

Circular Economy Statement

Echo Street, Manchester

April 2023



Contents

Contents.....	2
1. Introduction	3
2. Policy and Guidance	5
3. Circular Economy Principles and Commitments.....	8
4. Conclusion.....	16

Client

iQ Student Accommodation

Turley Reference

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1. Introduction

1.1 Introduction

This Circular Economy Statement (CES) has been prepared by Turley Sustainability on behalf of iQ Student Accommodation ('the Applicant'), to present the circular economy and resource efficiency principles incorporated into the redevelopment of Echo Street, Manchester.

It supports the detailed planning application to Manchester City Council (MCC) for the development of Purpose-Built Student Accommodation (PBSA) and commercial/leisure/community uses on Echo Street, Manchester.

The CES should be read in conjunction with other supporting documents such as the Environmental Standards Statement, BREEAM Pre-Assessment, Planning Statement, and Design and Access Statement (DAS).

1.2 Site Context

The Application Site, known as Echo Street, is located on vacant land in Manchester City Centre following the demolition of the existing building on-site under planning permission ref. 18267/FO/2017 and subsequent amendments.

The site is roughly rectangular in shape and is bounded by Granby Row, Echo Street, the Manchester, South Junction and Altrincham railway viaduct and an area of open space known as Vimto Gardens.

The extent of the application site is shown on the Location Plan submitted with the planning application, illustrated in **Figure 1** overleaf.

1.3 Proposed Development

The Proposed Development comprises up to 1,224 PBSA bedspaces, in a mix of studios and clusters. The ground floor and mezzanine level of

the Proposed Development will also facilitate commercial/leisure/community uses.

The planning description is as follows:

“Development of purpose-built student accommodation (sui generis) comprising 3 interlinked towers with intermediary link buildings, associated amenity space and external landscaping.”

