

RED BANK OUTLINE APPLICATION

Sustainability Strategy

April 2023



**Far East
Consortium**

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Introduction

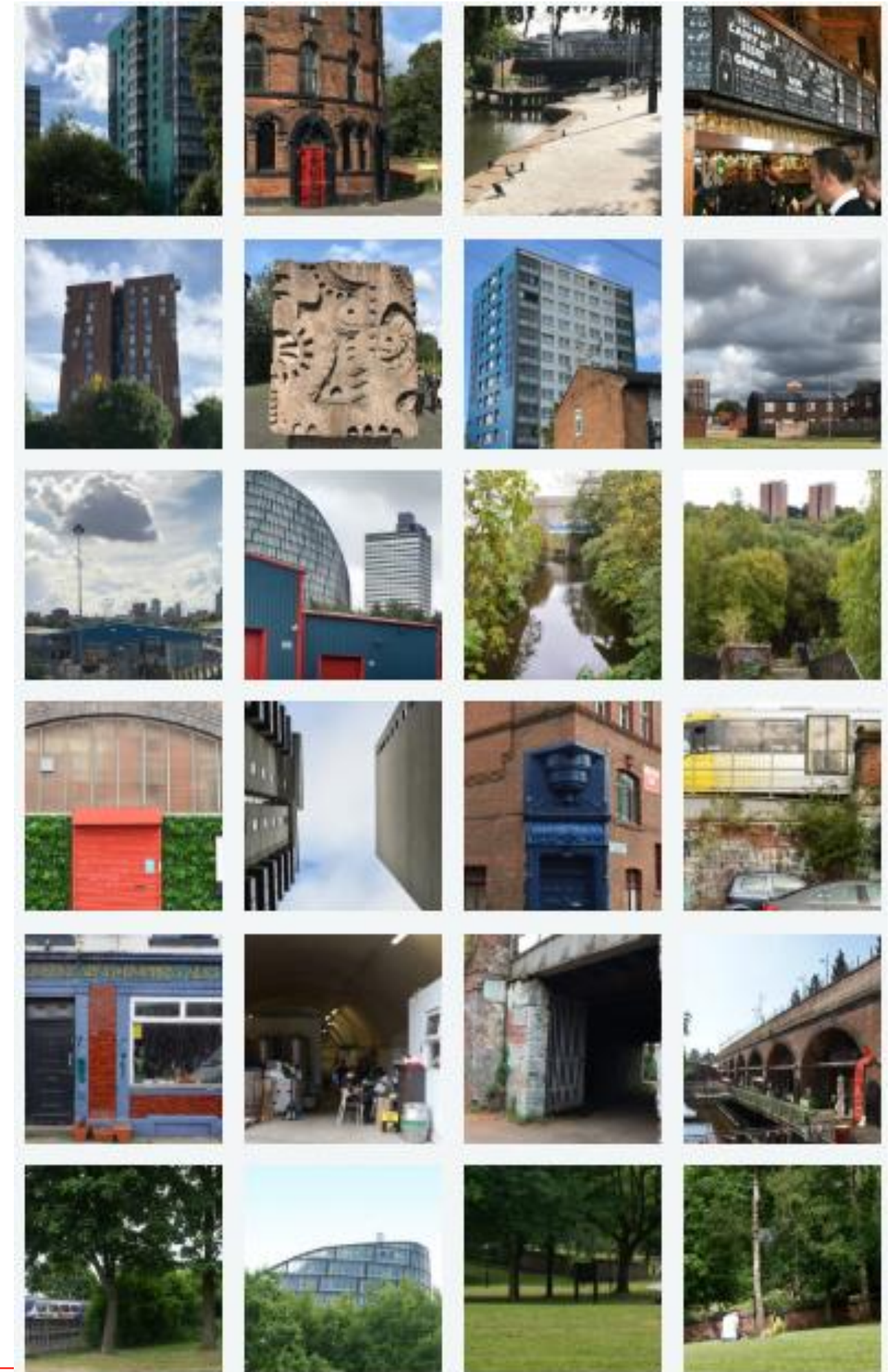
This Sustainability Strategy has been prepared by WSP on behalf of Far East Consortium International Limited (FEC) in support of a proposed residential-led mixed-use development on land at Red Bank, Victoria North, Manchester. The proposed development is located on an area of land to the northeast of Victoria Station, north of Dantzic Street, and to the south of Red Bank Road. It is immediately adjacent to Manchester City Centre and is referred to as 'Red Bank Neighbourhood'

Joint Venture Partnership

In April 2017, Manchester City Council (MCC) appointed FEC as its Joint Venture investment and delivery partner, to accelerate the delivery of the Victoria North opportunity. This appointment was the conclusion of an international marketing exercise that commenced in April 2016. Since making this appointment, in February 2019, MCC approved the Northern Gateway Strategic Regeneration Framework (SRF), which provides an updated vision, core objectives and development framework to guide the regeneration of Northern Gateway (now known as Victoria North) with a focus on the provision of housing and supporting infrastructure investment.

FEC's Masterplan for Red Bank and New Town

Maccreeanor Lavington Architects and Schulz Plus Grasso Urban Designers have been commissioned by the FEC to produce a cohesive Illustrative Masterplan for Red Bank. The Illustrative Masterplan is based on a series of site wide strategies including a Sustainability Strategy. The overarching vision for Red Bank is to create a community through the development of thriving



neighbourhoods which will provide new homes for a diverse mix of people, alongside the long-term infrastructure to help these communities to develop sustainability.

FEC's Outline Planning Application

This Sustainability Strategy is submitted in support of an outline planning application, with all matters reserved, which relates to the majority of the development plots within the Masterplan area. The outline application proposes:

- Up to 3,250 residential units (Use Class C2 and C3);
- Up to 6,300m² GIA non-residential development (across uses E, F and Sui Generis);
- Up to 3,250m² GIA clubhouse residential amenity buildings;
- Up to 3,250m² GIA health centre uses (Use Class E);
- Up to 2,750m² GIA primary school use (Use Class F1(a));
- Car parking and cycle storage provision, comprising 1 cycle parking space per dwelling (up to 3,250) and 12% car parking provision.

FEC's Full Planning Application

Concurrently to the outline application's submission, a separate but interrelated full planning application is being submitted by FEC for residential led buildings on three plots of land to the south of Dantzic Street and north of the railway viaduct known as plots NT02, NT03 and NT04. This residential scheme will provide a total of 1,550 apartments and will be supported by resident's amenity space within a 'clubhouse', together with flexible non-residential uses at lower levels. The full application site relates to the

remainder of the development plots within the Masterplan area and is 2.7 hectares, located to the south of Dantzic Street adjacent to the outline application site. A detailed Sustainability Strategy is submitted in support of FEC's full planning application.

Sustainability Strategy

In the context of Manchester City Council's climate emergency declaration, and its ambition and commitment to be a zero-carbon city by 2038 or earlier, FEC proposes to create an exemplary sustainable and Net Zero enabled community at Red Bank Neighbourhood (herein 'Red Bank').

Red Bank forms part of the Victoria North regeneration area and as such has the potential to revitalise the existing communities and boost the regeneration of neighbourhoods across the area. A project of this scope also provides an opportunity to support the delivery of the Manchester Core Strategy and other relevant local and national policies.

This Sustainability Strategy aims to provide an all-encompassing direction for the development and ongoing oversight of the Red Bank site. The build out of the residential led mixed use development will be 10 years plus and therefore flexibility will need to be applied to enable the development to respond to evolving sustainability requirements and technologies. This is set out as a clear, robust, and optimised framework for informing detailed planning applications for each phase pursuant to the outline planning permission and the design and construction processes, ensuring that Red Bank is best placed to excel throughout its operational lifetime.

The strategy is outcomes-led, with aspirational key performance indicators, and designed to be future proof – taking account of future residents'

wellbeing, ongoing environmental, social, and economic impacts, and ensuring future regulation and city-wide ambitions are considered. The strategy brings together planning requirements, the Applicant's objectives and aspirations, and industry good practice.

Vision

The vision for Red Bank is for a development that brings nature into the city and (at the same time) extends the city into the natural environment, so that people and nature coexist in a harmonious and mutually beneficial way; this approach is termed 'Wild Urbanism' and is described further in the Themes section of this Sustainability Strategy.

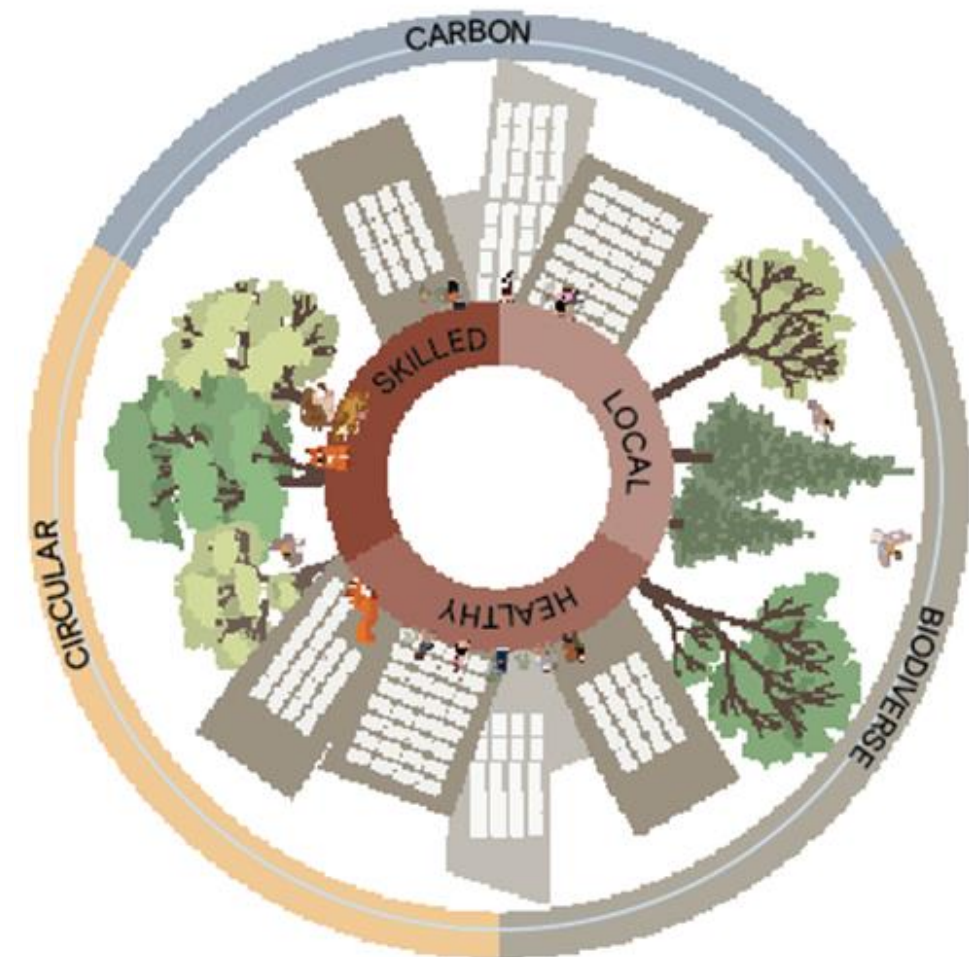
The unique landscape and topography of the site provide opportunities for active lifestyles, exercise and recreation, and job creation in the management and stewardship of the new neighbourhood.

