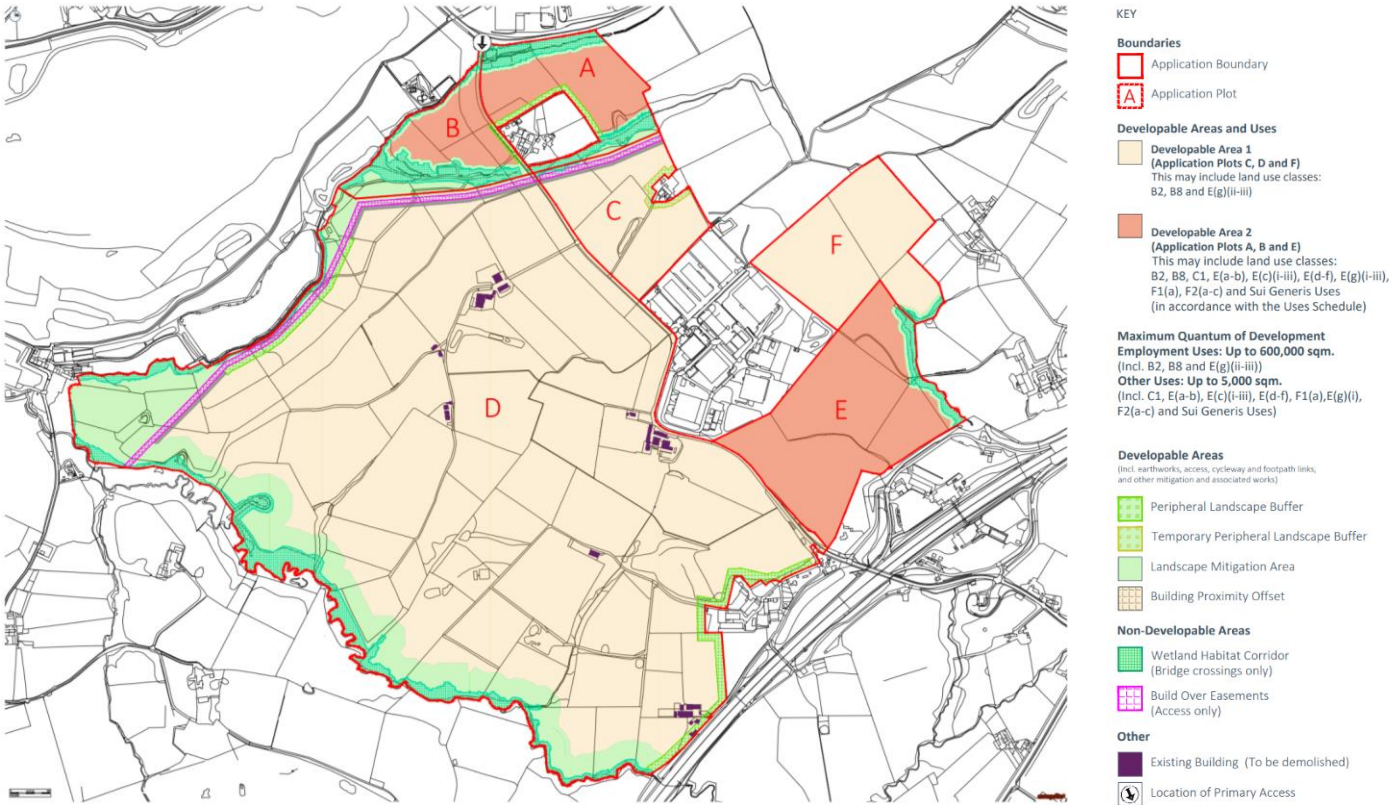


Figure 2: Parameters Plan: Uses for the Proposed Scheme



2. Policy Context

2.1 National Policy and Guidance

This section sets out a summary of current national guidance and policy in relation to sustainable development.

2.1.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)¹ provides a framework for the development of locally prepared plans and the government's planning policies for England and how these are expected to be applied.

Paragraph 8 outlines the environmental objective of the Framework which includes mitigating and adapting to climate change and moving to a low carbon economy.

Paragraph 161 similarly confirms that the planning system should support the transition to a low carbon future in a changing climate, including providing support to proposals which contribute to radical reductions in greenhouse gas emissions and encourage the reuse of existing resources, as well as the development of low carbon energy.

Paragraph 164 expects new development to be planned for in ways that avoid increased vulnerability to the range of impacts arising from climate change, ensuring that suitable adaptation measures are provided where development is located in a vulnerable area.

Paragraph 166 of the Framework states that new development should:

- Comply with adopted Local Plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
- Take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

Paragraph 167 states that LPAs should prioritise supporting energy efficiency and low-carbon heating improvements, such as installing heat pumps and solar panels, for both domestic and non-domestic buildings.

The NPPF recognises the role planning has to play in support of the UK's pursuit of the United Nations Sustainable Development Goals (UNSDGs) which address social progress, economic wellbeing and environmental protection².

Figure 3: Example UN Sustainable Development Goals



¹ [UK Government | NPPF](#)

² [UN Sustainable Development Goals](#)

2.1.2 Planning Practice Guidance

Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable energy and underpins the policies within the NPPF.

PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

2.1.3 Building Regulations

Part L, Conservation of Fuel and Power - On 15th June 2022, the building regulations were updated as an interim step towards part of the roadmap to the 'full' Future Homes and Buildings Standard.

In December 2023 the Government published the Future Homes Standard (FHS) and Future Buildings Standard (FBS) consultation.

The FBS consultation included two different sets of proposals for top-lit spaces (such as warehouses) and side-lit spaces (such as offices). Two options are presented under the consultation:

- **Option 1:** Solar PV equivalent to 40% of floor area for side-lit spaces and 75% for top-lit spaces.
- **Option 2:** Solar PV coverage equivalent to 20% of floor area for side-lit spaces and 40% for top-lit spaces.

The consultation confirmed that Option 1 is the preferred approach.

The FBS is expected to require buildings to achieve a circa. 75-80% reduction in carbon emissions beyond Part L 2013. Buildings under FBS will be 'zero-carbon ready', meaning that they will need no

retrofitting to produce zero carbon emissions as the electricity grid decarbonises.

It is expected that confirmation of this legislation will be given sometime in 2025.

Part S, Infrastructure for Charging Electric Vehicles - New approved document Part S sets out guidance for electric vehicle (EV) charging infrastructure and specifies that EV charge points must be provided for each dwelling (or where the total number of parking spaces is less than each dwelling, all spaces should be provided with an active EV charging point). Any remaining spaces must have cable routes for charge points to be installed.

2.1.4 UKGBC Framework

The UK Green Building Council's (UKGBC) Net Zero Carbon Buildings Framework³ sets out high-level principles for achieving net zero carbon for construction and net zero carbon for operational energy within both homes and non-domestic buildings. Buildings can also be referred to as 'net zero ready' where they are able to meet net zero in operation should the occupiers purchase renewable energy.

The framework includes the following definitions:

Net Zero Carbon in Operation - *When the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.*

Net Zero Carbon in Construction - *When the amount of carbon emissions associated with a building's product and construction stages up to practical completion is zero or negative, through the use of offsets.*

The UKGBC does not include specific embodied or operational targets, however users are encouraged

³ [Net Zero Carbon Buildings Framework - UKGBC - UK Green Building Council](#)

to review third-party resources (such as RIBA Climate Challenge Targets).

The Framework in its current form is set to be superseded later this year⁴.

2.1.5 RIBA 2030 and London Energy Transformation Initiative (LETI) Standards

RIBA and LETI have published performance standards which are viewed as best practice by addressing embodied carbon and both regulated and unregulated energy beyond that required by building regulations.

RIBA (Royal Institution of British Architects) Climate Challenge Targets⁵ are a series of voluntary performance targets for practices to adopt to reduce operational energy, embodied carbon, and potable water. The targets have been developed in consultation with industry experts and UK professional bodies from across the built environment industries and are in line with the emission reductions necessary to achieve net zero carbon for the whole UK build environment by 2050. Targets are presented for residential and non-residential developments around operational energy, embodied carbon, potable water use, and health and wellbeing to achieve by 2030 with interim targets for 2025.

2.1.6 UK Net Zero Carbon Buildings Standard

Released as a Pilot Version in September 2024, the UK Net Zero Carbon Buildings Standard⁶ (UKNZCBS) has been developed by a wide range of stakeholders in the UK's built environment industry including UKGBC, LETI, and RIBA. It is therefore expected to supersede several industry guidance documents, including the UKGBC Framework (**Section 2.1.4**). The standard is for buildings exclusively and does not include infrastructure or hard landscaping (even where associated with new buildings).

The UKNZCBS is a pioneering publication, and the first of its kind in the UK to enable developers and

building owners to robustly demonstrate how a building is 'net zero carbon aligned' in line with the UK's climate targets. This terminology differs from the UKGBC's definition of 'net zero ready' or 'net zero construction/operation' and reflects the approach that the standard has taken to remove a reliance on carbon offsets and focus on direct reductions achieved on site.

To ensure robustness of net zero claims, the standard set outs sectoral performance targets and limits which align with science-based trajectories needed to achieve net zero by 2050 and a 78% reduction by 2035 in the UK, i.e. what is known to be required to stand a reasonable chance of mitigating global warming to 1.5°C.

These limits and targets are based on commencement year and include:

- Energy use intensity (EUI)
- Upfront carbon
- Refrigerant global warming potential
- Being fossil-fuel free
- Renewable energy generation

The standard also differs from the UKGBC Framework due to its robustness and stringency of limits and targets proposed to ensure a science-based approach. Furthermore, offsets are not required to demonstrate net zero alignment.

The UKNZCBS is undergoing pilot testing over the course of 2025, aiming to gather feedback on the process of implementing the standard and how limits and targets can be achieved in practice. It is expected that there will be changes made to the standard as part of Version 1 once the pilot testing has been completed, including delineation between areas and responsibilities. It is therefore challenging at this stage for applicants and developers to make a commitment to fully achieve the standard.

⁴ [UKGBC Framework Implementation Guidance](#)

⁵ [2030 Climate Challenge](#)

⁶ [UKNZCBS \(Pilot Version\)](#)

2.1.7 UKGBC Circular Economy Guidance

The UKGBC Circular Economy Guidance⁷ is designed to enable developers and designers to include ambitious circular design and construction principles for non-domestic built assets.

In contrast to a linear “take-make-use-dispose” economy, a circular economy builds overall system health by decoupling economic activity from the consumption of finite resources. This approach should be underpinned by a transition towards renewable energy sources.

The structure of the UKGBC Guidance follows the following principles:

- Reuse
- Design Buildings for Optimisation
- Standardisation or Modularisation
- Servitisation and Leasing
- Design and Construct Responsibly

The guidance also aims to ensure that the construction supply chain can effectively deliver circular economy goals and that budget, project management, and timescale risks are minimised and mitigated.

2.1.8 Environment Act 2021

The Environment Act 2021⁸ aims to improve air and water quality, protect wildlife, increase recycling and reduce plastic waste. It explicitly makes biodiversity net gain (BNG) a condition of planning permission by requiring all new developments in England to provide a 10% BNG.

2.2 Local Planning Policy

Bury Council, Rochdale Borough Council, and Greater Manchester Combined Authority (GMCA) planning policy relating to sustainable development, energy and climate change is summarised below.

2.2.1 Places for Everyone

In March 2024, nine Greater Manchester (GM) councils adopted Places for Everyone (PfE) Joint Development Plan Document.⁹ All policies within the plan are ‘strategic policies’ and local plans will need to be consistent with it and neighbourhood plans will need to be in general conformity with the strategic policies. The key sustainability, energy and climate change policies are summarised below:

Policy JP-S1 Sustainable Development: The policy reiterates GM’s Vision to be at the forefront of action on climate change and includes a commitment to be carbon neutral by 2038. This commitment provides the basis for the other energy and carbon related policies in PfE.

The policy sets an expectation that development will apply a net zero carbon approach to operational emissions up until 2028, thereafter emissions in construction should be considered. Policy JP-S2 below then clarifies expectations in terms of meeting net zero in operation and construction.

Until FBS comes into force, the PfE policy will follow its trajectory in relation to carbon reduction with applicants demonstrating how savings have been maximised following the energy hierarchy. From 2025, applicants will need to demonstrate carbon reductions have been maximised with an opportunity to offset any residual carbon to a carbon offset fund. The approach will be reviewed in line with future standards as they are introduced and is reliant on the Councils setting up an offset fund.

⁷ [UKGBC Circular Economy Guidance](#)

⁸ [Environment Act 2021](#)

⁹ [Places for Everyone Joint Development Plan Document \(2024\)](#)

Policy JP-S2 Carbon and Energy: The policy supports delivering a carbon neutral GM through the following measures:

- Promoting the retrofitting of existing buildings;
- Promoting the use of life cycle cost and carbon assessment tools;
- Taking a positive approach to renewable and low carbon energy schemes;
- Increasing the range of nature-based solutions;
- An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable:

a) Be net zero carbon:

- From adoption - to regulated operational carbon emissions
- From 2028 – to all emissions ‘in construction’.

From 2025 development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions, in line with the energy hierarchy.

From 2025 any residual carbon emissions that cannot be fully mitigated on-site should be offset. As an interim measure, development should be consistent with the Part L building regulations introduced in 2022, unless superseded.

Footnote 29 within PfE states that net zero carbon is defined by the UKGBC Framework (see **Section 2.1.4**).