These positive social qualities must be provided within the constraints of our ecological limits, so that the development does not use more than its 'share' of natural resources and is also regenerative in disposition. By designing a Net Zero-carbon enabled neighbourhood, integrated within a resilient and diverse river park, the future population of Red Bank will be able to thrive in the natural environment that surrounds them as they go about their day-to-day activities.

The underlying ambitions that support this Vision for Red Bank include the following:

- A neighbourhood that is a home to a diverse mix of people, including residents across all age groups and a mix of local and independent businesses.
- A Net Zero carbon enabled neighbourhood, delivering sustainable development that reinvigorates the green spaces along the river valley through Wild Urbanism.

- A connected neighbourhood, where all key local amenities are within a 15-minute walk, with safe routes for walking, cycling, and running.
- Through sensitive architecture, thoughtful planning, and an understanding of the existing ecosystems, enhance what is already there.
- A neighbourhood with a strong connection to nature, with access to the river's edge, woodland, and places to sit, relax and play.



A holistic sustainability framework for Red Bank based on the principles of Doughnut Economics (source - Useful Project)

Policy and Guidance

There are local and national policies and guidance documents that set the context for Red Bank. The key elements of these are outlined in the following section, with the Sustainability Themes then illustrating how Red Bank will consider these from concept, through design and in ongoing use.

The National Policy Framework (NPPF)

The NPPF document¹ (revised in July 2021) sets out the Government's national planning policies for England and how these are to be applied. At the heart of the NPPF is a presumption in favour of sustainable development. There are three dimensions to sustainable development, as stated within the NPPF: economic, social, and environmental. These dimensions give rise to the need for the planning system to perform different roles:



An economic role – contributing to building a strong, responsive, and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure.



A social role – supporting strong, vibrant, and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating beautiful and safe places, with accessible local services that reflect communities' needs and support its health, social and cultural well-being.



An environmental role – contributing to protecting and enhancing our natural, built, and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, eliminate waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

Climate Change Act

The Climate Change Act 2008² (2050 Target Amendment) sets legally binding targets to reduce carbon dioxide emissions in the UK by 100% by 2050 from 1990 levels. It also established an independent body, the Committee on Climate Change, to advise the Government on the level of

¹ UK Government, National Planning Policy Framework, [National Planning Policy Framework - GOV.UK \(www.gov.uk\)](https://www.gov.uk/national-planning-policy-framework)

² UK Government, Climate Change Act, [Climate Change Act 2008 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2008/27/section/1)

each carbon budget. The Committee also reports to Parliament on progress made on reducing emissions.

The Act introduced carbon budgets which put legally binding limits on the amount of greenhouse gases the UK can emit over a five-year period. Five carbon budgets were put into law that run up to 2032 which require a 57% reduction by this time. The UK government has now also enshrined a new target in law to cut emissions by 78% by 2035, setting also the sixth carbon budget for the period 2033-37.

Building Regulation's Part L: Conservation of Fuel and Power

The Building Regulations Part L³ governs the conservation of fuel and power in both new construction and refurbishment of the England and Wales building stock. Compliance with the Building Regulations is a regulatory requirement for all new developments. Carbon emissions of a development comparative to compliance with Part L is a key performance indicator for achieving carbon targets. The new Building Regulations which came into effect from 15 June 2022, comprise five new Approved Documents, including uplifts to Part L (fuel and power) and Part F (ventilation), and will have a marked impact on new and existing buildings.

Building Regulations, Part O – Overheating

Building Regulations Part O⁴ – Overheating sets the compliance standards for overheating in buildings. Guidance on how to meet the requirements of

this regulation is provided within Approved Document O. The relevant document is referenced below:

Approved Document O addresses overheating in new dwellings. Part O (2021) requires all newly constructed dwellings to comply with the O1: Overheating Mitigation requirements. The aim of requirement O1 is to protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures. O1 is met by designing and constructing the building to achieve both of the following:

- a) Limiting unwanted solar gains in summer; and
- b) Providing an adequate means of removing excess heat from the indoor environment.

Compliance with requirement O1 can be demonstrated by using one of the following methods:

- a) The simplified method for limiting solar gains and providing a means of removing excess heat, as set out in Section 1 of the Approved Document; and
- b) The dynamic thermal modelling method, as set out in Section 2 in the Approved Document.

³ UK Government, Conservation of Fuel and Power, [Conservation of fuel and power: Approved Document L - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l-1-to-6)

⁴ UK Government, Overheating, [Overheating: Approved Document O - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/overheating-approved-document-o)

Local Policy

Local Plan Review: Manchester Core Strategy 2012 to 2027

The Local Plan, Core Strategy 2012 to 2027⁵, is a plan for the future development of the Manchester city area, it sets out the long-term strategic policies for Manchester's future development. The following policies are relevant to sustainability:

- Policy EN 1: Design Principles and Strategic Character Areas;
- Policy EN 2: Tall Buildings;
- Policy EN 3: Heritage;
- Policy EN 4: Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development;
- Policy EN 5: Strategic Areas for low and zero carbon decentralised energy infrastructure;
- Policy EN 6: Target Framework for CO₂ reductions from low or zero carbon energy supplies;
- Policy EN 7: Energy Infrastructure opportunities;
- Policy EN 8: Adaptation to Climate Change;
- Policy EN 9: Green Infrastructure;
- Policy EN 10: Safeguarding Open Space, Sport, and Recreation Facilities;
- Policy EN 11: Quantity of Open Space, Sport, and Recreation;
- Policy EN 12: Area priorities for Open Space, Sport, and Recreation;
- Policy EN 14: Flood Risk;

- Policy EN 15: Biodiversity and Geological Conservation;
- Policy EN 16: Air Quality;
- Policy EN 17: Water Quality;
- Policy EN 19: Waste;
- Policy T 1: Sustainable Transport;
- Policy T 3: Strategic Integration;
- Policy CC 3: Housing;
- Policy CC 5: Transport;
- Policy CC 7: Mixed Use Development;
- Policy H 5: Central Manchester; and
- Policy H 1: Overall Housing Provision.

Local Guidance

Zero Carbon Manchester- Manchester City Council Climate Change Action Plan 2020-2025

The Climate Change Action Plan (CCAP) of the Manchester City Council⁶ has a target to reduce direct emissions of CO₂ by 50% over the five-year period up to 2025. To achieve this, the Council aims to reduce its emissions by 13% every year, for five years. The CCAP sets a carbon budget of 119,917 tonnes of CO₂ for the five-year period of 2020-25, calculated using science-based targets. This action plan also details the activities that will have to be undertaken, developed, and investigated further over the next five years to ensure the successful transition to being a zero-carbon city by 2038.

⁵ Manchester City Council, Core Strategy 2012-2017, [Core Strategy 2012-2027 | Core Strategy 2012-2027 | Manchester City Council](#)

⁶ Manchester City council, Climate Change Action Plan 2020-2025, [Final MCC Climate Change Action Plan 2020-25.pdf \(manchester.gov.uk\)](#)

Although the plan includes investment in green and blue infrastructure to increase carbon storage and sequestration, reaching zero carbon will not include offsetting the emissions. The ambition has been informed by the SCATTER project (Setting City and Area Targets and Trajectories for Emissions Reductions), which is a model that helps cities set zero carbon targets from their buildings, energy, and transport.

Guide to Development in Manchester, Supplementary Planning Document

Manchester's Core Strategy requires that all new residential developments should accord with the design guidance set out in the Supplementary Planning Documents (SPD).

The 'Guide to Development in Manchester' SPD⁷, adopted on 11 April 2007, supports and enhances the ongoing shaping of the city by providing a set of reasoned principles which will guide developers, designers, and residents. Its role is to inform the ongoing development of the city over the next decade by highlighting its many and varied existing qualities and describing how they can be enhanced in the future.

Manchester Northern Gateway Strategic Regeneration Framework (SRF)

In February 2019 MCC approved a Strategic Regeneration Framework (SRF)⁸ for Northern Gateway (now known as Victoria North) which sets out a series of principles and a "big picture" plan to guide the future development

of this area over the next 15 to 20 years. Red Bank is one of seven neighbourhoods identified within this Framework. The SRF area covers approximately 155 hectares (ha) to the north of Manchester city centre between Victoria Station, NOMA and the Northern Quarter in the south-west, and Queens Park and the intermediate ring road (Queens Road) to the north-east. The eight Core objectives for the Northern Gateway are:

1. A unique and high-quality residential-led regeneration scheme;
2. A varied network of high-quality green streets and public open spaces;
3. Manchester's unique city river park;
4. Build on the best of what is there;
5. Improve connectivity across the northern gateway and beyond;
6. Create new gateways to and from the city centre;
7. Promote truly sustainable places; and
8. Foster the emergence of local retail and service hubs.

⁷ Manchester City Council, Guide to Development in Manchester, [Guide to Development in Manchester - Supplementary Planning Document and guidance | Manchester City Council](#)

⁸ Manchester City Council, Northern Gateway Strategic Regeneration Framework, [SRF Appendix 5.pdf \(manchester.gov.uk\)](#)

Development Approach

The construction of the Red Bank masterplan will be delivered over a circa 10 year development programme, with the initial plots commencing construction Q4 2023 (anticipated to be the NT02, NT03 and NT04 development to the south of Dantzic Street which is the subject of a separate but interrelated full planning application) and the last homes in 2032. An illustrative approach to Red Bank masterplan development journey is shown in Figure 1, along with key policy dates. In the context of a climate and biodiversity emergency, there will continue to be innovation throughout this development period, particularly relating to low-carbon materials and technologies. The design approach taken for Red Bank will ensure that a particular technological solution or material is not 'locked in', therefore, as far as is practicable, it will enable emerging and future technologies to be easily incorporated into the Development.

Associated with continued innovation is the recognition that local and national policy will continue to evolve at pace. It is important that we design with this emerging policy in mind and ensure that future Red Bank development phases are well placed to meet these requirements and support Manchester's Net Zero roadmap. A phased approach, as shown in Figure 2, also provides the best possible opportunity to ensure that sustainability benefits are maximised through ongoing design and innovation, and to provide continued performance improvements over the full lifespan of the Project. This aspiration to progressively increase performance will ensure

alignment with emerging policy. The proposed phasing, associated ambitions, and the Sustainability Themes that inform the approach to development, from concept and design through to operation, are introduced in this section.

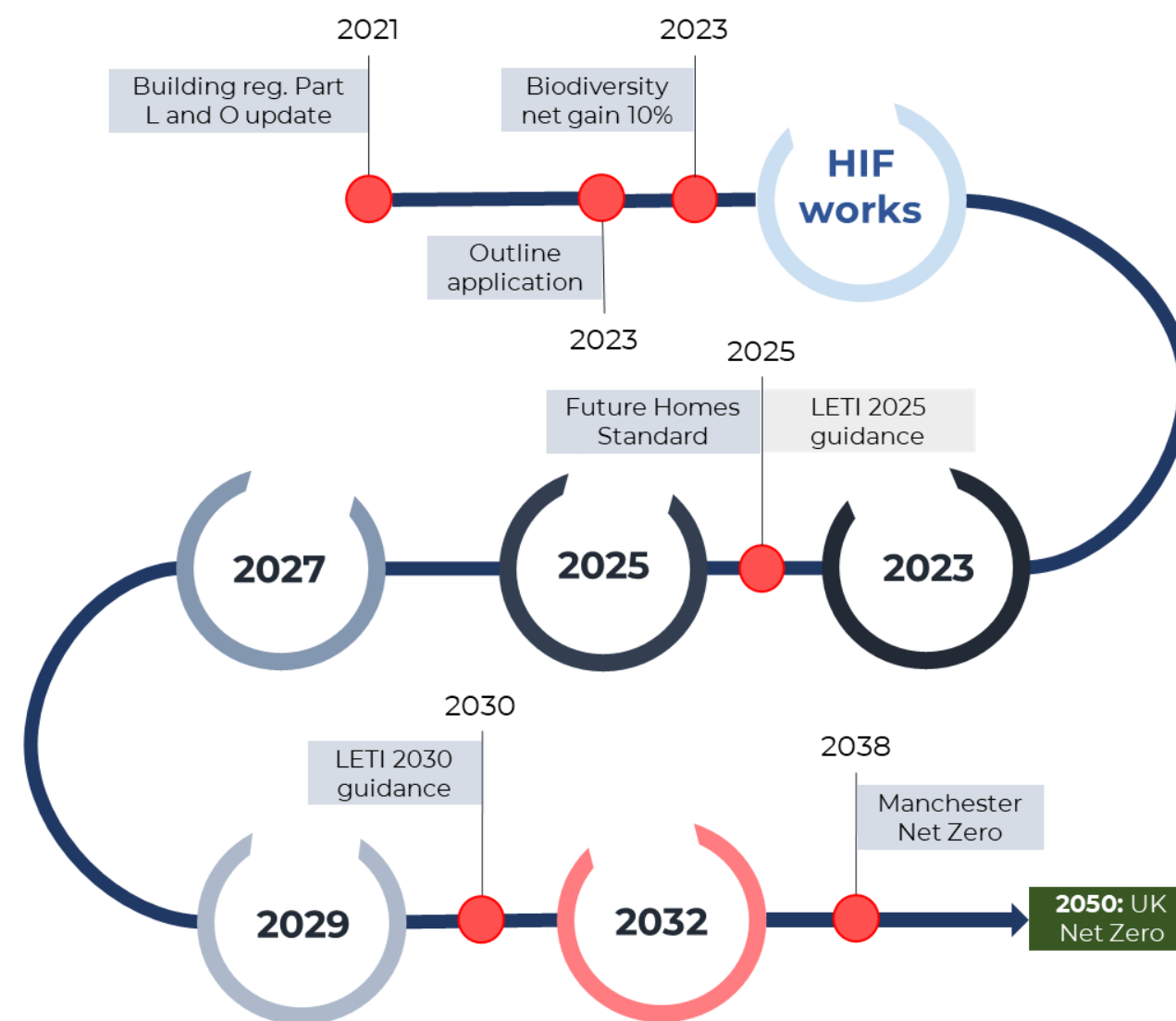
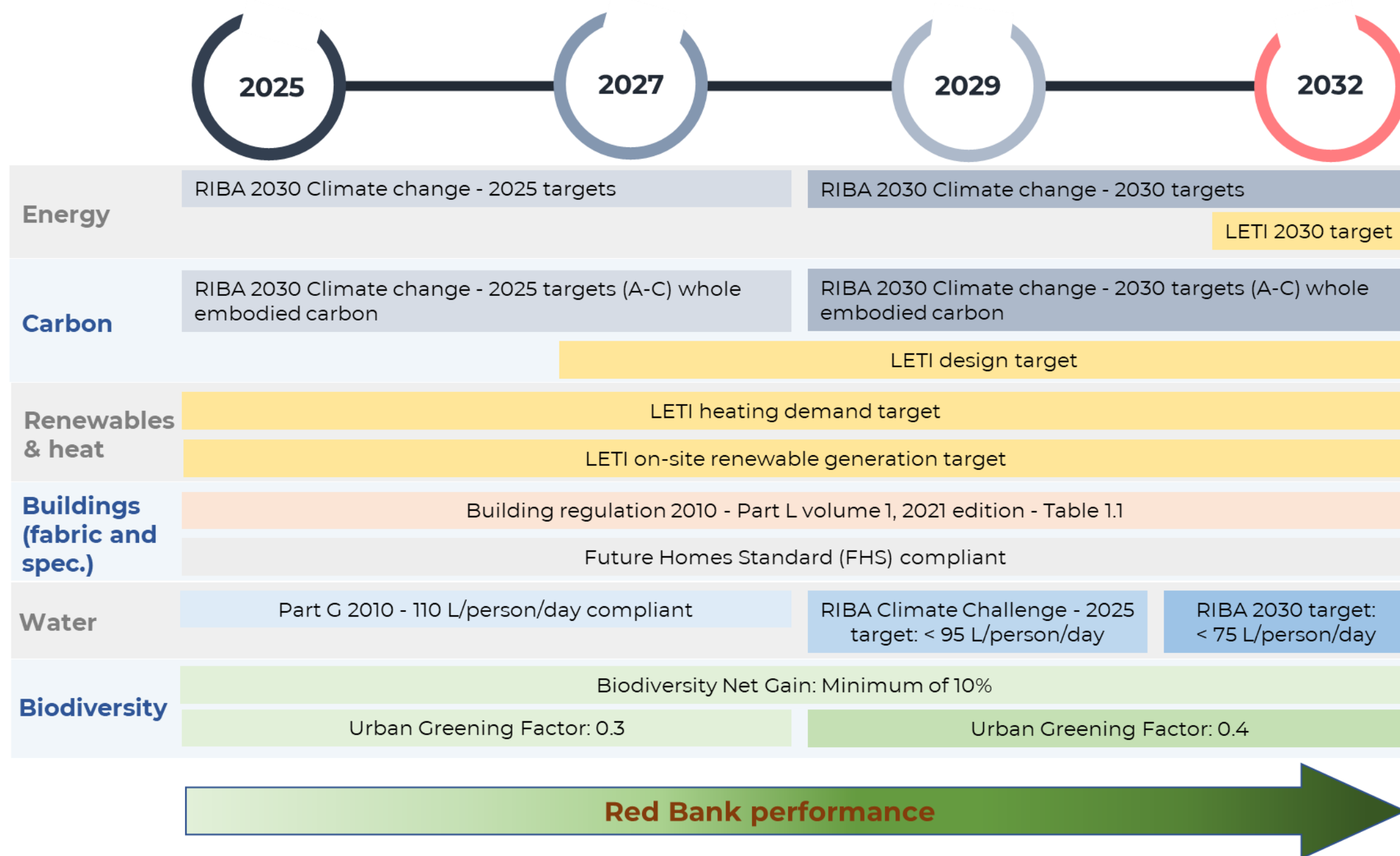


Figure 1- Illustrative Red Bank development journey based on possible phasing dates

Figure 2 displays the aspiration for continued performance improvement over the course of the development of the outline application development, and how this could align with future regulation and guidance. The ambition increases over time and aligns with the expected evolution of guidance and policy. The targets should be viewed as benchmarks that Red Bank will aspire to meet, and exceed where possible, through various design interventions and optimisation. Achievement of certain targets may also be influenced by financial viability at detailed application stage, in accordance with adopted Core strategy Policies DM1 and EN6.

Figure 2 – Outline application residential ambition



Guiding Principles: The Six Themes

The following six themes capture the overarching sustainability aspirations for Red Bank and have been used to set the objectives which will help to ensure that it meets its Sustainability Vision.

- **Carbon:** Enabling a Net Zero-Carbon neighbourhood;
- **Biodiverse:** Biodiverse and resilient river park;
- **Circular:** Thriving circular economy;
- **Healthy:** Resilient communities;
- **Local:** 5-minute neighbourhood and 15-minute city; and
- **Skilled:** Building social value.

Together, these themes enable the Red Bank development to take a holistic view of sustainable development, ensuring that certain fundamental social needs are met, whilst also maintaining a healthy natural environment.

Situated between these social needs and the planet's environmental limits is the 'safe and just space for humanity'⁹, and this is the area within which inclusive and sustainable economic and physical development must take place.

To ensure the Red Bank development aligns with this central ambition, objectives, and performance indicators for each of the six sustainability themes, are set out in the 'Sustainability Themes' section of this document. The key design developments and proposed actions which help to meet the local and national policy requirements are also presented.

Sustainability stages

The stages of the Project at which sustainability should be considered in detail are divided into three, In design, In procurement and In operation, to ensure a wholistic application of our sustainability principles. To ensure that these are delivered, effective delivery mechanisms will need to be identified for each stage. Considering each stage early in the Project development process will also ensure that opportunities are not missed, and maximum benefit is achieved. Examples of how this can be achieved are set out below.

In design

- Embed the sustainability objectives defined under each theme into the design process;
- Identify key opportunities that will help meet, or exceed, Red Bank's sustainability objectives;
- Identify whole life cost benefits that can be embedded from the design stage;
- Assess the cost implications of design interventions, for example, around Solar PV, low global warming potential refrigerants, heat pumps; and
- Establish approaches to Soft Landings and obtain post-occupancy evaluation.