- b) Incorporate adequate electric vehicle charging points, in line with Part S of the building regulations, unless superseded by relevant Local Plan policies.
- c) Prioritise connection to a renewable energy/heating/cooling network in the first

instance or a low carbon network that is adaptable to non-fossil fuels at a later date.

- d) For non-residential developments, achieve at least BREEAM excellent standard (or equivalent) for the ‘Ene 01 – reduction of energy use and carbon emissions’ category rising to ‘BREEAM outstanding’ equivalent for Ene 01 from 2028.
- e) Include a detailed energy statement to demonstrate how the development has sought to maximise 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.

Policy JP-S3 Heat and Energy Networks: New commercial developments that are over 1,000sqm floorspace shall:

- 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
- Install a site-wide or communal heat/energy network solution.

There is also an expectation that new industrial development will demonstrate that opportunities for using waste heat locally have been fully examined.

Policy JP-S4 Flood Risk and the Water Environment: Developments are expected to manage surface water runoff through sustainable drainage systems and as close to source as possible.

Sustainable drainage systems should:

- Be designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;

- Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;
- Be delivered in a holistic and integrated manner, including on larger sites split into different phases; and
- Be managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.

Policy JP-S6 Resource efficiency: The policy requires 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-G8 Net Enhancement of Biodiversity and Geodiversity: Through a range of measures, a net enhancement of biodiversity and resources will be sought.

Development is expected to follow the mitigation hierarchy to avoid harm to biodiversity and compensate for any harm caused. A measurable net gain of 10% should be achieved.

2.2.2 Net Zero Design Guidance

In March 2025 the GMCA published three guidance documents and a proforma¹⁰ to support the implementation of the energy and carbon policies in Places for Everyone. The guidance includes:

- Design Guidance for Net Zero - guidance for applicants on how to design to achieve net zero carbon buildings.
- Low carbon heat - guidance for applicants on how to deliver heating systems which are low carbon, cost effective and affordable.
- Submission guidance for Places for Everyone policies JP-S2 and JP-S3.
- An energy and low carbon proforma (excel spreadsheet) to demonstrate compliance with

the policy when submitting energy statements to the Local Planning Authority.

An overview of each of these documents is provided below.

Design Guidance for Net Zero

This document sets out design considerations for residential and non-residential buildings to meet policy JP-S2 and JP-S3. It reiterates that net zero is defined by the UKGBC Net Zero Carbon Buildings Framework, and provides the following principles to achieve this:

- Minimise energy demand: achieve the space heating demand limits through energy efficient fabric and ventilation.
- Maximise energy efficiency: meet the total energy use (regulated and unregulated), through low carbon and energy efficient heating systems.
- Use renewable energy: maximise the generation of on-site renewable energy. There should be a balance between predicted annual energy use and annual renewable energy generation.
- Use low carbon energy: the building must not connect to the gas network or, more generally, use fossil fuels through a heat network. Low carbon heating systems must be installed.
- Reduce overheating risk: assess the risk of overheating and minimise it through window design and shading strategies.
- Minimise embodied carbon: embodied carbon should be minimised through efficient design and low carbon material selection. The building should meet the upfront embodied carbon benchmarks and the highest carbon materials used should be reported.
- Offsets: following the implementation of the above steps, financial contributions are the last

¹⁰ [GMCA Net Zero Guidance](#)

step to offset the remaining emissions/energy. The decision to include offsetting will be determined by each local authority.

Guidance is provided for applicants to design energy efficient and low carbon buildings, including considerations such as form factor, positioning of unheated facilities, ventilation, and building fabric.

Metrics and key performance indicators (KPIs) are provided for major non-residential applications including:

- Space heating demand $\leq 15\text{kWh/m}^2/\text{yr}$
- Energy usage aligning with BREEAM Excellent minimum standards under credit issue Ene 01
- Fossil fuel free
- Thermal comfort in line with CIBSE TM52

There is no KPI or target for upfront embodied carbon and no further details provided on offsetting requirements.

Low Carbon Heat

This guidance document provides applicants with further information on how to deliver low carbon heating systems in line with policies JP-S2 and JP-S3.

It confirms that gas-fired heating systems are not compatible with achieving net zero carbon buildings and recommends the use of all-electric heating systems such as heat pumps.

Further detail is provided around heat and energy network opportunity areas in Greater Manchester, and the guidance confirms that the identification of heat network zones will be finalised in 2025.

Applicants assessing the feasibility of heat networks and low carbon heating should address the following:

- Environmental performance: whether the system uses fossil fuel or not and whether it will create any local pollution issues.

- Impact on residents: estimated energy, maintenance and replacement costs and additional costs compared to a 'benchmark' low carbon heating system.
- Impact on viability: estimated capital costs of selected heating system and additional costs compared to a 'benchmark' low carbon heating system.
- Infrastructure development: whether the scheme is proposing to connect to the local low carbon heat network or not with suitable justification for exemption if required.
- Consideration of embodied carbon/whole life carbon (optional).

A 'Low carbon heat appraisal' is recommended for all applications.

Submission Guidance

This document sets out the requirements for different types of applications including pre-app, outline, and detailed, to meet the requirements of policies JP-S2 and JP-S3.

For major non-residential outline applications, the submission requirements are as follows:

- Energy and Carbon Statement
- Energy and Carbon Proforma

For outline applications, the proforma is expected to be completed based on targets and commitments made by the Applicant. The Energy and Carbon Statement should include:

- Proposed targets relating to space heating and cooling including the calculation methodology to be used at reserved matters for space heating and cooling demand.
- Proposed targets to be achieved relating to the building fabric form factor, glazing ratios, U-values and airtightness.
- Proposed ventilation strategy.

- Targeted Energy Use Intensity (EUI) as well as proposed calculation methodology.
- Renewable energy generation.
- Proposed % of roof area for renewable energy generation.
- Proposed resulting energy balance (based on basic calculations).
- Confirmation that the heating system does not use fossil fuels on site.
- Confirmation that a Low Carbon Heat Appraisal will be carried out.
- Confirmation of site location with regards to low carbon heat networks.
- Confirmation whether mechanical cooling will be required.
- Proposed upfront embodied carbon targets.

Energy and Carbon Proforma

A proforma document is provided and must be completed for all applications. At outline stage, the completed proforma should provide an indication of commitments and targets.

2.2.3 Bury Unitary Development Plan

Adopted in 1997, the Bury Unitary Development Plan¹¹ (UDP) provides policy to guide and control development within the borough.

PfE supersedes many of the UDP policies, as shown within PfE Appendix A: Replaced District Local Plan Policies. All relevant sustainability related policies within the UDP are superseded by the PfE policy summarised within **Section 2.2.1**.

2.2.4 Bury Local Plan

BC's Local Plan update will provide a detailed set of locally specific planning policies. Following Cabinet

approval, BC is aiming to consult on the draft Local Plan between March and May 2025.

2.2.5 Rochdale Core Strategy

The Rochdale Core Strategy¹² was adopted in 2016 and expresses a need to address the global challenge of climate change.

All relevant sustainability related policies within the Core Strategy are superseded by PfE policy, as shown within PfE Appendix A: Replaced District Local Plan Policies.

2.2.6 Northern Gateway Development Framework (NGDF) JPA 1.1 Supplementary Planning Document (SPD)

The NGDF SPD was subject to public consultation between November 2024 and January 2025 and was formally adopted by BC on 6th March 2025 and RBC on 18th March 2025.

The NGDF contains a chapter on sustainability, setting out expectations of the Allocation, and therefore the Proposed Scheme, to contribute to carbon neutral goals of Greater Manchester and address the impacts of climate change. Further details are provided to support PfE policies and are summarised below.

Net Zero in Operation

The requirements for BREEAM 'Excellent' (rising to Outstanding from 2028) for the 'Ene 01 – reduction of energy use and carbon emissions' credit issue forms the basis for how much regulated energy and carbon emissions should be minimised directly on site.

Residual emissions after reduction will be offset where practical and viable via a fund which will be developed by GMCA, Bury and Rochdale Borough Councils. It is not expected that emissions associated with unregulated energy will be offset.

It is expected that the energy strategy for the site will be all-electric to ensure that energy demand is

¹¹ [Bury UDP](#)

¹² [Rochdale Core Strategy 2016](#)

met through the increasingly decarbonising electricity grid. It is expected that heat pumps will be used to deliver the space heating, hot water and cooling demand.

On-site renewable energy will be maximised as far as possible at the site, prioritising rooftop and ground mounted solar photovoltaics, and building mounted micro-wind turbines where appropriate and viable.

Net Zero in Construction

Construction carbon emissions should be minimised as far as possible before residual carbon is offset via a fund set up by the relevant local planning authority(s).

Offsetting should be limited to buildings only (excluding infrastructure).

Reductions in construction carbon should focus on material efficiency (e.g. 'use less') in the first instance, before exploring the use of low carbon and innovative materials.

Carbon Offsetting

In collaboration with the GMCA, Bury and Rochdale Borough Councils are intending to develop a Carbon Offset Fund to enable applicants to contribute to and achieve net zero. It is expected that all offset payments where required, and viable, will be made to this fund.

Heat and Energy Networks

The site has been identified as a Heat and Energy Network Opportunity Area. As such, it will be important to explore whether installation of a site-wide heat/energy network solution is practical, financially viable, and delivers the highest carbon savings over the course of its operation.

Opportunities for using waste heat locally should be explored.

Opportunities for smart energy networks should also be considered, including:

- Energy demand and generation balance

- Energy storage
- Microgrid(s)
- Electric vehicle charging strategy (HGV, public, and private vehicles)

If an applicant can demonstrate that an alternative energy strategy will deliver greater benefits, then this will be considered.

Resource Efficiency

It is expected that circular economy measures implemented in the development will include, but are not limited to:

- Material efficiency, minimising the quantity of materials used in construction.
- Use of recycled materials and materials with a high recycled content.
- Use of materials which can be repurposed or recycled at end of life.
- Resource (energy and water) efficiency measures during construction and operation.
- Reduction of waste generated during construction and operation, and diversion of residual waste from landfill.

Climate Resilience

Design measures expected to be implemented on site include:

- Reducing overheating risk through passive measures in the first instance, using active cooling where necessary.
- Reduction of surface water flooding through Sustainable Drainage Systems (SuDS) and positive interventions within the natural riparian environment working with natural processes, without significantly embodied carbon emissions.
- Incorporating green and blue infrastructure to mitigate overheating, flood risk, and contribute

to biodiversity, whilst ensuring the design of built development also reduces wherever possible impacts on the surrounding natural environment.

- Minimising water use during operation through modern design techniques which promote measures for reducing water demand and incorporating rainwater or greywater harvesting, and
- Appropriate landscaping strategy which suits current and future climate scenarios and doesn't rely on mechanical irrigation.

Environmental Accreditation

Applicants are encouraged to achieve full certification under BREEAM, to a rating of 'Excellent' as a minimum.

Where feasible and viable, additional accreditation is encouraged to demonstrate the sustainability credentials of the site.

2.3 Pre-application Engagement

The Applicant has engaged in extensive pre-application discussions with GMCA, and the Councils to attempt to better understand the policy context and implementation, and ambitions for Northern Gateway.

Meetings have been held from the early stages of the Proposed Scheme in 2022 to ensure that the ambitions and goals of Northern Gateway are recognised. The discussions had two main purposes, the first was to understand how net zero would be defined, including how offsetting would play a part and the second was the context of the Manchester offset fund. More recently, discussions were held to understand viability of carbon offsets and how they would be applied.

The following meetings have been held:

5th July 2024 – Meeting with BC

This meeting was held to understand sustainability related aspirations and BC's approach to net zero and carbon offsetting.

BC expressed strong commitment to achieve carbon neutrality as a council by 2038 and the following aspirations for Northern Gateway:

- Heat pumps and/or heat networks.
- Maximising renewable energy.
- Sustainable Drainage Systems (SuDS) ensuring the Proposed Scheme does not contribute to any flooding.
- Maximise greenspace and biodiversity net gain.
- Limit overheating.
- Prioritise public transport, shared transport, and active travel.

In conversations relating to the definition of net zero carbon given uncertainty in PfE policy, BC confirmed that a practical approach to net zero was sought i.e. carbon offsetting would be required if adequate carbon reduction wasn't achieved (rather than offsetting all the way to zero).

29th July 2024 – Meeting with RBC

This meeting had the same purpose as the earlier meeting with BC, and RBC expressed the following aspirations for the site:

- Sustainability strategy should reflect the scale of the Proposed Scheme and potential international interest.
- Energy strategy in line with the energy hierarchy.
- Potential for green infrastructure to support other sustainability benefits such as flood resilience, overheating, and amenity.

- Needs to be flexible for the various options.
- Buildings should be cooled using natural features.
- Heat island effect should be minimised.
- Rainwater harvesting.

13th November 2024 – Meeting with GMCA and the Councils

A meeting was held at GMCA's offices to discuss the energy strategy for the Proposed Scheme, and the Applicant's technical and procedural understanding of PfE policy in the context of emerging building regulations and changing industry guidance in relation net zero carbon definition.

The GMCA confirmed that there would be further guidance created to complement Policy JP-S2, including a 'pro-forma' for energy and carbon strategies. At the time of the meeting, the pro-forma had not yet been developed but was under production and was likely to have several headings including fossil-fuel free, energy efficiency, renewable energy generation, embodied carbon. It was also likely to require predictive modelling using benchmarks or actual modelling for detailed applications. The GMCA suggested that the pro-forma could include reference to emerging industry guidance such as the UKNZCBS.