⁹ Raworth, K. (2017) Doughnut economics. Random House UK.

In procurement

- Carefully consider the procurement route, including the selection of delivery partners and contractors through the inclusion of sustainability metrics;
- Communicate, score and weight design and sustainability requirements clearly within plot design brief, tender documents and to any subsequent delivery partners; and
- Confirm relevant sustainability information will be provided throughout the construction process by supply chain partners.

In operation

- Ensure post-occupancy evaluation is undertaken and feedback incorporated into subsequent development phases; and
- Consider best available technologies to reduce energy consumption and carbon associated with the ongoing operation of the Development.
- Ensure a framework is in place for monitoring, collecting, and assessing the data around energy, water, waste to ensure increased efficiencies and reductions on year-on-year basis.



SUSTAINABILITY THEMES

The following sections details the proposed strategies for each sustainability theme relevant to Red Bank

Theme 1 – Carbon

Objectives:

- Embed passive design strategies at masterplan and building level to deliver low energy buildings;
- Enable the delivery of homes that are fossil fuel free;
- Maximise renewable energy technology;
- Maximise smart technologies that allow for load sharing and peak load management; and
- Reduce upfront carbon emissions through intelligent design.

Aspirational Key Performance Indicators (KPIs)

- Aspire to be Net Zero carbon in operation (including regulated and unregulated energy);
- Meet ‘Phased’ fabric, energy, embodied carbon, and water targets to deliver homes and buildings that are resource efficient;
- Deliver homes that can achieve applicable RIBA Climate Change targets and LETI EUI targets;
- Use RIBA version 2 target 2030 to achieve low embodied carbon for homes (A-C); and
- Minimise cut and fill and infrastructure carbon - set a baseline and then reduce.

Relevant Policies

- Policy EN 4: Reducing CO₂ emissions by enabling low and zero carbon development;

- Policy EN 5: Strategic Areas for low and zero carbon decentralised energy infrastructure;
- Policy EN 6: Target Framework for CO₂ reductions from low or zero carbon energy supplies; and
- Policy EN 7: Energy Infrastructure opportunities.
- Strategic Regeneration Framework (SRF) Manchester Northern Gateway - Core Objectives 1, 2, and 3.

The following strategies can be adopted to enable a Net Zero development. These strategies will also help in meeting the relevant local policy requirements.

Reduce Energy Consumption

As fossil fuels are phased out, Low Carbon Technologies (LCTs) will represent the future of low-energy developments. The Climate Change Committee (CCC) anticipates that, as part of the development of Future Homes Standard, new homes will not be expected to connect to gas for heating from 2025 and the installation of heat pumps, likely air-source, will become a mass market solution in delivering low carbon heat. Figure 3 provides an overview of the opportunities to reduce the energy consumption through various interventions which will also help achieve the recommended EUI. The following are examples of the LCTs proposed for the project:

- **Heat Pumps** - Heating provision can be met with equipment sized to fit on roof space using air source heat rejection. Alternatively, the necessary

demand can be met by equipment sized to fit within an on-site energy centre, again using air source heat rejection.

- **Photovoltaic Panels** - Initial PV analysis has predicted that the total PV generation across the suitable Red Bank roof areas could be 650 MWh/year, or the equivalent of saving around 150 tCO₂e/year, assuming 60% PV across applicable roof areas (approx. 9900m²). If the LETI 2030 target was achieved there is potential to offset over 5% of the residential demand through PV generation, and 3% to 4% with relaxations.
- **Smart Grids** - Photovoltaics systems on the site can be used to help meet the electricity demand on the site in the short term by balancing requirements through export to the grid. The Smart Grid technology can also assist in shifting EV charging to lower demand times of day.
- **Electric Vehicles (EV)** - Electric Vehicle (EV) parking at 20% active provision and remaining 80% passive provision. For car parking spaces that will be provided in the Red Bank area a peak demand per space of 0.5kVA is recommended, giving a peak demand of 220kVA. EVs have the potential to add significant flexible capacity to the electricity system. For example, they could provide rapid flexibility to support renewable generation, balance electricity and alleviate network constraints at both local and national levels.

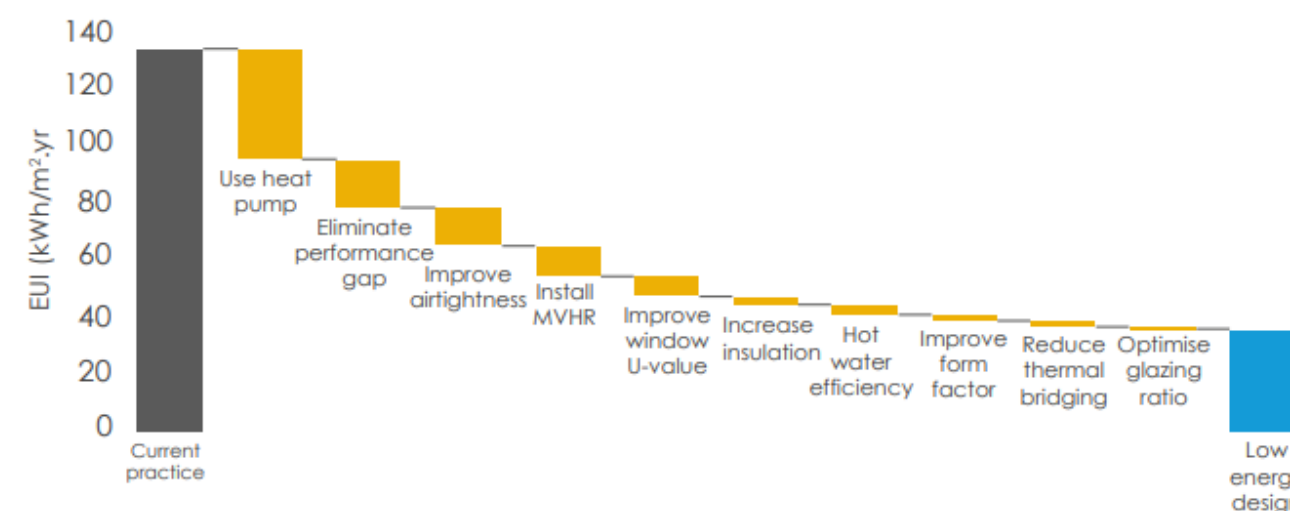


Figure 3 - Opportunities to reduce energy consumption in a new residential development (Source- LETI Climate Emergency Design Guide)

Building Performance Benchmarks

The construction of Red Bank development within the Outline application is expected to commence Q1 2025 and conclude in 2032. Therefore, it is likely that applicable Building Regulations and relevant best practice guidance will advance significantly over this time, aligning with Net Zero aspirations set out by RIBA, LETI, RICS and the UKGBC.

Each Red Bank development phase will, at a minimum, achieve the mandatory requirements applicable when the design and construction commences. The ambition is to exceed minimum requirements where possible and meet evolving and ambitious best practice guidance such as RIBA 2030 and LETI targets, as outlined in Figure 2.

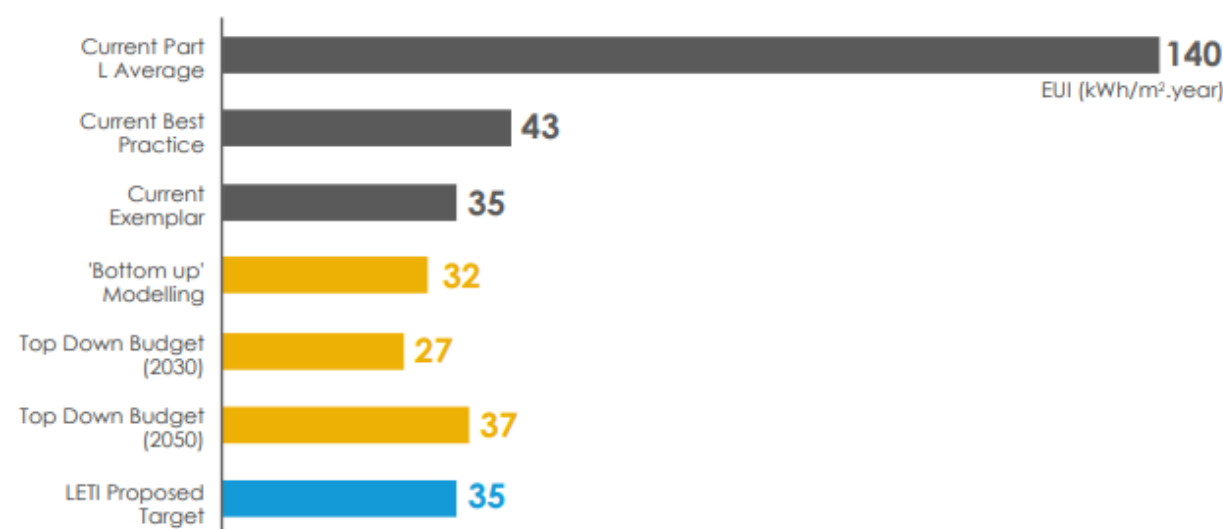


Figure 4 - Deriving the LETI residential EUI target (Source- LETI Climate Emergency Design Guide)

Embodied Carbon Reduction

The two primary and distinct sources of carbon emissions for the built environment are as follows:

- **Embodied carbon:** from construction materials and construction processes used during construction works; and
- **Operational energy:** used to heat, cool, and power buildings and infrastructure.

Figure 5 provides an overview of how embodied carbon can be reduced for a project through various design approaches.

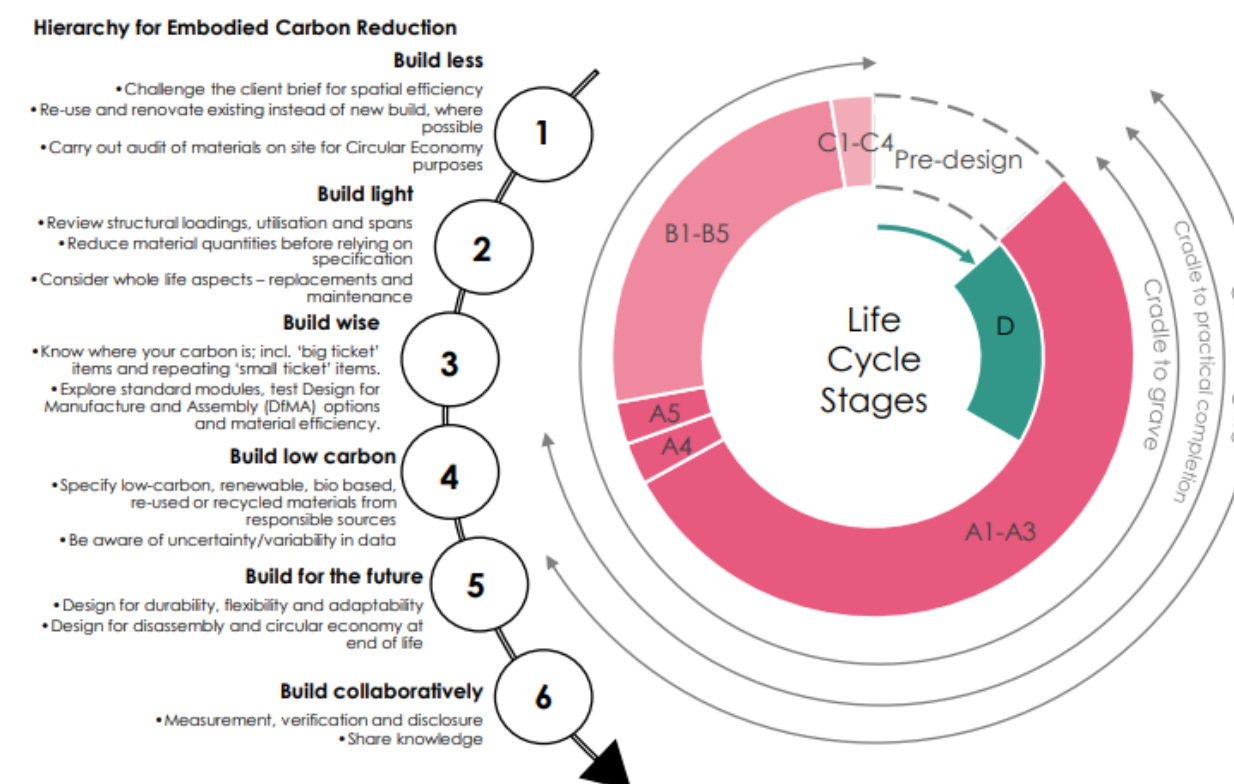


Figure 5 - Hierarchy for Embodied Carbon Reduction (Source- LETI)

Building Design Principles

Based on the timing of the Red Bank development phases commencing, measures will be adopted, in line with applicable best practice, in the detailed design of the buildings to reduce energy demands, use energy more efficiently and, where possible adapt to the predicted impacts of climate change. In order to achieve this, any measures will need to be identified and planned in detail from concept onwards. These are described as 'passive design solutions', and practical options are detailed below:

- Designing the external fabric to have low U-values to reduce thermal heat loss and provide high efficiency insulation (refer to Figure 2 for recommended targets);

- Reducing the air permeability and thermal bridging coefficient of the building envelope to the lowest practical level to reduce uncontrolled heat loss;
- Incorporating building material with high thermal mass to help keep the internal building temperatures stable;
- Providing larger windows on south facing aspects, where appropriate, to increase natural daylight; and
- Provide smaller north-facing aspects, where appropriate to reduce excessive heat loss.

Operational Energy Carbon Emissions

For a building to be net zero carbon in operation, the organisations owning, operating, or renting the building must:

- Minimise consumption of operational energy and associated carbon emissions (through energy efficiency);
- Maximise low and zero carbon energy sources (like renewables);
- Consider how the building is operated, for example, review of energy suppliers; and
- Offset the building's residual carbon emissions. The amount to offset is based on the energy consumed and is identified as part of an annual carbon assessment and offsetting process.

Embodied Carbon Emissions – Net Zero Carbon

For a new building, or renovation, to be Net Zero Carbon, the project should:

- Minimise embodied carbon emissions from construction products and processes;

- When designing a new building, or a renovating an existing building, this means, for example, minimising the consumption of construction products and using lower carbon construction products and construction processes. Figure 6 provides an overview of numerous ways of reducing the embodied carbon through building elements; and
- Offset the project's residual embodied carbon emissions. The amount of carbon to offset is typically based on an embodied carbon assessment verified at the end of the construction.

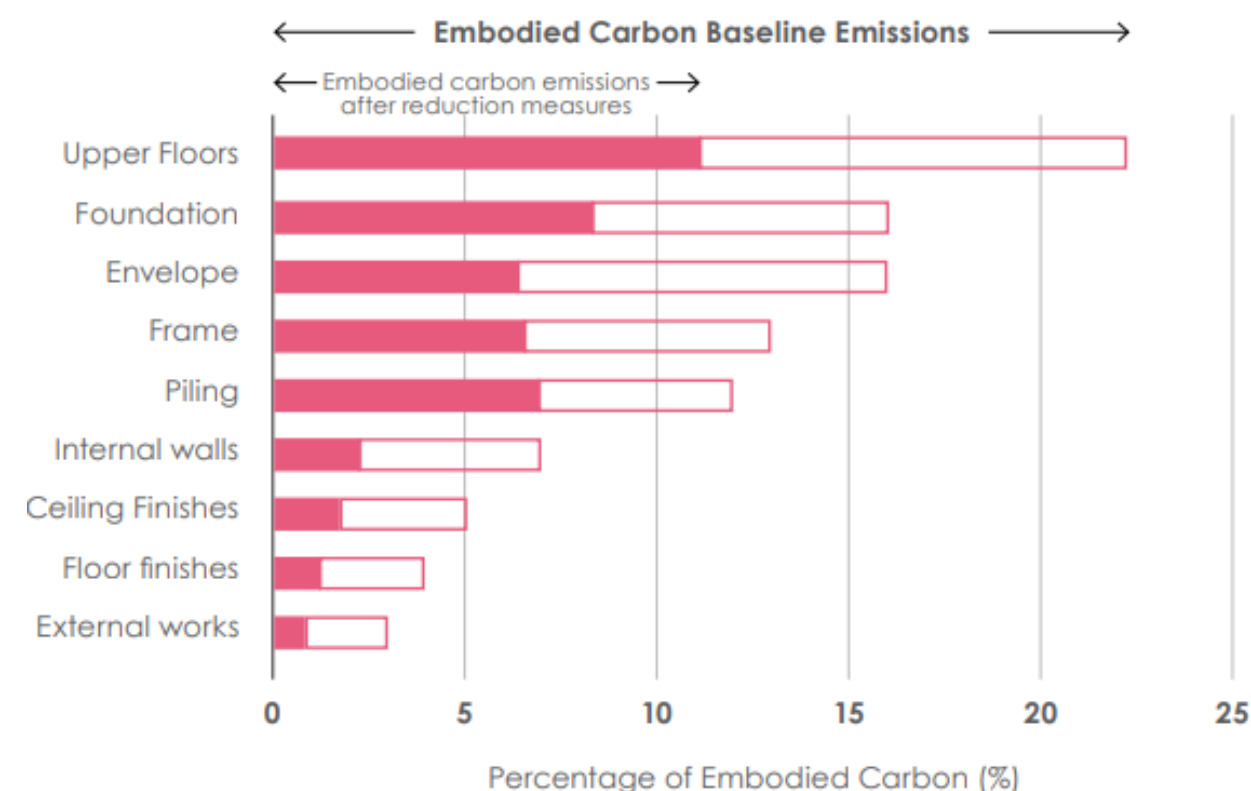
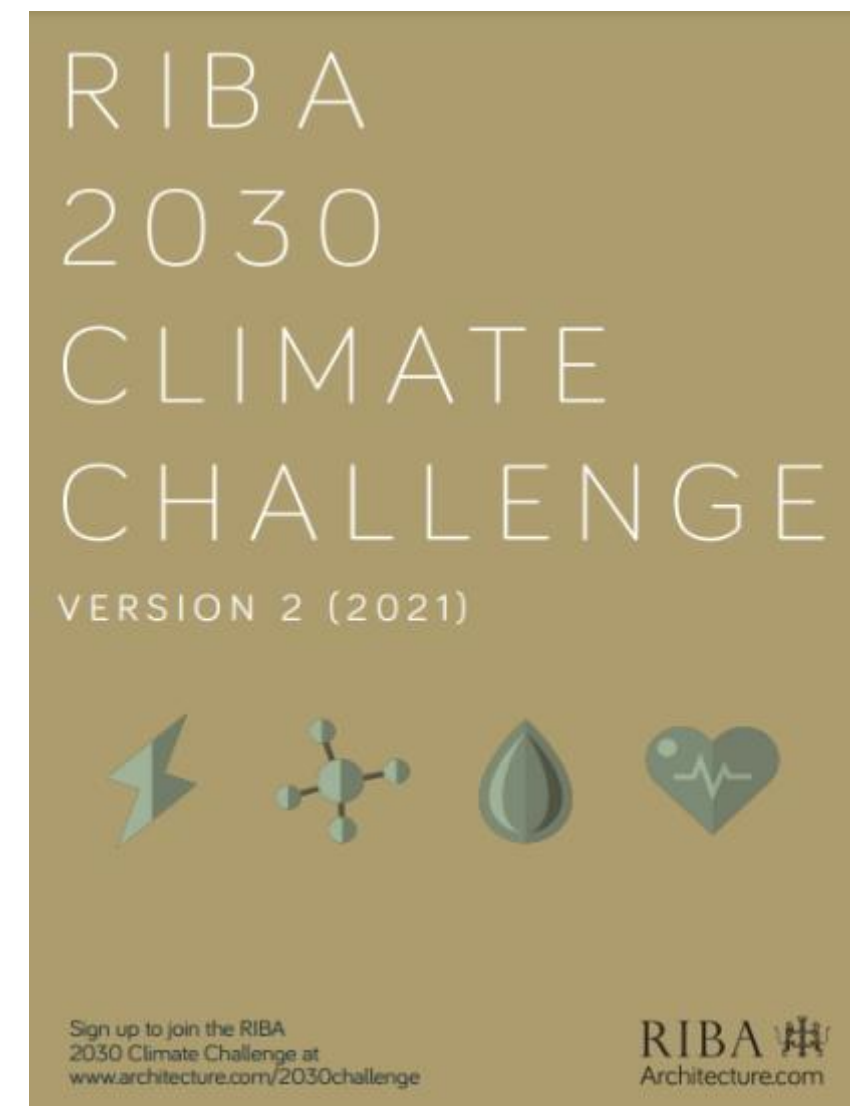
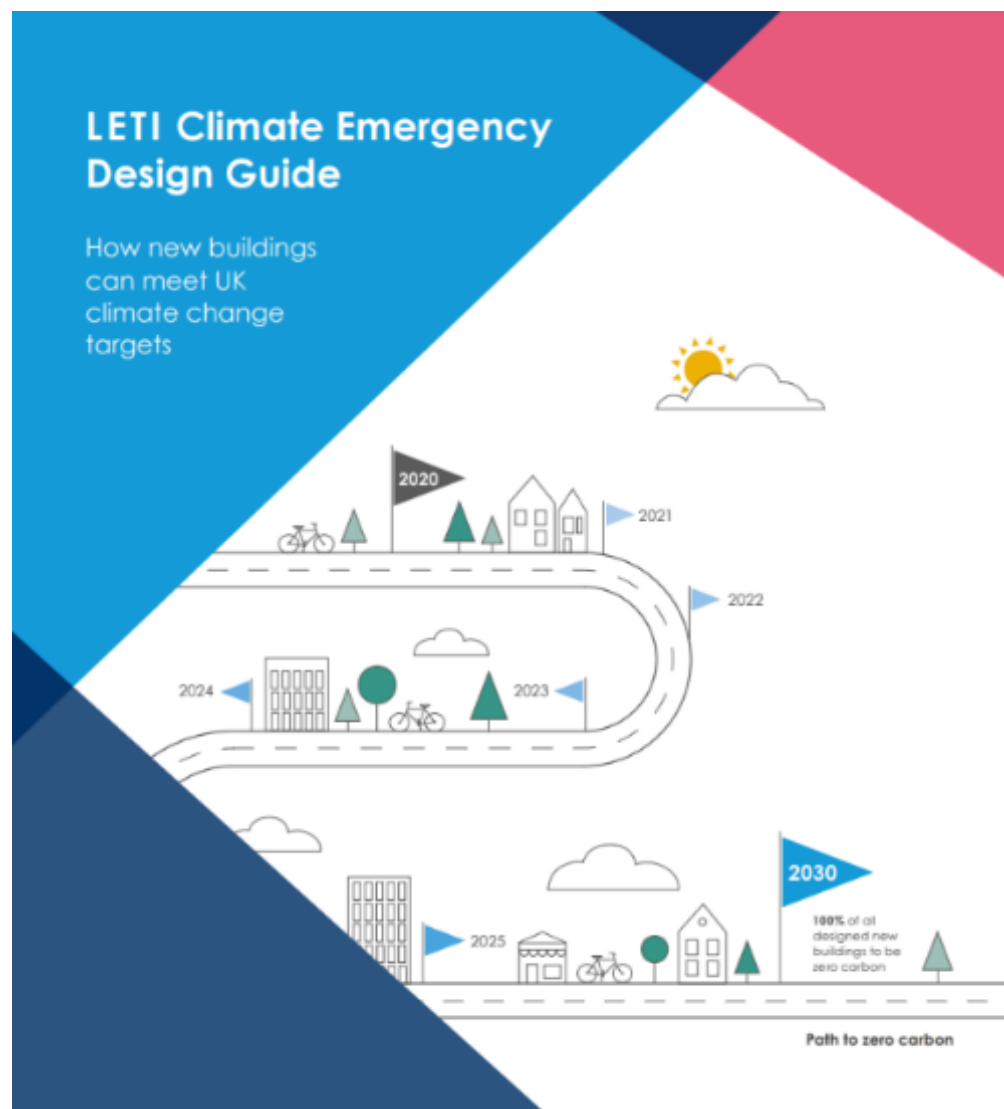