In accordance with policy, GMCA confirmed carbon offset payments, where required and viable, would be agreed and collected by the Local Planning Authorities i.e. BC and RBC and that a pricing system has not been set.

BC and RBC were present in the meeting and confirmed that they had not commenced the development of their own carbon offset funds at that time.

Next steps were agreed from the meeting, including:

- GMCA to issue the draft guidance on Policy JP-S2 as early as possible.

- The Applicant would develop a proposed method for compliance and issue to GMCA, BC and RBC.
- Meeting to be arranged with BC and RBC to discuss submission requirements and offset strategy.

The guidance on Policy JP-S2 was not prepared in time for a meeting to confirm the proposed strategy to be arranged.

2.4 Policy Summary and Analysis

Both local and national policy aims to ensure the delivery of sustainable and well-designed development which mitigate and adapt to the impacts of climate change.

PfE sets requirements for new development, including achieving net zero carbon in regulated operational energy with any remaining carbon to be offset from 2025 (meeting building regulations as an interim measure), and net zero in construction from 2028.

The NGDF SPD provides further context to PfE policy and encourages best practice through achieving BREEAM Excellent and designing a holistic, masterplan-led approach to climate resilience.

Whilst further guidance has been produced by the GMCA, at the time of submission of this Outline Application, there is considerable uncertainty and further clarifications required to the implementation of Policy JP-S2 for the following reasons:

- The UKGBC Framework, which is referenced as the definition of net zero within the policy footnotes and latest guidance, is due to be superseded this year.
- The UKNZCBS, which is the UK's emerging net zero definition is currently undergoing pilot testing, causing uncertainty as to whether definitions, limits and targets will change prior to its formal release.

- The UKNZCBS definition of 'net zero carbon aligned' does not require offsets, which is a fundamental difference compared with the UKGBC Framework.
- The UKNZCBS is an 'in use' standard, which in its current form requires tenants to have occupied buildings for at least one year and meet the required limits to achieve compliance.
- Absence of a local carbon offset fund and details around how this may be applied alongside policy requirements.

Although the net zero guidance published by the GMCA in March 2025 provides some additional information around the route to net zero carbon, the absence of details around the offset fund presents viability challenges given the costs of meeting this target cannot be estimated.

Working with the GMCA, Bury, and Rochdale Borough Councils, the Applicant has proposed an ambitious and deliverable route to net zero carbon which adheres to the policy as currently written, whilst anticipating imminent changes to UK industry net zero guidance.

The Applicant considers that it is important to recognise the extended construction programme for NG with an estimated completion date in the mid-2040s. During this time national and local policy and guidance will change considerably and therefore this strategy should be seen as initial principles to guide all future Reserved Matters Applications (RMA).

3. Energy Strategy

3.1 Introduction

This chapter presents the Energy Strategy proposed by the Applicant, setting the foundations to deliver a net zero carbon development to meet the ambition of the GMCA, BC and RBC.

As set out within the introduction, Northern Gateway is the largest employment-focused allocations in PfE. This scale of development provides an opportunity to set precedent across Greater Manchester for sustainable, energy efficient, zero carbon development.

During the delivery of the Proposed Scheme, it is anticipated that there will be substantial changes to national policy, legislation and guidance and therefore the energy strategy must allow for the appropriate levels of flexibility to enable the design to respond to new technologies and opportunities.

The FBS for example, as set out within **Section 2.1.3**, is predicted to significantly increase energy performance of buildings through the introduction of higher fabric standards, plant efficiency, and renewable energy generation to result in a 75-80% reduction in carbon emissions, compared with Part L 2013.

PfE supports the Government's objectives for energy efficient and low carbon development. Policies JP-S1, JP-S2, and JP-S3 require reductions in energy use and carbon dioxide emissions in line with Greater Manchester's ambition to be carbon neutral by 2038.

The following sections set out the measures incorporated within the Proposed Scheme to deliver an energy efficient development based on the latest national and local guidance.

Details on how the Proposed Scheme will meet the net zero carbon policy is provided in **Chapter 4**, and climate resilience and wider sustainability benefits are set out in **Chapters 5 and 6**.

Given the outline nature of the application, measures proposed are indicative and strategic at this stage. Further detail will be provided as part of subsequent Reserved Matters Applications (RMAs).

Policy JP-S2 requires energy demand to be minimised as far as possible on site. The following sections are presented in line with the energy hierarchy and GMCA Net Zero Design Guidance as summarised in **Section 2.2.2**:

- Minimise energy demand (building fabric and ventilation)
- Maximise energy efficiency
- Renewable energy generation
- Low carbon heating
- Overheating

3.2 Minimise Energy Demand

Reducing the energy demand of a building can be achieved through the performance of building fabric, which considers heat loss, solar gain, and building orientation.

This 'fabric first' approach has benefits, including:

- Carbon savings delivered are 'locked-in' for the lifetime of the building (60 years or more) rather than the much shorter lifespan (around 25 years) of a renewable energy technology.

- Virtually no maintenance and/or replacement costs to maintain carbon reductions through improved fabric.
- Less reliance on an occupier's behaviour to deliver carbon reductions.

The Energy and Carbon Proforma (**Appendix 1**) provides KPIs and metrics for building fabric and ventilation. The Applicant has acknowledged these targets and will strive to meet them where feasible and viable. Further details will be provided within RMAs, however an overview of each design measure to minimise energy demand is provided in **Table 1** below.

Table 1: Proposed Approach to Minimise Energy Demand in line with the Net Zero Design Guide

Design Measure	Proposed Approach
Building Form	Industrial and logistics buildings have a low form factor due to their efficient design and shape. It is anticipated that a form factor of less than 2 can be achieved as per the Net Zero Guidance KPI.
Elevations and Windows	The design of individual buildings will be carried out at RMA stages, however windows will be sized and orientated to balance heat gain, heat loss and internal daylight in occupied spaces. Design measures will include orientation of offices to avoid significant south facing glazing and brise soleil over windows which may be at risk of excessive solar gain.
Heated and Unheated Spaces	It is likely that significant areas of the proposed development (e.g. warehouse) will be unheated given the nature of industrial and logistics buildings. The design will aim to group additional unheated areas such as plant rooms and bin stores together to reduce heat wastage. Heated areas will be appropriately insulated to prevent wasted transfer of heat.
Building Fabric Specification and Air Tightness	Compliance with FBS (or equivalent future legislation) is proposed as a minimum, striving to improve these notional values where feasible and viable and shown to significantly reduce energy demand further.
Ventilation	The ventilation strategy will be confirmed at detailed design, however it is anticipated that mechanical ventilation with heat recovery will be used in offices. The design will consider how to limit ductwork to reduce inefficiencies and material wastage.
Space Heating Demand	The applicant will target a space heating demand of less than 15kWh/m ² / yr within industrial and logistics buildings in line with the KPIs set out within the Net Zero Design Guide. The feasibility of achieving this space heating demand for other building types will be reviewed during detailed design. The space heating demand of each building will be calculated using CIBSE TM54 for each RMA.

3.3 Maximise Energy Efficiency

Whilst energy usage is reliant on occupant behaviours, measures can be incorporated into the design to maximise energy efficiency and limit energy wastage. Such measures which will be confirmed at the detailed design of each building include:

- Mechanical Ventilation Heat Recovery (MVHR).
- Energy efficient LED lighting.
- Internal and external lighting controls to minimise unnecessary use e.g. presence and daylight detection.
- Building management system which monitors energy usage and can control heating systems to avoid out of hours use.

The FBS consultation sets higher standards for plant efficiency, controls and lighting compared with Part L 2021. These standards will be met as a minimum if brought into building regulations but may be exceeded if possible to maximise energy efficiency.

Details on how the proposed approach to minimising energy demand and maximising energy efficiency has been quantified is provided in the following sections.

3.3.1 Predictive Energy Modelling

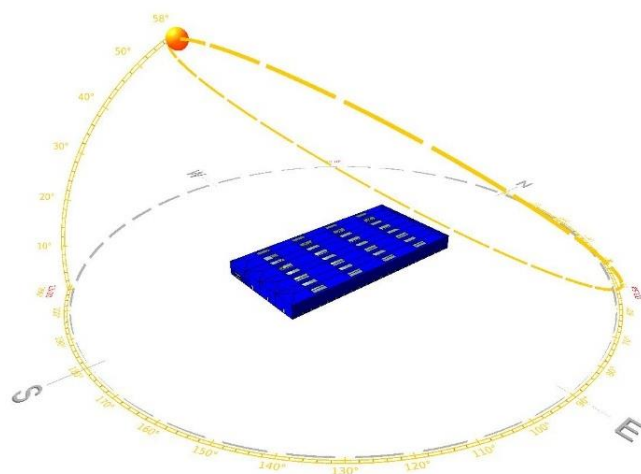
In recognition of the scale of Northern Gateway and its status as a pioneering opportunity for Greater Manchester, high level energy modelling has been undertaken from the early stages of the project and design process to inform the energy strategy. Modelling has focussed on the B2 and B8 uses given they equate to over 99% of the gross internal floor area of the Proposed Scheme.

Baseline modelling has been calculated in line with FBS Option 1 consultation for top-lit buildings (as defined within **Section 2.1.3**). It is expected that the FBS will be adopted as legislation in 2025 however should this situation change then legislation at the time of RMAs will be applied instead. The modelling

provides an indication of potential peak and hourly energy demand. Unregulated energy demands such as process loads and any advanced manufacturing have not been modelled at this stage due to their unpredictability, particularly for speculative buildings.

Predictive energy modelling has been undertaken using the standard methodology for Building Regulations in IES – Virtual Environment software (**Figure 4**) based on an assumed scenario of B2 and B8 delivery, which is subject to change.

Figure 4: IES Virtual Environment Software



Regulated Energy Demand

Regulated energy use is that covered by the Building Regulations. It includes fixed loads such as lighting, heating, cooling, pumps and fans.

Using the methodology set out above, the total regulated energy demand of the Proposed Scheme once delivered in 2045 is estimated to be circa 3,631MWh per annum.

Unregulated Energy Demand

Unregulated energy demand includes those energy uses not covered by Building Regulations. These demands are commonly plug loads, such as computers, and processes such as manufacturing or internal transportation of goods. These demands are much more variable than regulated energy and as such can be difficult to estimate.

Given the outline application stage and speculative nature of the buildings within the Proposed Scheme, any estimates of unregulated energy at this stage would be high level and potentially inaccurate. However potential major unregulated energy loads have been identified as:

- Warehouse equipment e.g. conveyors, automation.
- Advanced manufacturing.

Once identified and quantified, steps will be taken to reduce the energy demand of these unregulated uses where possible.

For each RMA, a detailed assessment of EUI will be undertaken, for example using the methodology set out within CIBSE TM54: Evaluating operational energy use at the design stage (2022).

3.4 Renewable Energy Generation

On-site renewable energy generation is a core principle of the Proposed Scheme and the Applicant recognises its importance as part of the delivery of net zero carbon Greater Manchester. Pre-application discussions with BC and RBC included an ambition to have 'visible renewable energy' such as roof mounted solar PV to promote Northern Gateway and set a precedent within the local area.

A review of renewable energy technologies which could be suitable for inclusion in the buildings' design is summarised below.

Wind Turbines

The generation of electricity from wind at the Proposed Development has been considered, with different options such as vertical axis, horizontal axis, and roof mounted turbines considered.

The primary benefit of wind power is that it is not constrained to daylight hours, unlike solar power. It allows for a greater balance between supply and demand.

The average wind speed across the site is circa 4.7-4.9m/s which would support production of electricity.

Column mounted turbines have been discounted due to the following constraints:

- Proximity to residential areas proposed as part of the allocated JPA 1.2.
- Potential impact on Birch Village Conservation Area.
- Potential impact on migrating and breeding birds.

Roof mounted wind turbines do not have the same constraints as column mounted turbines and have lesser community and biodiversity impact.

At detailed design, further consideration will be given to the feasibility of roof mounted turbines, and the quantum of energy which can be generated.

Hydroelectric

There are a number of watercourses through the Application Site which could support the generation of electricity through hydropower, however it is unlikely that any significant amount of energy could be generated. Furthermore, there is potential for a water turbine to disrupt local fish species. Large scale hydroelectric power has therefore been discounted.

Solar Photovoltaics (PV)

Solar PV systems generate zero carbon electricity from sunlight and are well suited to the Proposed Scheme due to the large, clear roof areas and consistent base load. Furthermore, they require minimal maintenance once installed.