Figure 6 - Illustrative Embodied Carbon reduction potential (Study by Mirko Farnetani) (Source- LETI)

Demonstrating Emissions are ‘Minimised’ to Achieve Net Zero Carbon

As projects are always influenced by unique site conditions, availability of products, budget, and other factors; there is likewise a commensurate (but also time-bound) limit to the emissions that can be considered reasonably minimised. In addition, as the energy grid decarbonises, and the industry improves emission intensity performance through innovation, what can be considered a reasonable emission reduction will become tougher along the pathway to Net Zero Carbon.

Industry-led initiatives have emerged in recent years that provide guidance to assist projects in demonstrating carbon emissions are reasonably minimised. Two such initiatives, LETI, and RIBA 2030 Climate Challenge, are proposed for this project and provide a range of guideline performance benchmarks for the coming years.



Theme 2 - Biodiverse

Objectives

- Protect from extreme weather events and risk of surface water flooding;
- Integrate sustainable urban drainage to deliver nature-based surface water solutions;
- Integrate masterplan design solutions with urban greening to deliver vibrant communities;
- Maximise biodiversity and species habitats; and
- Prevent pollution.

Aspirational Key Performance Indicators (KPIs)

- Meet Greenfield run off rates whilst considering future climate allowances;
- Deliver a biodiversity net gain of at least 10% (planning requirement),
- Deliver an urban greening factor of 0.4;
- Ensure water efficiency standards are met to minimise reliance on fresh water. Each person must use less than 100 litres/person/day;
- Use rain gardens and 'soft' sustainable drainage systems to reduce pollutant load to the River Irk;
- Combustion free community; and
- Minimise light pollution.

Relevant Policies

- Policy EN 8: Adaptation to Climate Change;

- Policy EN 9: Green Infrastructure;
- Policy EN 10: Safeguarding Open Space, Sport, and Recreation Facilities;
- Policy EN 11: Quantity of Open Space, Sport, and Recreation;
- Policy EN 12: Area priorities for Open Space, Sport, and Recreation;
- Policy EN 14: Flood Risk; and
- Policy EN 15: Biodiversity and Geological Conservation.

The River Irk and River Irwell are important ecological connectors for the Red Bank Development and offer an opportunity to connect to a wider green infrastructure. St Catherine Wood offers a rare overlap of the river's edge (its riparian zone) and woodland, which occurs as rare and small pockets along the length of both rivers.

National Planning Policy requires that opportunities for ecological enhancement are sought within all development proposals, moving towards the aim of 'biodiversity net gain'. Potential ecological enhancement measures that could be introduced as part of the re-development of the site are provided in Table 1. These strategies will also help in meeting the relevant local policy requirements.

Table 1 – Ecological enhancement activities

Activities	Benefits
Edible and productive landscapes	A productive planting loop within the site can offer a wide range of opportunities to the local residents. Informal foraging routes allow people to find their own food, localised herb gardens encourage residents to grow their own in a low maintenance and social way. Urban farming can be introduced on top of the viaduct allowing the commercial uses below to use this space to grow their own produce. There are existing local initiatives that would benefit from this approach, for example the Northwest Gleaning Network actively forage, and pick produce from local street trees and find uses for them, often inviting locals to participate.
Retained tree belts and woodland	Trees with potential to support roosting bats have been identified and used to guide the positioning of infrastructure. The retained woodland will allow continued nesting opportunities for birds and increased tree and shrub planting will improve foraging resources for birds.
Increase use of green space	The development will provide large areas of better-quality meadow grassland habitat and increased native tree and shrub areas. This would be a change from the current low value farmland.
Woodland habitat	The habitat will be focused on long-term environmental improvement through improved species richness and ecological structure. A new wildlife area will be designated in the public park to benefit species of grass snake and invertebrates.
River Irk re-naturalised	Sections of the river covered by the outline application, for example Travis Island proposals and terracing at RB06 and RB07, will be re-naturalised to allow for habitat creation but also areas for the river to expand into during flooding events.

Theme 3 - Circular

Objectives

- Reduce consumption of virgin materials and maximise use of renewable, secondary, recycled, or reused materials;
- Design in opportunities to eliminate (and where not possible) maximise recycling of commercial and residential waste;
- Specify and source materials, products, technologies, and other resources responsibly and sustainably;
- Design for longevity, adaptability or flexibility, and reusability or recoverability;
- Retain materials at their highest value over their life cycle by adopting circular design principles; and
- Enable collaborative consumption and circular economy businesses (industrial symbioses).

Aspirational Key Performance Indicators (KPIs)

- Set a target to incorporate 30% by volume of materials from recycled/secondary materials;
- Use the Regenerate tool by Urban Flows Observatory¹⁰ to guide decision making;
- Design of longer life infrastructure systems and services with ease of access and maintenance;

- Incorporate space for a Library of Things within the masterplan, to promote a sharing economy;
- Incorporate shared mobility services; and
- Create space within the masterplan for collaborative consumption models.

Relevant Policies

- Policy EN 19: Waste
- Strategic Regeneration Framework (SRF) Manchester Northern Gateway - Core Objectives 1, 2, 5 and 6

Materials and circularity

With increasing recognition that a move away from the current linear ‘take-use-dispose’ resource model is required to stay within the ecological footprint of the planet, a circular economy model has emerged. The emphasis is shifted to keeping resources in closed loops and high value applications, eliminating waste and other ‘system leakages’, preventing pollution, and regenerating natural capital. In addition, there is a requirement to reuse where possible and limit new resource extraction for construction. Figure 7 provides an overview of the material flows between the existing and future built environment.

¹⁰ <https://urbanflows.ac.uk/regenerate/>

Table 2 - Circular Economy strategies and targets (Source- GLA guidance)

Strategy	Target
■ Maximise the qualities of materials used ■ Minimise the quantities of other resources used ■ Specify and source materials and other resources responsibly and sustainably	■ Conserve resources, increase efficiency and source sustainability
■ Design for longevity, adaptability or flexibility and reusability or recoverability ■ Design out construction, demolition, excavation, and municipal waste arising	■ Design to eliminate waste (and for ease of maintenance)
■ Manage demolition/excavation/construction waste ■ Manage municipal waste (and industrial waste, if applicable)	■ Manage waste sustainably and at the highest value

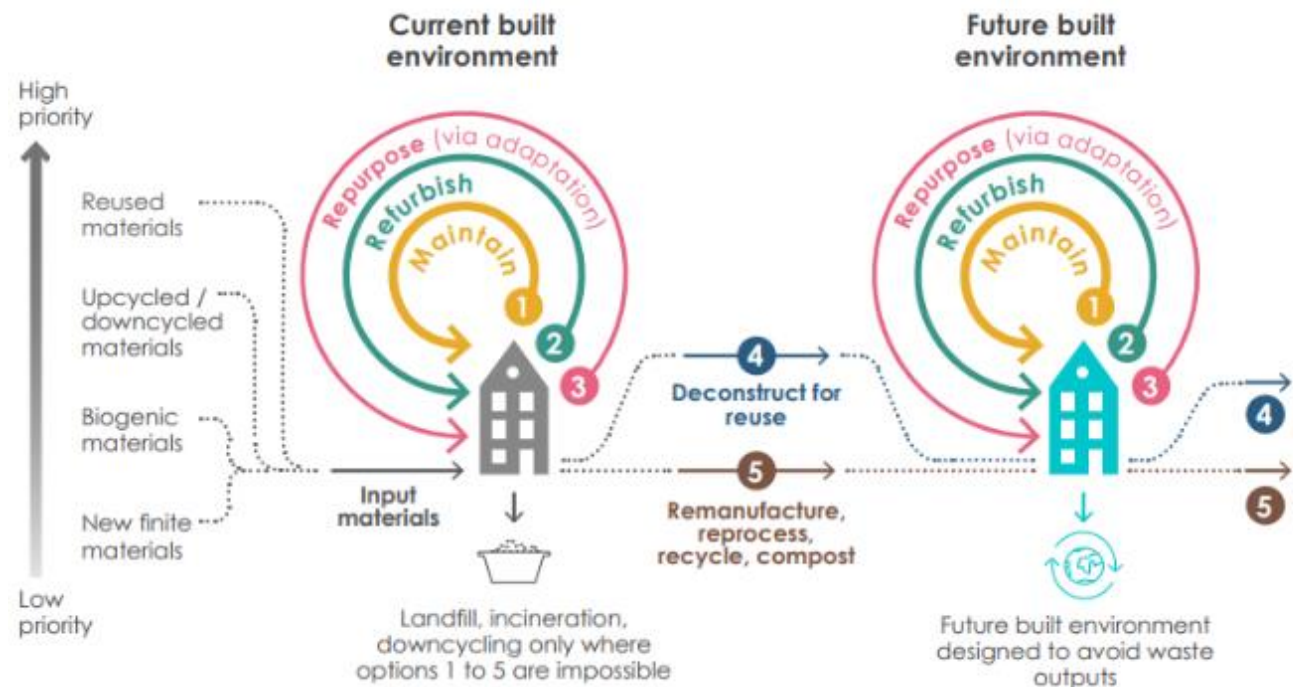


Figure 7 - Material flows between the existing and future built environment (Source- LETI)

As a major residential development, Red Bank exposes the potential of a contaminated brownfield site earmarked for urban regeneration, and hence aligns with the circular economy principle of reuse. Its sustainability potential is also enhanced by taking advantage of its proximity to existing infrastructure and excellent accessibility by public transport. Furthermore, the proposed development has taken circular economy principles into consideration for the whole life cycle of the building.

Table 2 highlights three circular economy targets that will be embedded into the design of the development. Figure 8 provides an overview of the design solutions for a Circular Economy taken from the GLA circular economy guidance.

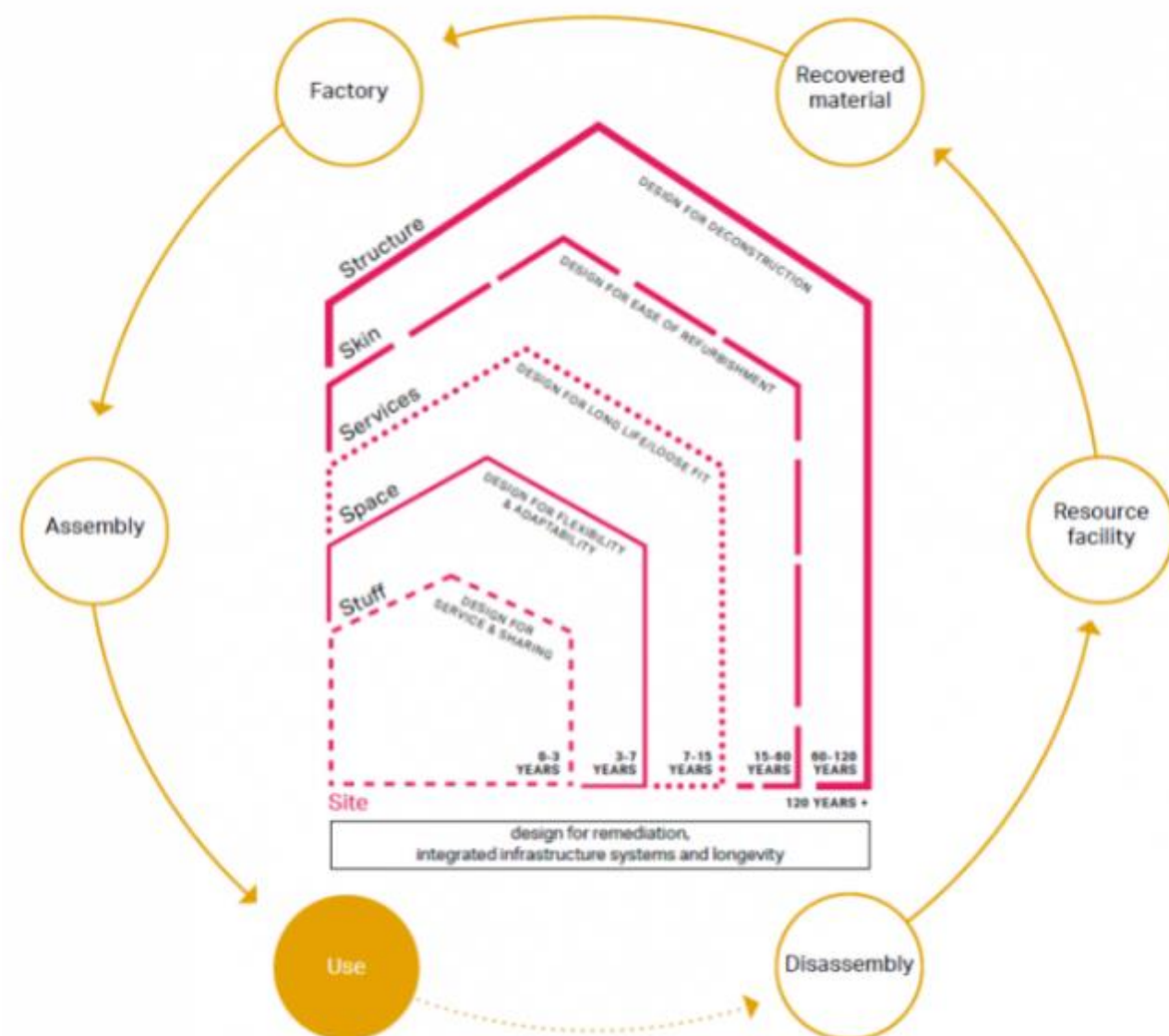


Figure 8 - Design solutions for a Circular Economy (source- GLA guidance/Useful Projects)



Theme 4- Healthy

Objectives

- Enable and encourage active and healthy lifestyles;
- Provide high quality homes, with a mix of type and tenure including affordable living (e.g., housing, energy, utilities);
- Strengthen the sense of community pride and engagement among existing residents as well as welcoming and integrating the new community as the 'site' becomes a 'place';
- Optimise sunlight and daylight provision across the site and within flats;
- Reduce the risk of overheating and minimise the urban heat island effect; and
- Create comfortable public realm spaces.

Aspirational Key Performance Indicators (KPIs)

- Percentage of buildings / dwellings that meet CIBSE TM59 and TM52 overheating requirements;
- Percentage of dwellings that meet BS EN 17037 & BS EN 8206 for daylighting within homes;
- Exceed BRE 209 requirements for external sunlight access requirements;
- Pedestrian comfort from wind in accordance with Lawson LDDC criteria;
- WHO indoor noise limit of 30 dB for bedrooms; and
- Percentage of dwellings within 5 minutes' walk to play area.

Relevant Policies

- Policy EN 11: Quantity of Open Space, Sport, and Recreation; and
- Policy EN 12: Area priorities for Open Space, Sport, and Recreation.
- Strategic Regeneration Framework (SRF) Manchester northern gateway - Core Objectives 1, 2, 3 and 4.

Wild urbanism

The unique landscape and topography of the site provide opportunities for active lifestyles, exercise and recreation, and job creation in the management and stewardship of the new neighbourhood.

This approach has been named 'Wild Urbanism', which comprises the following three principles:

- Wilding the city and urbanising the valley;
- Creating distinctive character in a unique landscape; and
- Living locally – 5-minute neighbourhood and 15-minute city.

Figure 9 provides an illustration of the Wild Urbanism concept between neighbourhoods.



Figure 9 - Wild urbanism between neighbourhoods - Source: Red Bank Design Principles Report

Rising Temperatures and Urban Heat Island (UHI)

Effect:

To protect against rising temperatures and extreme heat events, infrastructure solutions will be considered and included in the Red Bank design, with a view to creating the maximum benefit. The different approaches and their benefits are outlined below.

Green Infrastructure

Green infrastructure increases exposure to the natural environment, reduces exposure to harmful substances and conditions, provides opportunity for recreation and physical activity, improves safety through minimising extreme heat and flooding events, and promotes community identity and a sense of well-being. The following types of green infrastructure will be implemented where appropriate:

- Green roofs
 - Reduce the need for cooling in the summer and heating in the winter;
 - Maximise drought resilient planting;
 - Protect flat roofs from UV impact and provide evapotranspiration cooling; and
 - Cool rooftop assets e.g., photovoltaics
- Green climbing walls and vegetated areas
 - Provide not only aesthetic value to a design, but offer a cooling effect at street level, through plant evapotranspiration processes.



Figure 10 - Green roofs and green walls

Blue Infrastructure

Provides a cooling effect to outdoor spaces and therefore helps extend outdoor thermal comfort during summer months. The following types of blue infrastructure will be implemented where appropriate:

- Fountains
 - Provide not only an aesthetic value to the design of a space but can be incorporated into the cooling of an area.
- Water bodies

- Provide a cooling effect for the outdoor space as well an aesthetic value to the green spaces and overall site.

Surfaces

The following types of surface solutions will be implemented where appropriate:

- Permeable Pavements
 - When wet, they lower temperatures through evaporation and cooling, so have the potential to help with both rising temperatures and rainfall management.
- High reflecting (albedo) surfaces
 - Roofs pavements with high reflectance can provide cooling benefits to their surroundings.

Shading elements (outdoor/building)

The following types of shading solutions and activities will be implemented where appropriate:

- Shading
 - Structural and non-structural shading devices can provide significant indoor and outdoor cooling effects, as well as increase the energy efficiency of the building.
 - Internal blinds to minimise solar gain.
 - Street trees to provide additional shade.
- Overheating analysis to be undertaken.

Health and wellbeing strategies

The health and wellbeing strategies being applied to Red Bank have been divided into specific fields, outlined in Table 3.