The baseline deployment of solar PV panels has been assumed equivalent to 75% of the office floor areas which would align with the FBS. This amount is estimated to be 22,500m² of panels, generating 4,500kWp per annum. It should be noted that this quantity is indicative at this stage and may vary depending on building regulations in force at the

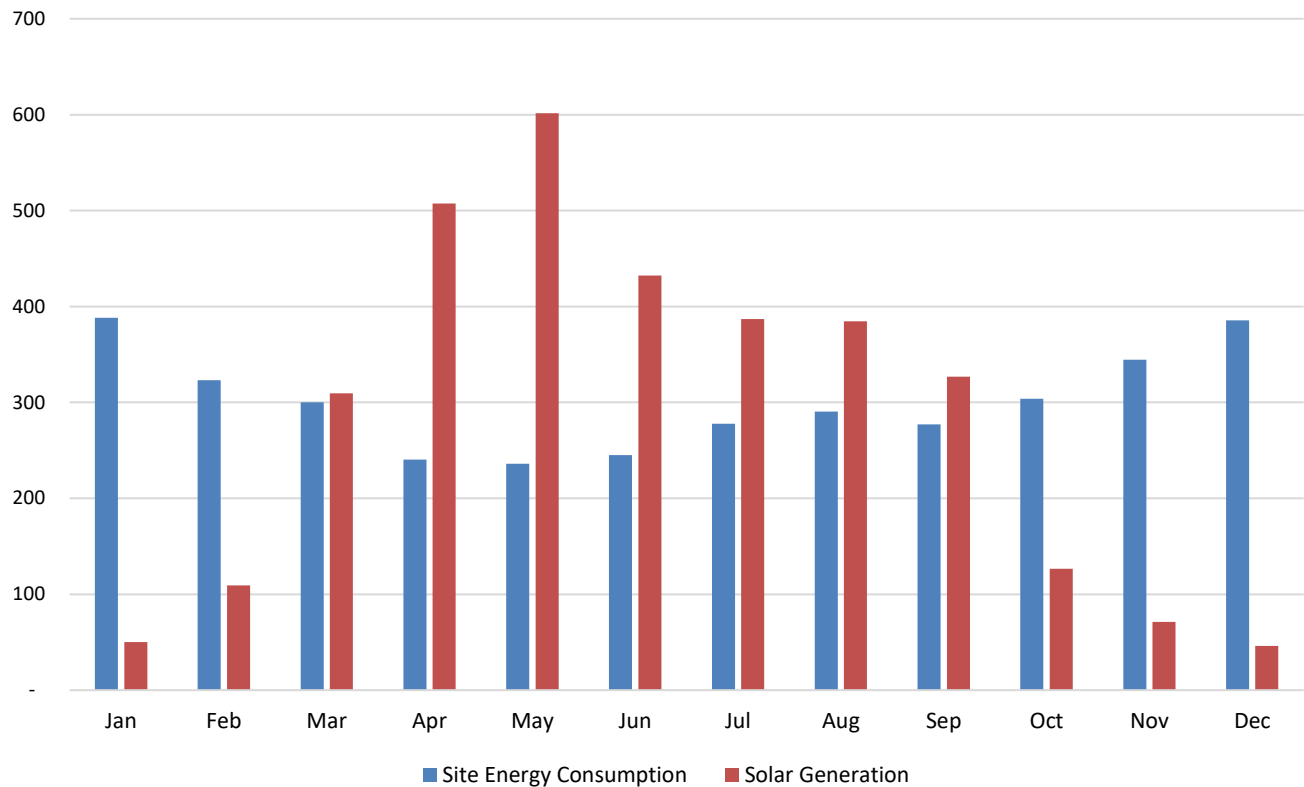
time of construction, and further guidance released by BC and RBC.

This quantum of solar energy generation is estimated to be circa 3,352MWh per annum, which when compared with the predictive energy demand of the Proposed Scheme as set out within **Section 3.3.1**, would meet circa 90% of the regulated energy demand.

This is minimum position anticipated by the Applicant and further options are discussed within the following chapter when setting out the approach to net zero carbon.

As the design of the Proposed Scheme progresses, consideration will be given to balance the supply and demand of energy (as represented in **Figure 5**) and how energy storage such as batteries could be used to support this balance.

Figure 5: Regulated Energy Demand vs Generation (MWh)



3.5 Low Carbon Heat

The next stage of the energy hierarchy is the provision of low carbon energy to serve the space heating and hot water demand. Policy JP-S3 states that developments should connect to a district heating scheme where such schemes exist, unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions, or where such connection is not practical or financially viable.

There are no existing heat networks within the vicinity of the Application Site, although it is acknowledged that Northern Gateway has been identified as a low carbon heat network opportunity area. The guidance produced by the GMCA confirms that these areas are indicative only at this stage, until formalised later this year.

The thermal demand of B2 and B8 use class buildings is low, at approximately 0.1kWh/m² per annum and significantly below what would be

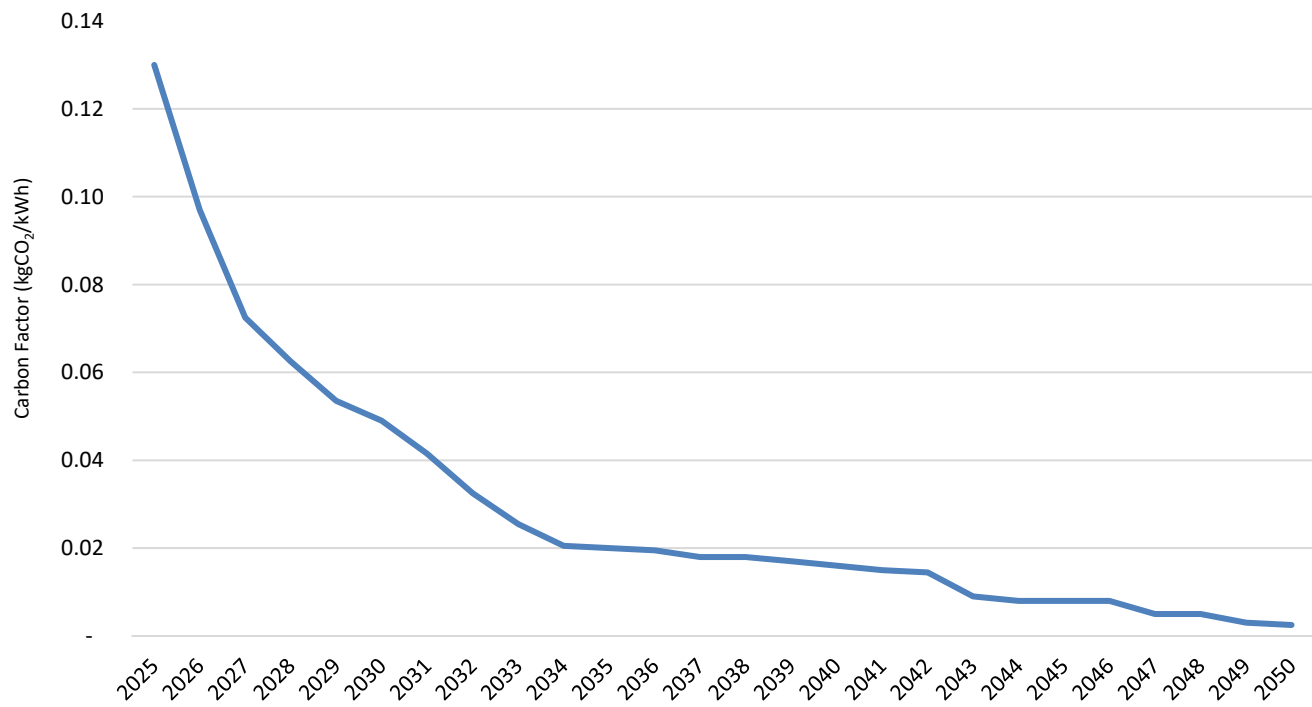
feasible to support the delivery of a heat network, which is generally in the region of >30kWh/m² per annum.

Furthermore, these buildings have unpredictable heat loads, with larger thermal demands requiring heat at temperatures that can't be supplied by a heat network.

With the projected continued decarbonisation of the UK power grid shown in **Figure 6**, the carbon benefit of gas fired systems has been eliminated and the use of gas fired heat network systems is not considered suitable to deliver carbon savings in line with the GMCA's net zero strategy.

Carbon emissions associated with electricity are expected to be immediate, and continue to reduce as the grid decarbonises, leading to greater savings in carbon emissions and achievement of net zero over the lifetime of the development.

Figure 6: Projected Power Grid Decarbonisation



Heat pumps provide low carbon heat sourced either from the ground (ground source heat pumps, GSHPs), water (water source heat pumps, WSHPs), or air (air source heat pumps, ASHPs). As heat pumps use electricity, they emit no air pollution, are low carbon and decarbonise in line with the power grid, which, in line with the Government's ambitions, is expected to reach zero carbon during the delivery of the Proposed Scheme.

The relatively low maintenance, efficiency and capital cost of an ASHP system means that it is suitable for incorporation into the energy strategy for the Proposed Scheme to serve space heating. Both local and communal ASHP systems will be considered as the design progresses.

Should the site be identified as a Heat Network Zone once work by GMCA is completed and these areas are formalised, a Heat Network Appraisal will be undertaken as part of subsequent RMAs.

3.6 Overheating

Based on Met Office UK Climate projections¹³ using a high carbon emissions scenario (Representative Concentration Pathway (RCP) 8.5) which is considered the upper range of impacts, mean average temperatures could increase across Greater Manchester by up to 3.5°C¹⁴ over the lifetime of the buildings at Northern Gateway. Subsequently, cooling demands will increase and heating demand will decrease. U-values and building fabric performance therefore need to be carefully balanced with passive design measures to limit excessive external heat gains and cooling demand.

Passive cooling measures will be incorporated into the design of the masterplan and individual buildings to reduce cooling demand and the risk of overheating. These measures will include:

- Deciduous tree planting, providing shade in summer and allowing solar gains in winter.

- Extensive green and blue infrastructure to reduce the urban heat island effect.
- Low albedo surfaces.
- Orientation of offices to avoid significant south facing glazing.
- Brise soleil over windows which may be at risk of excessive solar gain.

As detailed further within **Section 5.2** which considers overheating risk as part of a climate resilient strategy, all buildings will undergo dynamic thermal modelling to fully assess cooling demands and inform the passive principles of the design.

Any proposed improvements to fabric performance beyond the FBS will be tested in terms of its impact on cooling demand and overheating. Furthermore an appropriate overheating analysis such as CIBSE TM52 will be carried out for subsequent RMAs.

3.7 Post Occupancy Evaluation

Policy JP-S2 requires appropriate measures for post occupancy evaluation to be considered. Post-construction evaluation and monitoring is a valuable tool to bridge the performance gap and ensure that the operational performance of a development is in line with the intended design.

Given the outline nature of the Application, and proposed speculative uses within the Proposed Development, the measures for post construction evaluation have not been determined.

However, it is anticipated that an evaluation will be undertaken at several stages to ensure performance is delivered during construction and through to the occupation and operation of the development in line with emerging and future regulatory requirements.

Post construction and occupancy evaluation will be completed for a sample of buildings in each phase, subject to occupant agreement. Evaluation will

¹³ [UK Met Office Climate Projections](#)

¹⁴ [GMCA | Greater Manchester Climate Change Risk Assessment \(2024\)](#)

consider a range of topics including build quality, functionality, and health and wellbeing.

Results from the evaluation will be used to inform the ongoing management strategy and the strategy for future development phases going forwards.

4. Net Zero Carbon & Circular Economy

4.1 Introduction

Building on the foundations of energy efficiency, low carbon heat, and renewable energy generation presented within **Chapter 3**, this chapter sets out the proposed approach by the Applicant to support the net zero ambitions of local policy and Greater Manchester.

Northern Gateway will be pioneering and transformative for Bury, Rochdale and Greater Manchester, and pre-application discussions confirmed a firm support for a pragmatic approach to ensure any route to net zero is robust and meaningful.

As set out within **Section 2.4**, there is considerable uncertainty and further clarifications required relating to the application of Policy JP-S2, which requires new development to be net zero carbon with respect to regulated operational carbon emissions from adoption, and for all emissions ‘in construction’ from 2028.

The UKGBC Framework, which is referenced as the definition for net zero within the policy footnotes and published net zero guidance documents, is due to be superseded imminently, leaving uncertainty as to how to apply this policy in a meaningful and robust way.

The UKNZCBS which is set to replace the UKGBC Framework, does not require carbon offsetting to be ‘net zero carbon aligned’. Furthermore, the absence of a local carbon offset fund and details around how this may be applied alongside policy

requirements creates uncertainty as to the viability of this policy.

This chapter sets out the ambitious and deliverable route to net zero in regulated operational energy and construction proposed by the Applicant, which adheres to the policy as currently written, whilst responding to imminent changes to UK industry net zero guidance to ensure best practice.

The following sections also discuss how carbon emissions are addressed as part of a “whole lifecycle” approach. A lifecycle approach to reducing carbon means that no part of a building’s lifespan is considered in isolation. Instead, the carbon emissions associated with all life stages of a building from construction material manufacturing to replacement of materials, operational energy usage, and building end-of-life and deconstruction, are considered. The advantage of this approach means that decisions made to reduce emissions in one life stage e.g. construction, do not have an adverse effect at a later stage, e.g. end-of-life.

Figure 7 illustrates the life stages of a building and **Figure 8** shows the expected breakdown in whole lifecycle carbon for a speculative B8 unit which is considered to be a good representation of buildings within the Proposed Scheme.

The principles of circular economy are closely entwined with the approach to reducing whole lifecycle carbon emissions, and therefore these principles are also reported within the following sections.

Figure 7: Lifecycle Stages of a Building

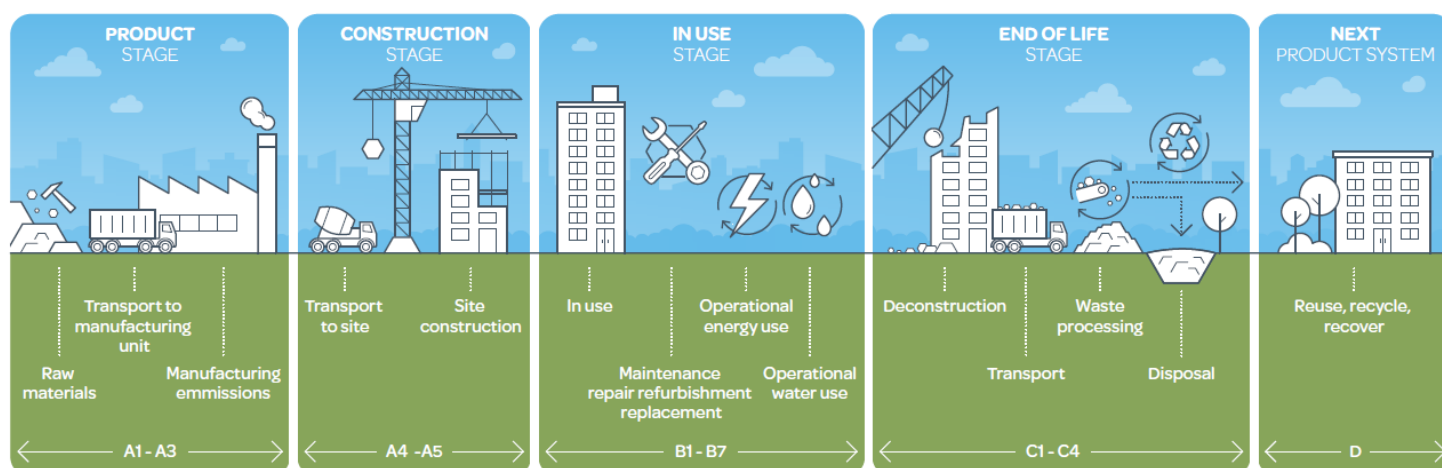
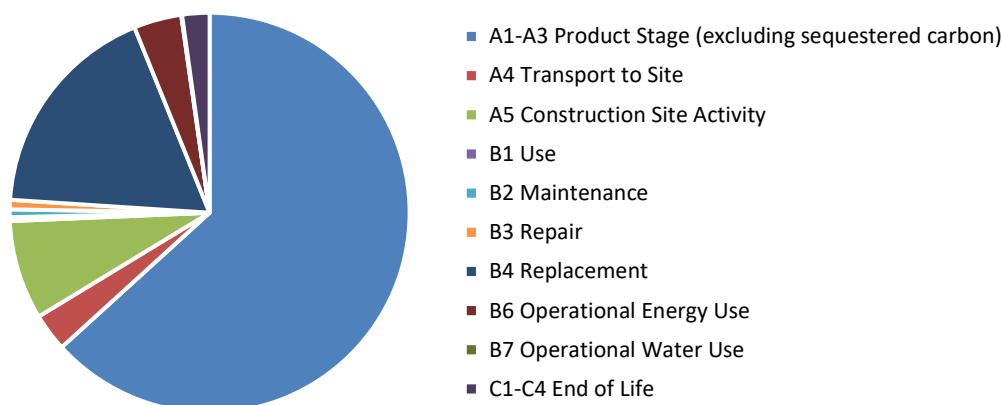


Figure 8: Anticipated Whole Lifecycle Carbon Emissions of a Speculative B8 Unit



4.2 Operational Emissions

As referenced in Policy JP-S2 and the net zero guidance published by the GMCA, the definition for net zero carbon in operation is taken from the UKGBC Net Zero Carbon Buildings Framework as follows:

“When the amount of carbon emissions associated with the building’s operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.”

The UKGBC Framework is due to be retired imminently. The UKNCBS which is set to supersede the UKGBC Framework is currently an ‘in-use’ standard which requires a year of meter readings of energy use and is therefore not currently appropriate for operational net zero claims as part of a planning application process and meeting PfE policy.

The Applicant proposes an approach to net zero carbon operational energy in line with the UKGBC Framework principles and definition. This approach would require the construction of highly

energy efficient, all-electric buildings which are powered fully by on-site or off-site renewable energy sources.

Policy JP-S2 requires development to minimise operational energy (and carbon) as far as possible through application of the energy hierarchy. **Chapter 3** sets out the how the energy hierarchy will be followed within the design of the Proposed Scheme in line with the net zero design guidance, including the following measures:

- Fabric performance and plant efficiency to meet Future Building Standard.
- Passive measures to reduce cooling demand.
- Lighting control to minimise energy usage.
- Mechanical ventilation with heat recovery.
- All-electric space heating strategy comprising low carbon heat pumps to deliver space heating.
- On-site renewable energy generation in the form of solar PV.

This approach meets the principles of the UKGBC Framework through being highly energy efficient, all-electric and generating on-site renewable energy.

As set out within **Section 3.3.1**, the regulated energy demand of the Proposed Scheme is expected to be circa 3,631MWh per annum at full build out in 2045 (with energy demand increasing as buildings are delivered). This demand would equate to 262 tonnes carbon per annum, excluding any on-site renewable energy generation. These figures are subject to change based on legislation in place at the time of RMAs.

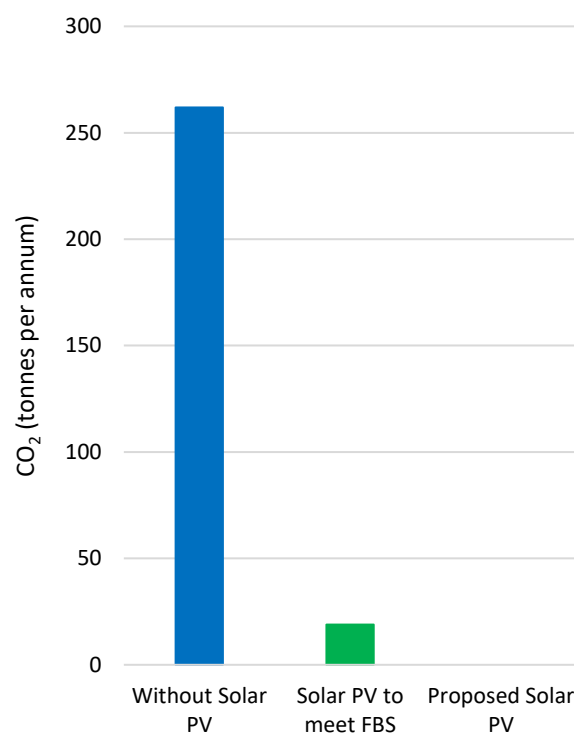
Incorporating 22,500m² or 4,500kWp solar PV to meet the proposed FBS will generate circa 3,352MWh per annum, as discussed in **Section 3.4**. This generation would supply over 90% of the

Proposed Scheme's estimated regulated energy demand and associated carbon emissions.

To fully meet the regulated energy demand and therefore deliver net zero in operation, solar PV would need to be increased by 350kWp or approximately 1,750m² (depending on efficiencies and performance).

Where viable, this approach will be taken by the Applicant to achieve net zero (regulated) carbon in operation as set out within Policy JP-S2 and is presented in **Figure 9** below to demonstrate the reduction in carbon achieved.

Figure 9: Operational Regulated Carbon Emissions of the Proposed Scheme



Detailed calculations of energy demand, on-site energy generation, and subsequent carbon emissions will be completed for each RMA to demonstrate how the policy has been met.

4.3 Construction Emissions

Progressive reduction of operational carbon within building regulations means that carbon associated with building materials and construction is an increased proportion of a buildings total carbon footprint and a greater contribution to climate change. Finding ways to reduce this carbon is therefore becoming increasingly important.

Policy JP-S2 requires net zero construction emissions in new development, where viable, from 2028. As the proposed delivery of the Proposed Scheme will be underway from 2028, this policy requirement must be considered.

The definition for net zero carbon in construction within the UKGBC Net Zero Carbon Buildings Framework as referenced within the policy is:

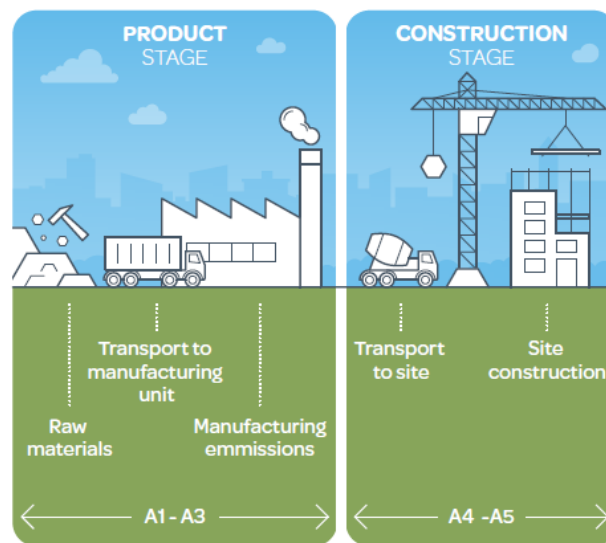
“When the amount of carbon emissions associated with a building’s product and construction stages up to practical completion is zero or negative, through the use of offsets”.

Construction or ‘upfront’ carbon refers to the emissions associated with life stages A1-A5 as shown within **Figure 7** within the introduction of this chapter and in isolation in **Figure 10**. These include emissions associated with material extraction and production, transport to site, and site processes (diesel use, electricity, waste production).

As explained within the introduction of this chapter, the UKGBC Framework referred to within Policy JP-S2 is set to be retired imminently and the GMCA has not released further details on how this policy can be implemented in practice beyond requiring the Applicant to declare an upfront embodied carbon target.

For the purposes of the application, the applicant has considered a pragmatic approach to the 2028 construction related net zero carbon requirement. Should further guidance be issued by GMCA then the approach will be reviewed in full.

Figure 10: Upfront Carbon Emissions



The UKNZCBS, as explained within Section 2.1.6, will enable developers and building owners to demonstrate how a building is ‘net zero carbon aligned’ and is due to supersede the UKGBC Framework later this year.

The standard set outs sectoral performance limits and targets which align with science-based trajectories needed to achieve net zero and mitigate global warming to 1.5°C.

Achieving the upfront carbon limits set within the UKNZCBS therefore demonstrates that buildings are scientifically net zero carbon aligned.

However it should be noted that that UKNZCBS is undergoing pilot testing to trial its implementation and feasibility of targets and limits and is therefore subject to change before its formal release in 2025.

The Applicant proposes an approach which pragmatically demonstrates a reduction in carbon emissions on site. Buildings within the Proposed Scheme could target the upfront carbon limits set within the UKNZCBS according to commencement year. Meeting the upfront carbon limits would demonstrate that the buildings are net zero aligned and therefore further offsetting should not be required where these limits are achieved. This approach would align with pre-application

discussions where a preference for demonstrating a measurable reduction on site instead of relying on carbon offsets was expressed.

The approach be confirmed within subsequent RMAs, and will need to be reviewed should future regulatory requirements that cover upfront carbon emissions be introduced.

To reduce construction carbon emissions, focus will be given to the top carbon impacts within buildings. Generally, in B2 and B8 use class buildings, these will comprise:

- Ready-mix concrete
- External wall and roof cladding panels
- Steel frame
- PV panels
- Reinforcement steel (rebar)
- Emissions associated with construction activities

Measures which will be explored at the appropriate design stage to reduce carbon emissions at infrastructure and building level include:

- Balancing cut and fill material as far as possible either on-site or locally on nearby site.
- Reuse of site-won material, for example using any felled trees for pathways (wayfinding and path chippings) or art work.
- Material efficiency, reducing the quantum of steel and concrete within the design as far as possible, and avoiding overengineering.
- Procurement of steel manufactured using Electric Arc Furnaces (EAF).
- Replacing cement with lower carbon (and local where possible) alternatives.

- Sourcing materials which have Environmental Product Declarations (EPDs).
- Use of natural materials such as timber and stone.
- Procuring materials locally, to reduce carbon emissions associated with the transport of materials.
- Use of electric machinery during construction.
- Use of biodiesel or hydrotreated vegetable oil (HVO) during construction.
- Use of refrigerants with a low GWP.

The Applicant will also consider ways to support the innovation of low carbon materials within the Proposed Scheme.

A Whole Lifecycle Carbon Assessment (WLCA) of buildings will be undertaken for each RMA, once an appropriate level of details and material quantities are available.

As the UKNZCBS and policy requirements do not include infrastructure, a separate carbon assessment of the infrastructure associated with enabling works will be carried out to an appropriate standard such as PAS 2080:2023. This approach will ensure that the whole lifecycle carbon of the buildings is not taken in isolation, and that the impact of the wider site is measured and reduced.

4.4 Offsetting

There are no details from the GMCA or local planning authorities on the use of offsets at this stage.

Whilst the net zero guidance appears to incorporate unregulated energy into net zero requirements as part of minimising EUI, the NGDF SPD confirms that unregulated energy should not be offset.

The use of any local offsetting funds will only be considered following release of further details from the local planning authorities and following a full viability assessment.

4.5 Transport Emissions

Transport accounts for approximately 33% of Greater Manchester's direct carbon emissions¹⁵. Due to the scale of Northern Gateway and the transport to, from and within the Site, the Applicant considers that a low carbon transport strategy is fundamental to the success of the Proposed Scheme and Greater Manchester's net zero carbon ambitions.

A Transport Assessment of the Application Site has been undertaken by Tetra Tech and is submitted separately to support the application. The Assessment confirms that the Application Site is largely undeveloped and therefore has limited existing public transport and pedestrian infrastructure. The lack of current services provides an opportunity to develop a low carbon transport strategy which can be fully integrated with the masterplan and other sustainability benefits.

The Transport Assessment confirms that Transport for Greater Manchester (TfGM) is devising active travel and public transport strategies to minimise private car travel. Additionally, a Framework Workplace Travel Plan has been developed to maximise sustainable travel to and within the Proposed Scheme.