Table 3 – Health and wellbeing strategies

Field	Strategy	Benefits
Nourishment and Movement	■ Walk Score > 70 ■ Pedestrian comfort from wind in accordance with Lawson LDDC criteria ■ Nature trails ■ Outdoor gym ■ Cycle route	These strategies provide support for all users of the site to engage with nature and the outdoors. Encouraging people to move and explore different areas of the site. This helps provide positive health benefits to all users.
Sound and Acoustics	■ Noise intrusion mitigation ■ Interior walls with low sound transmission ■ Control outdoor noise levels ■ WHO indoor noise limit of 30 dB for bedrooms	Sounds and acoustics are important for the health and wellbeing of all Red Bank users. The 24-hour economy has increased the daily noise people have been exposed to. A key factor to consider in design is noise mitigation. Creating quieter spaces provides benefits for users, for example reduction in sleep disturbance for residents.
Mental Health and Community	■ Art ■ Green Infrastructure ■ Flexible spaces ■ Design for social interaction ■ Local engagement ■ Community house / activities	Community and mental health are key to this Sustainability Strategy as the site strives to be inclusive and welcoming for all people. Designing spaces for social interaction and mental health provides positive benefits and helps to encourage higher participation and combats loneliness.
Daylight and Views	■ Maximise natural views ■ Healthy daylight exposure ■ Healthy circadian rhythm ■ Healthy night sleep	The benefit of daylight and views is that it provides users with the best experience when using the site. Views of nature provide humans with a connection to nature which in turn provide benefits to users' mental health. Maximising daylight benefits the circadian rhythm, improving residents sleep.
Thermal Comfort	■ Monitoring ■ Minimise overheating ■ Dwellings to meet CIBSE TM59 ■ Winter thermal comfort	Maintaining high levels of thermal comfort maintains productivity in buildings as people are in an optimal environment. Also applying thermal comfort principles to pedestrians so that the pedestrian experience is maintained in all seasons.
Air Quality	■ Zero idling ■ Adequate ventilation rates ■ Zero appliance/ heater combustion ■ Low VOC interior materials ■ Internal and external air quality monitoring	The quality of the air people breathe indoors directly impacts their health and well-being and constitutes one of the most important aspects of buildings that can support human health. Key benefits include improved human productivity in buildings and reduction in air quality related diseases.

Theme 5 - Local

Objectives

- Provide accessible local services, amenities, and social infrastructure, including leisure and cultural facilities.
- Promote Red Bank as a cycling and walking community with pedestrians prioritised.
- Ensure accessibility for all.
- Limit private parking spaces and ensure residents and visitors adopts sustainable travel patterns.
- Ensure electric vehicle (EV) charging points are delivered.
- Maximise opportunities for shared mobility.
- Support creation of a smart and digitally connected community.

Aspirational Key Performance Indicators (KPIs)

- Number of visitor bike parking spaces across the site.
- Number of electric car charging points across the site.
- Provision of local services for sharing of bikes, accessibility active transport options and car clubs.
- Segregated pedestrian and cycling infrastructure.
- Percentage of local services and community facilities within 15-minute walking distance.
- Percentage of properties with 5G connectivity.
- Percentage car free journeys.
- The Greater Manchester Accessibility Levels (GMAL) score.

- Participation in community consultation events.

Relevant Policies

- Policy EN 1: Design Principles and Strategic Character Areas
- Policy EN 3: Heritage
- Policy EN 10: Safeguarding Open Space, Sport, and Recreation Facilities
- Policy EN 11: Quantity of Open Space, Sport, and Recreation
- Policy EN 12: Area priorities for Open Space, Sport, and Recreation
- Policy T 1: Sustainable Transport
- Policy T 3: Strategic Integration
- Policy CC 3: Housing
- Policy CC 5: Transport
- Strategic Regeneration Framework (SRF) Manchester northern gateway - Core Objectives 1, 2, 5 and 6.

Sustainable modal shifts

Red Bank is accessible by public transport, with stops located within walking distance of the Site. The surrounding area also presents opportunities for pedestrian and cycling use.

Sustainable travel initiatives have also been proposed to increase the level of walking, cycling and public transport use to and from Red Bank.

The following strategies are proposed for sustainable transport and walkability:

- **Charging for Electric Vehicles** - With technological improvements and shifts in consumer demand towards electric vehicles, Red Bank should be receptive to this change in consumer behaviour and facilitate the uptake of electric vehicles by providing adequate infrastructure for these vehicles. Having available charging infrastructure can help encourage residents and stakeholders to use electric cars. The option of creating EV parking at a 20% active provision level and remaining 80% passive provision are being looked at for Red Bank.
- **Cycle Access and Parking** - An integrated parking strategy addresses the different demands of short-term and long-term parking. The strategy will have three parking typologies: podium parking, basement parking and street parking. This reduces vehicular movement around Red Bank and will make land available for other uses. The overall quantum of parking proposed by the outline planning application is 12% which will result in 10% car parking being provided across the Masterplan area. At the detailed planning application stage some plots will have a higher provision, and some will have a lower provision depending on the likely demand (e.g., larger apartments would have more parking provision). Cycle parking will be provided at one space per unit which will be a mixture of on and off-plot, and visitor cycle parking in the public realm is under consideration. Disabled parking is proposed as 6% of the total parking availability. Motorcycle parking capacity and location is to be confirmed but is assumed to be within the overall vehicle quantum.

- **Provide Public Transport and Walkability** - Public transport options have been maximised for the Site, and on-site bus stops have been carefully located. The location of these bus stops will ensure that the new school(s), local centres, workplaces, and the majority of homes will be within an easy 5-minute walk of a bus stop. This encourages walkability for the overall site as public transport connections will be close to all stakeholders.

Table 4 shows examples of the Sustainable Transport metrics.

Table 4 – Red Bank sustainable transport metrics

Metric	Requirement
Fitwell	A main building entrance must be located within a ½-mile or 800-metre walking route of a minimum of one transit stop
Fitwell	Provided at a minimum of one bicycle parking space for every three dwelling units
GLA	At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces

Theme 6 - Skilled

Objectives

- Provide quality jobs for the existing and the new community, both during construction and over the whole life of the operational development;
- Provide education and training to upskill the local community to compete in local high-quality jobs market;
- Provide a range of flexible business and start-up spaces, including alternative community uses/spaces;
- Develop a thriving sharing economy to provide affordable access to sustainable local products and services and foster meaningful interaction between residents and visitors; and
- Retain and encourage the growth of existing businesses.

Aspirational Key Performance Indicators (KPIs)

- Number of jobs and apprenticeships created during construction;
- Number of permanent / long term jobs created;
- Percentage of procurement through local businesses and SMEs (during construction);
- Average hourly pay for jobs on site;
- Percentage employed locally;
- Percentage apprenticeships filled by locals; and
- Participation in education / training on site during construction.

Relevant Policies

- Strategic Regeneration Framework (SRF) Manchester northern gateway-core objectives 4 and 5.

TOMS NATIONAL FRAMEWORK

The National Social Value Measurement Framework or National TOMs (Themes, Outcomes, Measures) is a method of reporting and measuring social value to a consistent standard. It provides the golden thread between an organisation's overarching strategy and vision, to the delivery of that vision. The Framework was developed by Social Value Portal and launched in 2017.

The TOMs Framework provides the national standard for social value measurement through:

- Consistent approaches to measuring and reporting social value across businesses, sectors, and localities;
- Continuous improvements throughout your maturity journey;
- Robust and transparent solutions for assessing and awarding tenders, with robust supporting evidence; and
- Comparisons of business performance to sector and industry benchmarks, and an understanding of what good looks like.

Social Value

Red Banks approach to social value acknowledges and enhances the wider benefits that can be created by the Project, for individuals, communities, and local businesses.

Table 5 shows the key social value commitments that will be embedded into the design of Redbank.

Table 5 – Red Bank social value commitments

Jobs and Economic Growth	Health, Wellbeing, and the Environment	Strength of Community
Decent Jobs for local people	Accessibility and sustainable transportation	Strong local ownership of the development
Local people with the right skills for long-term employment	Resilient buildings and infrastructure	Existing social fabric is protected from disruption
School leavers with career aspirations of the industry	High quality public and green spaces	The new community is well integrated into the surrounding area
Local supply chain is supported and grown	Good mental & physical health	Social networks
Thriving local business	Healthy local air quality	Diversity of building users and tenures
Affordable homes	Limit resource use and reduce waste	Strong local identity and distinctive character

Social value can be generated across the whole of the project lifecycle and should be therefore considered over the lifetime of the development, not just during the design and construction stage. The key programme stages at which social value will be evaluated are summarised in Table 6.

Table 6 – Social value evaluation stages

What You Build	How You Build	How You Operate
■ Wide consultation and stakeholder engagement is undertaken to identify regional and local needs. ■ Multiple masterplan options are considered and appraised quantitatively, capturing value way beyond the redline ■ Co-design and co-creation conducted with communities and stakeholders, with tangible impact on how design outcomes. ■ A framework for longitudinal monitoring of outcomes is put in place at the outset.	■ Outcomes-based procurement is adopted (outcomes stated, let supply chain develop method and approach). ■ Programmes to actively support SMEs, Social Enterprises and third sector to win work are established. ■ Authentic and transparent communication of the social value benefits being delivered during construction is undertaken. ■ Third party verification/ auditing of social value	■ Communities have a stake in governance of assets. ■ Communities and customers benefit through shareholdings or ownership models, such as a Community Interest Company. ■ Continual creation of social benefits over lifetime of asset ■ Operational clients / end users to create annual social value plans to achieve 15% value from outcomes based on their turnover, annual spend or another relevant benchmark.

What You Build	How You Build	How You Operate
■ Briefs include financial incentives / penalties associated with defined social outcomes. ■ Financial proxies used to calculate impact and value from ambitions and outcomes achieved.	■ results are undertaken. ■ 80% quality weighting at procurement includes social value objectives. ■ Contractual requirements include financial incentives/ penalties associated with defined performance outcomes. ■ Project is 'handed back' to community.	■ Board level accountability includes what has not gone well.



RED BANK – DESIGNING FOR THE FUTURE

Red Bank – Designing for the Future

The Vision of this Strategy and the Themes that enable it are focussed on ensuring Red Bank is designed and built for the future. This means that it is built with a clear understanding of what we know today, and an awareness that we will know a great deal more tomorrow.

This Strategy acknowledges that new and innovative technologies and design will need to be incorporated into the future phases of development to keep pace with the emerging policy landscape.

At Red Bank there is an opportunity, which is matched by a continual ambition, to progressively improve the performance of the Development as the project phases are being delivered. The targets proposed in this strategy have been selected to ensure that continual improvement and excellence is central to the delivery of the Development.





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