The following travel plan measures have been proposed:

- High frequency bus services linking the Site with key local towns including Bury, Middleton, Rochdale, and Heywood.

- High quality pedestrian and cycle routes throughout the Site, connecting to external routes where possible and providing the opportunity for active travel through attractive green amenity areas of the site.
- Electric Vehicle (EV) charging points throughout the site, with capacity for larger vehicles such as HGVs.
- Provision of land for Transport Interchange and Active Travel Hubs.
- Cycle storage with showers and changing facilities to further promote active travel.

Further details on each of the above measures will be provided at subsequent RMAs. Where possible, measures will be linked to other sustainability measures. For example:

- Pedestrian and cycle routes will pass through green and blue infrastructure to promote amenity and health and wellbeing.
- Consideration of how EV charging demand can be linked to on-site renewable energy generation, to balance supply and demand and reduce carbon emissions.

The Proposed Scheme will incorporate measures to promote active and low carbon travel to and within the Site. These measures will reduce carbon emissions associated with private car travel and combustion engine vehicles and support the transition to lower polluting and carbon emitting EVs.

Furthermore, the Applicant will consider working with potential tenants and building occupiers to incorporate further measures such as car sharing or clubs.

¹⁵ [Manchester Climate Change Agency | 2024 Emissions Report](#)

4.6 Circular Economy

Policy JP-S6 'Resource Efficiency' states that the achievement of a circular and zero waste economy will play a key role in meeting Greater Manchester's ambition of becoming a leading green city region by 2038.

In relation to new development, JP-S6 supports 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.

A circular economy is one where materials are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste. A circular economy will save resources, increase the resource efficiency of businesses and projects, and reduce carbon emissions.

Section 2.1.7 sets out the principles of circular economy in line with existing UKGBC guidance. The aims of these principles and how they could be addressed in the Proposed Scheme are set out below.

4.6.1 Reuse

Reuse of materials can provide carbon savings by reducing new material processing, transport, and waste management.

Generally circular economy has the greatest potential when redeveloping a site with existing buildings and structures. The Application Site is predominantly greenfield and therefore opportunities for the reuse of site won materials is limited.

Where buildings and structures are present as part of an RMA, a Pre-Demolition Audit will be undertaken to determine the type and volume of materials that will be demolished, and to identify any opportunities for reuse.

It is anticipated that there will be areas of the Application Site where levels will both substantially reduce (cut) and increase (area of fill). The design of the Proposed Development will aim to achieve a cut and fill balance where feasible to minimise the need for import/ export of material.

A preliminary cut and fill assessment has been undertaken by Tetra Tech. The assessment indicates that a net surplus of excavation material is likely to be produced, which will need to be exported from the Application Site.

Should an excess of material be produced, the contractor will be responsible for identifying options for disposal of this material which includes reuse locally where possible.

Further detail and calculations will be provided as part of subsequent RMAs.

4.6.2 Design Buildings for Optimisation

Buildings designed for optimisation have well-defined long term needs, while being durable, resilient or able to cope with societal and environmental change. The Proposed Scheme, as part of Northern Gateway will be regionally transformative and built out over two decades. The requirement for the design of the buildings to be flexible to accommodate varying tenants needs and a constantly changing economic and natural environment will be critical to the success of Northern Gateway.

Benefits of designing optimised buildings include long term operational cost and whole lifecycle carbon savings, due to the reduced need of repairing and replacing damaged elements from operational wear and tear, as well as avoidable weathering and changes to climatic conditions over time.

A careful balance must be maintained between designing buildings for optimisation, whilst avoiding overengineering and excess materials.

The climatic resilience of the Proposed Scheme is set out within **Chapter 5**, accounting for changes in storm intensity, rainfall and temperature. Measures incorporated to increase resilience will support circular economy principles.

The speculative nature of the B2 and B8 buildings ensures flexibility for operators and occupiers. Generally, internal finishes and partitions will be excluded within shell and core base builds to allow for a range of interior design and use to suit occupier requirements.

As building services tend to have a shorter lifespan than other elements such as the structure and façade, the detailed design will consider how plant can be easily replaced at ground and roof levels.

Each building will undergo a Functional and Adaptation Study, as part of the BREEAM assessment. This study will set out how the building can be optimised in terms of structure, fabric and services to ensure its longevity and adaptability.

4.6.3 Standardisation or Modularisation

Designing and constructing buildings that apply standardised elements or modular designs for materials and products enable a reduction in construction waste and easier reuse in next life.

The detailed design of the Proposed Scheme will consider how standardisation of key building elements such as steel frame and precast concrete can be maximised to reduce waste.

4.6.4 Servitisation and Leasing

Servitisation and leasing of services and resources is an innovative approach to construction and can enable greater opportunities for future reuse and recycling of parts.

Leasing can be applied to building services, and less commonly, easily replaceable façade elements such as cladding panels.

There are currently no elements of the design which have been identified as a leasing opportunity given the speculative nature of the proposed buildings and lack of industry opportunities. However, opportunities for the leasing of building components will be considered at each development phase. Furthermore, building operators will be encouraged to lease furniture and equipment such as IT resources to reduce operational waste.

4.6.5 Design and Construct Responsibly

Designing and constructing responsibly and in a way which embraces circular economy principles can include use of low impact materials and reducing use of natural resources.

Materials

Section 4.3 sets out the low impact materials which will be considered during detailed design, contributing to carbon reduction and circular economy. Materials with recycled content will be prioritised where possible. Toxic materials, which are difficult to dispose of and cannot be used in circularity, will be avoided.

Construction Impacts and Waste

The Principal Contractor(s) for the Proposed Development will be required to register with the 'Considerate Constructors Scheme' (CCS) and achieve a score signifying best practice. Sites that register with the Scheme are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.

Waste and resource management are key areas of focus within the CCS, with assessment criteria including:

- How waste is avoided, reduced, reused, and/or recycled.
- Whether there is a SWMP and how this is monitored.

- How much waste on-site is diverted from landfill.

Furthermore, BREEAM credits are available for both responsible construction practices and waste management. The responsible construction practices credits assess the monitoring of energy, water and transport of materials and waste on site, whilst further credits in the waste section are available by minimising and diverting waste from landfill.

A Construction Environmental Management Plan (CEMP) will be prepared and will include measures to manage resources such as materials, waste, energy and water on site.

5. Climate Resilience

5.1 Introduction

In Greater Manchester, climate is projected to change by the following ways according to the UK Met Office Climate Projections for RCP 8.5 (considered high emission, upper range) scenario by 2080:

- Annual temperature increase of 3.5°C.
- Maximum summer temperature increase of 4.9°C.
- Minimum winter temperature increase of 2.9°C.
- Quadruple the heatwave events per year.
- Average summer rainfall to decrease by up to 30%.
- Average autumn and winter rainfall to increase by up to 18%.

The effects of the above will be significant to the built environment, and it is critical that Northern Gateway is designed to be resilient to these risks.

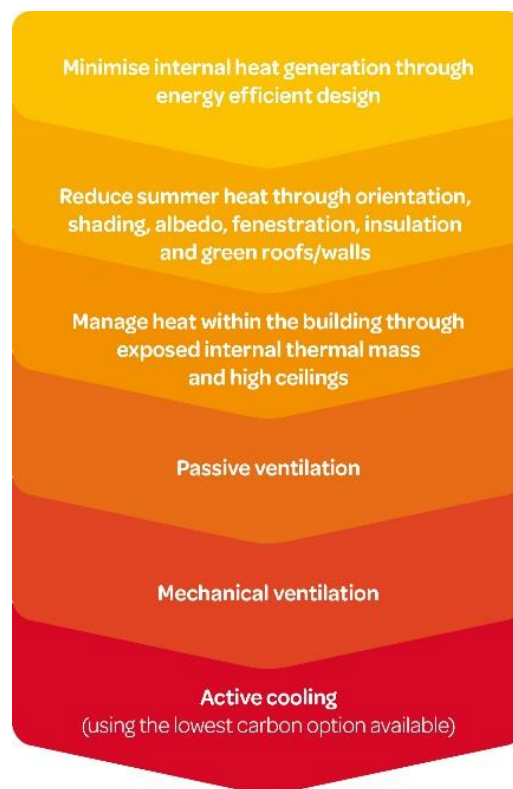
This chapter identifies key measures which will be incorporated into the design of new buildings and the Proposed Scheme to adapt to climate change. These measures are in line with the NGDF SPD which identifies the following key areas to address:

- Reducing overheating risk.
- Reduction of surface water flooding through Sustainable Drainage Systems (SuDS).
- Incorporating green infrastructure and landscaping strategy.
- Minimising water use.

5.2 Overheating

With rising summer temperatures there is an increasing risk of overheating in buildings which could adversely affect building occupants and users. Measures to limit overheating and control cooling demand should follow the cooling hierarchy, as shown in **Figure 11** to prioritise occupant comfort and reduce carbon emissions.

Figure 11: Cooling Hierarchy



As set out within Section 3.6, passive measures to reduce the risk of overheating will be incorporated into the design of the Proposed Scheme. These will include, but are not limited to:

- Deciduous tree planting, providing shade in summer and allowing solar gains in winter.

- Extensive green and blue infrastructure to reduce the urban heat island effect.
- Low albedo surfaces.
- Orientation of offices to avoid significant south facing glazing.
- Brise soleil over windows which may be at risk of excessive solar gain.

Dynamic thermal modelling for current and future climate scenarios will be carried out, to assess how the buildings may be affected by overheating.

Natural ventilation will be prioritised in the design, particularly in warehouses, before considering mechanical ventilation and active cooling, aligning with the cooling hierarchy.

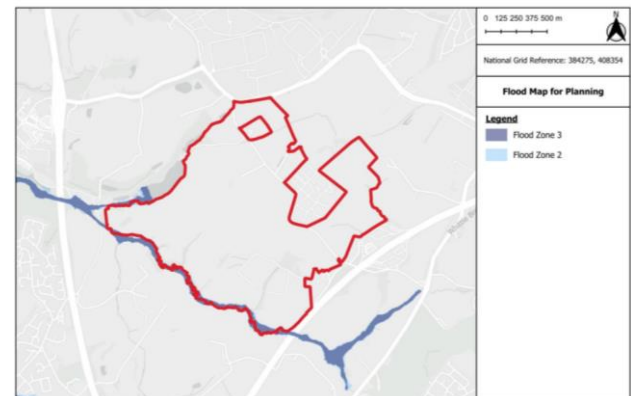
5.3 Flood Risk

As set out within Policy JP-S4 and its surrounding context, climate change is expected to significantly increase peak river flows and surface water run-off as a result of more intense rain events. The development of low flood risk areas, and appropriate control of surface water run-off without impacting new development and surrounding areas is therefore critical to climate resilience.

A Flood Risk Assessment (FRA) has been undertaken by Tetra Tech and is submitted separately to support the Application.

The FRA confirms that the Application Site is predominantly located within Flood Zone 1. The south-western and north-western borders are shown to be in Flood Zone 2 and 3 as associated with the Whittle Brook and Brightley Brook respectively (**Figure 12**). The Application Site is not affected by tidal flood risk.

Figure 12: Environment Agency Flood Map for Planning

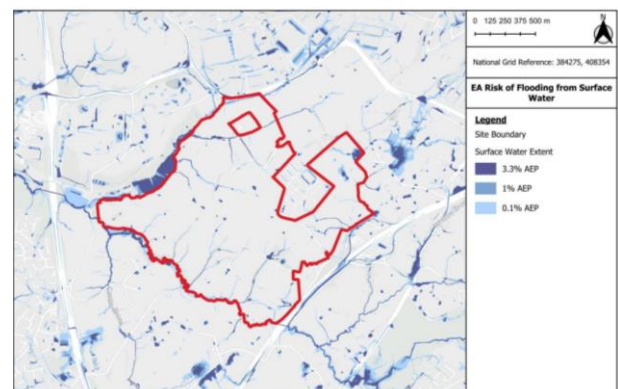


Additional modelling has been undertaken to assess the impact of climate change on flood risk. This modelling generally shows increased in depth and extent of the flood risk, however the extent is still predominantly located within the confines of the watercourse channels and floodplains.

Based on the additional climate change modelling, the overall risk of fluvial flooding to the Application Site is considered to be high within the floodplain but low for most of the application site.

As shown in **Figure 13**, and concluded within the FRA, the overall risk of surface water flooding is considered to be low.

Figure 13: Environment Agency Flood Risk from Surface Water



The FRA concludes that flood risk from both groundwater and sewers is low, with risk from canals negligible. Risk of flooding from a reservoir is high within the northwestern reaches of the Whittle Brook and the Brightley Brook floodplains and low throughout the rest of the application site.

The areas around the watercourses have been allocated as a Wetland Habitat Corridor, with no development proposed. Crossing points provided over the watercourses are not considered to be a flood risk or increase the risk of flooding elsewhere.

Profiling of the Application Site will remove surface water risks associated with topographic low points.

An Outline Drainage Strategy Technical Note has been produced by Tetra Tech and separately submitted to support the Application. The Strategy sets out how the Proposed Scheme will be designed to limit surface water in accordance with the following hierarchy:

- Into the ground (via infiltration)
- To a surface water body
- To a surface water sewer, highway drain, or another drainage system
- To a combined water sewer

It is anticipated that infiltration will not be possible due to site conditions, however this assumption will be confirmed as the design develops and further surveys are undertaken.

Following the hierarchy, discharge to Brightley Brook, Whittle Brook and Castle Brook should be possible, at rates equivalent to the pre-development greenfield runoff rates.

The surface water drainage strategy will provide a corridor of green and blue infrastructure with the principal SuDS attenuation features being located close to the river corridor but outside the extent of the current and future flood zones. Each plot within the Proposed Scheme will provide a suitable level of water quantity and quality management in accordance with relevant guidance.

The following SuDS features will be considered:

- Rainwater harvesting
- Filter drains
- Pervious surfaces
- Swales
- Basins and ponds

These SuDS, as part of the wider blue and green infrastructure network, will bring wider benefits to the Proposed Scheme including:

- Amenity through integration with walkways, providing attractive environments to enhance the local community.
- Enhanced biodiversity.

5.4 Green Infrastructure

Incorporating green infrastructure into the design of new development supports climate resilience through the mitigation of the urban heat island effect and reducing surface water run-off. It also supports local biodiversity through maintaining and enhancing habitats for protected species.

Policy JP-G8 requires development to follow the mitigation hierarchy to avoid harm to biodiversity and compensate for any harm caused. Furthermore, the NGDF SPD encourages the provision of green and blue infrastructure across the Allocation Site, aligning with other sustainability benefits such as amenity and SuDS.

Tyler Grange has undertaken ecological surveys of the Application Site between 2021 and 2024 to establish its current condition. Whilst there are several habitats present including woodland, grassland, and scattered trees, the majority are considered to be of low or negligible ecological importance.

Mitigation is proposed to avoid and manage negative impacts on the above habitats including

the enhancement of landscape areas and brook corridors, and the creation of a circa 20m landscape buffer. In some areas this buffer is significantly wider, up to 280m to the northwest of the Proposed Scheme. A Construction Environmental Management Plan (CEMP) will also be produced setting out measures to minimise pollution and impact on existing habitats and protected species.

Furthermore, measures to maximise green infrastructure at a plot and masterplan level include tree lined streets, extensive open planted space, new woodland native species and enhanced species-rich native hedgerows. Green infrastructure will be complemented by the provision of blue infrastructure. Combined green and blue infrastructure has several sustainability benefits including enhancing habitats for aquatic species, mitigating the urban heat island effect and supporting the SuDs strategy.

Additional habitats will be provided to complement the creation of green infrastructure, including installation of bird and bat boxes in suitable locations.

The green infrastructure proposed will provide climate resilience, amenity value and biodiversity.

5.5 Water

Reduced summer rainfall will lead to increased risk of drought and water shortages. Reducing water usage and reliance on regional water supply will be increasingly important for buildings.

Predominantly comprising B2 and B8 uses, the Proposed Scheme is likely to have a relatively low water demand. Some buildings e.g. the hotel will have a higher demand, however measures at an individual building level will be determined during detailed design. Measures will be incorporated based on an approach which considers effectiveness, embodied carbon, maintenance and operational requirements.

It is anticipated that measures at building level could include:

- An element of rainwater harvesting such as water butts to serve any additional plant watering requirements.
- Low flush WCs.
- Reduced flow rate fixtures such as taps and showers.
- Water leak prevention and detection.

Planting and green infrastructure will be designed to be drought resistant, ensuring that watering demand is as low as possible. No mechanical irrigation systems are proposed within the development.

Building accreditation such as BREEAM, as discussed further within **Chapter 6**, will ensure that water usage is considered and minimised for each building.

6. Building Accreditation

6.1 Introduction

As set out within the NGDF SPD, applicants are encouraged to achieve full certification under BREEAM, to a rating of 'Excellent' as a minimum. This approach complements Policy JP-S2 which requires BREEAM 'Excellent' (or equivalent) for the 'Ene 01 – reduction of energy use and carbon emissions' credit issue is achieved, rising to BREEAM 'Outstanding' equivalent from 2028.

Additionally, further accreditation schemes are encouraged where they would bring value to development and are feasible and viable.

6.2 BREEAM

The Applicant has committed to achieving a BREEAM 'Excellent' rating for each building at the Proposed Development where viable.

Due to the outline nature of the Application and stage within the design process, a detailed BREEAM Pre-assessment has not been undertaken. However, all uses envisaged within the masterplan will be registered to BREEAM New Construction Version 6.1.

Measures will be incorporated into the design of the masterplan and each building to facilitate the achievement of an Excellent rating.

A summary of potential credits within each category, and the value that meeting the criteria brings to the Proposed Scheme, is discussed in the following sections.

6.2.1 Management

The management category encourages the adoption of sustainable management practices in connection with design, construction, commissioning, handover and aftercare.

The credits associated with Responsible Construction Practices will be maximised within this section, to ensure best practice in construction and reduce impacts on the local area.

Further benefits within this section include appropriate commissioning and aftercare to ensure a smooth transition between construction and operation.

6.2.2 Health & Wellbeing

The Health and Wellbeing category of the BREEAM schemes has been aligned with the 'WELL' Standard, bringing the comfort of building occupiers to the forefront of the design.

Summertime overheating within buildings is likely to be an increasing risk from climate change and will be considered within the design for both current and future climate scenarios.

The health and wellbeing section also focusses on the indoor air quality, visual comfort, acoustic performance and safety and security of buildings to provide an optimum environment for building users.

6.2.3 Energy

The energy section within BREEAM encourages development to reduce energy demand and operational carbon emissions beyond building regulations. It also rewards projects which reduce unregulated energy, and therefore aligns well with

the energy and carbon credentials of the Proposed Scheme.

Credits can be achieved through sub-metering of energy uses, allowing the building user to monitor and close the performance gap between 'as designed' and 'in use' energy performance.

6.2.4 Transport

Credits are awarded on the basis of number of transport options available to the site pre-development and improvements made as a result of the development.

Sustainable transport measures can include cycling facilities, public transport accessibility and improvements, local amenities, provision of real time public transport updates, car sharing, and EV charging. It is likely that the Proposed Scheme will be able to maximise credits in this section, given the improvements proposed to local transport, provision of new amenities, and support of active travel.

6.2.5 Water

The aim of the Water category is to reduce the consumption of internal and external potable water over the lifetime of the building and minimising losses through leakage.

The aims of this section aligns with the measures set out within **Section 5.5** to increase the climate resilience of new development.

6.2.6 Materials

The Materials category encourages development to take a 'whole life cycle' approach to construction products, considering impacts of the supply chain from raw material to end-of-life.

The materials section aligns strongly with the measures set out in **Chapter 4** to address whole lifecycle carbon and circular economy, and the Applicant will be making significant efforts to

reduce the environmental impacts of material and construction.

Durability measures are encouraged to protect from damage that may arise from building operation, such as protecting internal areas from trolley movement, pedestrian traffic or external areas from parking and/or delivery vehicles.

Minimising the effect of environmental factors such as water ingress, solar radiation and temperature variation on the building is also encouraged.

6.2.7 Waste

The waste category encourages the reduction of waste associated with construction methods through measures implemented during the design and on-site management.

Flexibility of buildings is rewarded, aligning with the principles of circular economy as set out in **Section 4.4**. Buildings can be flexible by being adaptable to climate change, change in use, and refurbishment to reduce the environmental impacts of excess material usage and waste in the future.

6.2.8 Land Use & Ecology

The aim of the Land Use and Ecology category is to encourage sustainable land use, habitat protection and creation and improvement of long-term biodiversity.

Credits can be achieved by through enhancement of biodiversity and appropriate long term management of ecological features.

6.2.9 Pollution

The aim of the Pollution category is to address the prevention and control of pollution. Issues covered within this section include light, noise, flooding and emissions to air, land and water.

BREEAM rewards an all-electric building services strategy as it limits adverse impacts on local air quality.

It also requires development to manage surface water run-off to ensure risk to the proposed development and neighbouring areas does not increase.

6.3 WELL

WELL is a performance-based system for measuring, certifying, and monitoring features of the built environment that impact human health and well-being, through air, water, nourishment, light, fitness, comfort and mind. It assesses several factors including:

- Air
- Water
- Nourishment
- Light
- Fitness
- Comfort
- Mind

The speculative nature of B2 and B8 use classes does not entirely align to the certification method of WELL, which requires consideration of building operation and fit out of internal finishes.

Furthermore, WELL is a relatively limited accreditation which only focusses on health and wellbeing and does not consider the wider principles of sustainability.

BREEAM provides a more holistic approach to sustainability accreditation and incorporates elements of WELL such as comfort and air already within its health and wellbeing and pollution sections.

WELL is therefore unlikely to be considered within the detailed design of the scheme, and other accreditations such as BREEAM which bring much greater value to buildings and occupants will be prioritised.

6.4 Fitwel

Fitwel is a world leading health and wellbeing certification system which strives to promote good health and wellness for all occupants and the surrounding community. Fitwel has been developed by experts in public health, facility management, and design, and is supported by over 7,000 research studies.

The standard evaluates building performance across seven main health categories:

- Community Health
- Morbidity and Absenteeism
- Social Equity for Vulnerable Populations
- Well-Being
- Access to Healthy Foods
- Occupant Safety
- Physical Activity

Similarly to WELL, Fitwel is relatively limited to health and wellbeing, however the scheme aligns better with large scale development and masterplans.

Fitwel could be used to guide the design at both masterplan and building levels. The Applicant will consider how the principles of Fitwel compare with BREEAM, and potential opportunities and constraints between the two accreditations.

7. Conclusion

7.1 Introduction

The Proposed Scheme as part of Northern Gateway, supports a transformative opportunity to drive economic growth, enhance connectivity, and contribute to inclusive regeneration across the northern areas of Greater Manchester.

This Sustainability, Energy and Carbon Statement has been prepared to demonstrate the environmental benefits of the Proposed Scheme in response to energy and carbon related local policy and national guidance.

The Statement sets out a clear route to meeting the ambitions of BC, RBC and GMCA in respect to delivering a high quality, energy efficient, net zero carbon (in regulated operational energy) and climate resilient employment opportunity, whilst recognising the current uncertainty around certain areas of PfE policy including the definition of net zero carbon.

Other aspects of sustainability, including economic and social benefits are reported within the Economic Benefits and Social Value Statement submitted separately to support the application.

The key measures incorporated at this stage and further measures to be considered during the detailed design of the Proposed Scheme have been set out within previous chapters and are summarised below.

7.2 Energy Strategy

Policies JP-S1 and JP-S2 require reductions in energy use and carbon dioxide emissions to support Greater Manchester's ambition to be carbon neutral by 2038.

Energy Statement

To meet the ambitions of the policy, and ensure the Proposed Scheme is visibly leading the way in Greater Manchester, regulated energy usage will be minimised as far as possible on site in line with the energy hierarchy and measures set out within the net zero carbon guidance. Proposed measures at this stage include:

- **Minimise energy demand** through targeting fabric performance in line with Future Building Standard (or equivalent legislation) as a minimum, balancing space heating and cooling demand with consideration to climate change in the region.
- **Maximise energy efficiency** through mechanical ventilation with heat recovery and energy efficiency lighting with suitable controls to minimise energy wastage.
- **Renewable energy generation** in the form of solar PV, delivering an estimated 4,850kWp of generating potential.
- **Low carbon heat** pumps to deliver space heating, either independently or part of a network.
- **Reducing overheating** through masterplan led passive measures to reduce cooling demand including shading from deciduous planting, green and blue infrastructure, and low-albedo surfaces.

The total regulated energy demand of the Proposed Scheme once delivered is expected to be circa 3,631MWh per annum, with potential major unregulated energy loads identified as warehouse equipment and advanced manufacturing. This

figure is subject to change based on legislation and calculation methodology in place at the time of the RMAs.

For each RMA, a detailed assessment of EUI will be undertaken, for example using the methodology set out within CIBSE TM54: Evaluating operational energy use at the design stage (2022).

Once identified and measured, steps will be taken to reduce the energy demand of these unregulated uses where possible.

Heat and Energy Networks

Policy JP-S3 states that developments should connect to a district heating scheme where such schemes exist, unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions, or where such connection is not practical or financially viable.

Due to the low thermal demand and unpredictable heat loads of B2 and B8 use class buildings, and the continued decarbonisation of the UK power grid, a heat network has been discounted at this stage.

Instead, an all-electric building services strategy is proposed to achieve greater savings in carbon emissions over the lifetime of the development.

The Applicant is exploring options for way to direct surplus energy generation from solar PVs either into energy storage such as batteries, or to other major energy loads such as vehicle charging, thus reducing energy wastage and reliance on the grid.

Should the site be identified as a Heat Network Zone once work by GMCA is completed and these areas are formalised, a Heat Network Appraisal will be undertaken as part of subsequent RMAs.

Post Occupancy Evaluation

Full details of post occupancy evaluation will be confirmed at the relevant stages; however it is anticipated that evaluation will be undertaken at a number of stages to ensure performance is

delivered during construction and through to the occupation and operation of the development.

The evaluation will consider a range of topics including build quality, functionality, and health and wellbeing. Results from the evaluation will be used to inform the ongoing management strategy and the strategy for future development phases going forwards.

7.3 Net Zero Carbon & Circular Economy

Policy JP-S2 requires new development to be net zero carbon with respect to regulated operational carbon emissions from adoption, and for all emissions 'in construction' from 2028, with net zero defined by the UKGBC Framework. As part of a significant area of growth and pioneering opportunity for Greater Manchester, Northern Gateway and the Proposed Scheme must have a feasible and viable route to achieving net zero.

Pre-application discussions confirmed support for a pragmatic approach to ensure the route to net zero is robust and meaningful, delivering on-site savings without a reliance on carbon offsets.

Due to the uncertainty and further clarifications required relating to the application of Policy JP-S2 and offsets, and imminent retirement of the UKGBC Framework, the Applicant has provided an ambitious and deliverable approach to achieving net zero carbon emissions.

Operational Carbon Emissions

Net zero carbon emissions in operational energy will be achieved by following the sound principles of the UKGBC Net Zero Carbon Buildings Framework definition, which requires highly energy efficient and all-electric buildings, which generate renewable energy.

It is anticipated that the regulated carbon emissions of the Proposed Scheme can be reduced to zero by incorporating the energy efficiency measures set out above and delivering solar PV to

a total of 4,850kWp. Where viable, this approach will be taken by the Applicant to achieve net zero carbon associated with regulated operational energy as set out within Policy JP-S2.

Detailed calculations setting out energy demand, on-site energy generation, and subsequent carbon emissions will be completed for each RMA to demonstrate how the policy has been met.

Construction Carbon Emissions

The Applicant proposes a pragmatic approach to achieve the policy requirement of net zero in construction, which will be led by reduction in carbon emissions directly on site.

Achieving upfront carbon limits set within the UKNZCBS would demonstrate that the buildings are net zero carbon aligned and therefore further offsetting should not be required.

Measures will be explored at the appropriate design stage to reduce construction carbon emissions, including the reuse of site won material, material efficiency measures, procurement of low carbon and recycled materials, locally sourced materials, and reducing construction site impacts.

Construction carbon emissions will be estimated and reported within subsequent RMAs. Once carbon is quantified and compared against the relevant upfront carbon limits, the use of any local offsetting funds will only be considered for following a full viability assessment.

Transport Emissions

The Applicant considers that a low carbon transport strategy is fundamental to the success of the Proposed Scheme and Greater Manchester's net zero carbon ambitions.

The following travel plan measures have been proposed to support active car travel and reduce reliance on cars:

- High frequency bus services linking the Site with key local towns including Bury, Middleton, Rochdale, and Heywood.
- High quality pedestrian and cycle routes throughout the Site, connecting to external routes where possible and providing the opportunity for active travel through attractive green amenity areas of the site.
- Electric Vehicle (EV) charging points throughout the site, with capacity for larger vehicles such as HGVs.
- Provision of land for Transport Interchange and Active Travel Hubs.
- Cycle storage with showers and changing facilities to further promote active travel.

These measures will be linked to other sustainability measures. For example pedestrian and cycle routes will pass through green and blue infrastructure where possible to promote amenity and health and wellbeing. Additionally, EV charging can be incorporated within the wider energy network with the potential to balance energy supply and demand and reduce carbon emissions.

Furthermore the Applicant will consider working with potential tenants and building occupiers to incorporate further measures such as car sharing or clubs.

Circular Economy

The Proposed Scheme aims to incorporate circular economy principles to complement a low carbon approach to construction and operation.

The Proposed Scheme, as part of Northern Gateway will be regionally transformative and built out over two decades. The requirement for the design of the buildings to be flexible to accommodate varying tenants needs and a constantly changing economic and natural environment will be critical to the success of Northern Gateway.

The following principles will be followed:

- Reuse
- Design Buildings for Optimisation
- Standardisation or Modularisation
- Servitisation and Leasing
- Design and Construct Responsibly

The circular economy principles proposed will importantly ensure that buildings are adaptable to a changing climate and general environment, to meet the needs of tenants and building occupiers for decades to come.

7.4 Climate Resilience

In line with the NGDF SPD key measures will be incorporated into the design of new buildings and the proposed development to adapt to climate change.

Overheating

At building level, dynamic thermal modelling for current and future climate scenarios will be carried out, to assess how the buildings may be affected by overheating.

Passive measures to reduce the risk of overheating will be incorporated into the design of the Proposed Scheme. These will include, but are not limited to:

- Deciduous tree planting, providing shade in summer and allowing solar gains in winter.
- Extensive green and blue infrastructure to reduce the urban heat island effect.
- Low albedo surfaces.
- Orientation of offices to avoid significant south facing glazing.
- Brise soleil over windows which may be at risk of excessive solar gain.

Water

The Proposed Scheme is likely to have a relatively low water demand given the nature of industrial and logistics buildings.

Water saving measures will be incorporated based on an approach which considers effectiveness, embodied carbon, maintenance and operational requirements.

Planting and green infrastructure will be designed to be drought resistant, ensuring that watering demand is as low as possible.

Building accreditation such as BREEAM will ensure that water usage is considered and minimised for each building.

Flood Risk

The flood risk of the site, including accounting for climate change, is predominantly low, and any areas of medium and high risk are associated with the watercourses running through site. These areas at risk of flooding will be avoided and allocated as a Wetland Habitat Corridor.

Flood risk from surface water, groundwater and sewers is low, with risk from canals negligible. The risk of flooding from a reservoir is high within the northwestern reaches of the Whittle Brook and the Brightley Brook floodplains and low throughout the rest of the application site. However, as mentioned above, these areas are avoided.

SuDS will be delivered as part of the wider blue and green infrastructure network and will support the wider benefits to the Proposed Scheme including amenity through integration with walkways, providing attractive environments to enhance the local community, and enhanced biodiversity.

Green Infrastructure

The Proposed Scheme will deliver extensive green infrastructure which will contribute to wider sustainability benefits including climate resilience, biodiversity, and amenity value.

Local biodiversity will be supported through maintaining and enhancing habitats for protected species. A landscape buffer will be created around the Allocation Site, reaching up to 280m in some areas. Furthermore, a CEMP will also be produced setting out measures to minimise pollution and impact on existing habitats and protected species.

Furthermore, measures to maximise green infrastructure at a plot and masterplan level include tree lined streets, extensive open planted space, new woodland native species and enhanced species-rich native hedgerows. Green infrastructure will be complemented by the provision of blue infrastructure. Combined green and blue infrastructure has several sustainability

benefits including enhancing habitats for aquatic species, mitigating the urban heat island effect and supporting the SuDs strategy.

Additional habitats will be provided to complement the creation of green infrastructure, including installation of bird and bat boxes in suitable locations.

7.5 Building Accreditation

In line with the NGDF SPD, the Applicant has committed to achieving a BREEAM 'Excellent' rating for each building within the Proposed Scheme where viable. Other sustainability accreditations such as Fitwel will be considered where found to bring value and be viable.

Recognising the transformative and market leading opportunity of Northern Gateway, the Applicant will deliver a high quality, sustainable, energy efficient, climate resilient development which meets the ambitions of local policy and supports Bury Council, Rochdale Borough Council and the Greater Manchester Combined Authority's net zero and carbon neutral goals.

Appendix 1: Proforma

Energy and Carbon Proforma Non-residential Major development (+1,000m²)

Version 1.0



Project Name: JPA 1.1 Northern Gateway
Application
ref:
Date: Apr-25

Please note that targets at this stage are indicative only and cannot be confirmed until detailed design / RMA stage.

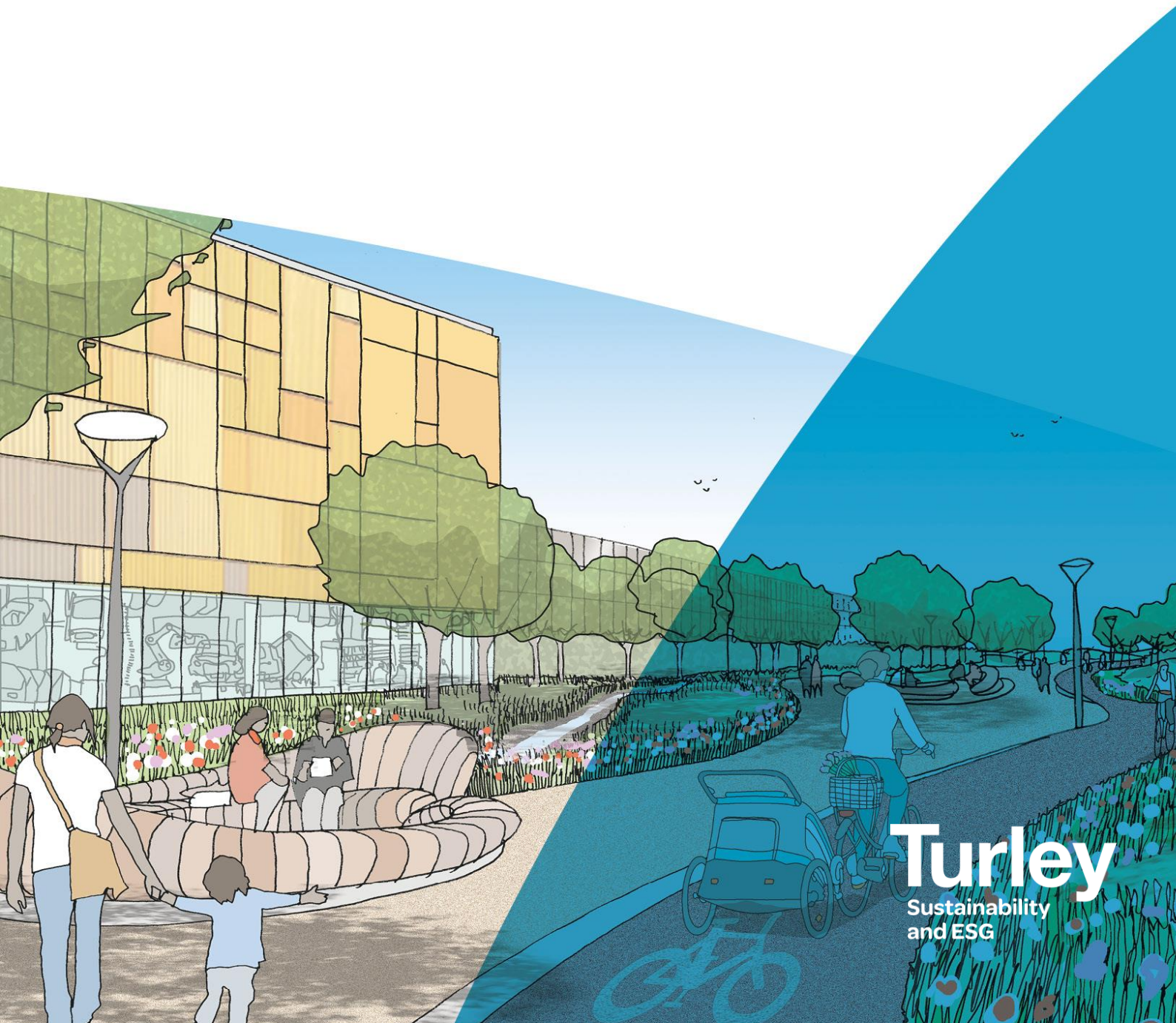
		Ref. name	Indicative B2 / B8 Building
		Area (m ² GIA)	
		Target values	Potential Targets
Minimise energy demand	Space heating demand (kWh/m ² GIA/yr)	≤ 15	<15
	Space cooling demand (kWh/m ² GIA/yr)	≤ 15	<15
	Calculation methodology used to calculate space heating demand and confirmation that this covers all homes/blocks	Predictive energy model	CIBSE TM54
	Form factor per building	≤ 2	≤ 2
	Average external wall U-value (W/m ² K)	≤ 0.15	≤ 0.26
	Average window U-value (W/m ² K)	≤ 1 (triple)	≤ 1.6
	Air permeability rate (m ³ /h/m ² @ 50 Pa)	≤ 1	≤ 3
Maximise energy efficiency	BREEAM Ene 01 rating	Excellent	Excellent
	Energy use intensity (kWh/m ² GIA/yr)	-	TBC – further modelling required
	Calculation methodology used to calculate energy use intensity and confirmation that this covers all homes/blocks	Predictive energy model	CIBSE TM54

Use renewable energy	PV footprint area (% of ground floor space)	-	75% of office floor space
	Annual renewable energy generation (kWh/m ² building footprint/yr)	-	TBC at detailed design
	Renewable energy balance (%)	-	100% regulated
	Total energy used (MWh/yr)	-	Estimated 3,631 (regulated)
	Total energy generated on-site (MWh/yr)	-	Estimated 3,631
Use low carbon energy	Fossil fuel free (yes/no)	Yes	Yes
	Heat source	Electric	Electric
	Low Carbon Heat Appraisal completed	Yes	As part of RMAs where required
	Heat network suitability	-	
	Exemption requested	-	
	Efficiency of heating system (SCOP)	≥ 3.5	≥ 3.5
	Carbon content of heat (gCO ₂ /kWh)	≤ 100	≤ 100
Reduce overheating risk	Has CIBSE TM52 been used to calculate overheating and does the building pass?	Yes	Yes - to be completed at detailed design
	What percentage of spaces are cooled? (% of GIA)	-	TBC at detailed design
	Has a CIBSE TM52 assessment been carried out using DSY2 and DSY3 weather files? Have any additional passive measures been included as a result?	Yes	Yes - to be completed at detailed design
Minimise embodied carbon	Upfront embodied carbon (kgCO ₂ e/m ² GIA)	-	TBC at detailed design
	List top three materials with the highest upfront embodied carbon emissions (kgCO ₂ e/m ² GIA): Material 1 [anticipated]	-	Concrete
	Material 2 [anticipated]	-	Steel
	Material 3 [anticipated]		PV Panels
	Lifecycle embodied carbon (kgCO ₂ e/m ² GIA) - <i>for large major developments only</i>	-	TBC at detailed design
Offsets	Offset contribution (£)	-	

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