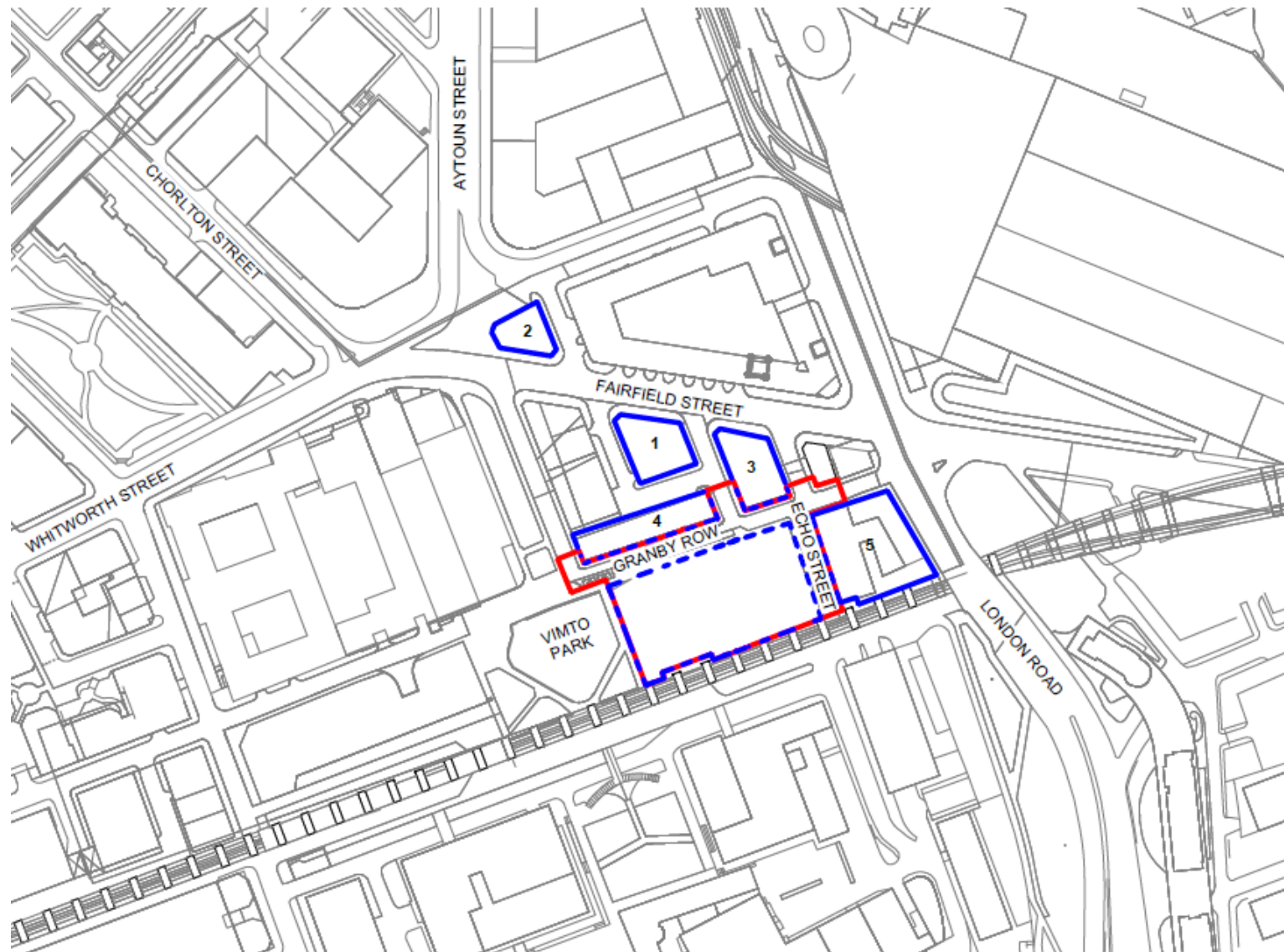
1.3 Document Structure

Chapter 2 communicates the relevant guidance and policy used to inform this CES.

Chapter 3 reports the approach the applicant and project team has taken to incorporate circular economy principles, resource efficiency, and carbon reduction during construction and operation.

Chapter 4 concludes the statement.

Figure 1: Location Plan – Red Line Boundary [Source: Sheppard Robson]



2. Policy and Guidance

2.1 Introduction

This Chapter summarises the key planning policy context and related guidance for Echo Street in relation to resource efficiency and circular economy.

2.2 Policy Drivers

2.2.1 Local Policy and Guidance

MCC declared a **Climate Emergency** in 2019 and subsequently committed to becoming a carbon neutral city by 2038.

The **Manchester Climate Change Framework 2020- 25**¹ sets out the strategy for making Manchester a zero carbon, climate resilient city. Headline areas for urgent action as set out within the framework include “buildings” and “the things we buy and throw away”, which sets out the need to buy less, buy better, repair and recycle to reduce carbon emissions.

The framework was updated in October 2022² to present the findings of detailed modelling undertaken to assess the city’s carbon budget, provide an overview of progress against the framework so far, and recommend actions for the transition to a zero carbon and climate resilient city. Key recommendations include:

- Ensure new buildings are constructed to high standards of low carbon performance covering operational and embodied energy.
- Produce goods and services more sustainably, moving to a circular economy, alongside becoming more sustainable consumers.
- Reduce waste, including unnecessary food waste, and manage unavoidable waste as sustainably as possible, maximising reusing and recycling.

The Council’s **Core Strategy**³ has two key policies relating to waste and the practice of circular economy. These are Policies EN 19 and DM1, summarised below.

Policy EN 19 Waste – requires all developers to demonstrate the proposal’s consistency with the principles of the waste hierarchy.

Policy DM 1 - Development Management – new development should have appropriate refuse storage and collection facilities.

Places for Everyone (PFE)⁴ is the joint plan for nine boroughs in Greater Manchester including MCC. The plan was submitted to the Secretary of State for Levelling Up, Housing and Communities in February 2022 for examination.

PFE includes notable environmental policies which will help to achieve a circular economy and zero-waste economy as part of Greater

¹ [Manchester Climate Change Framework 2020 - 25](#)

² [Manchester Climate Change Framework October 2022 Update](#)

³ [Core Strategy | Manchester City Council](#)

⁴ [GMCA | Places for Everyone](#)

Manchester's ambition of becoming a leading green city region by 2038. **Policy JP-S-7** Resource Efficiency requires the consideration of circular economy principles through:

- Development and implementation of the Resource Strategy for Greater Manchester which promotes overall reduction in the level of waste produced and supports resource efficiency within the Plan area to gain the maximum value from the things we produce.
- Ensuring the design of all new development incorporates storage space to facilitate efficient recycling and where appropriate, processing of waste on site.
- Recognition of the role of existing infrastructure in managing our waste and protecting such facilities to ensure adequate waste management capacity is maintained.
- 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.

2.3 National Guidance

2.3.1 UKGBC Circular Economy Guidance

UK Green Building Council Circular Economy Guidance⁵ is designed to enable construction clients to include more ambitious circular design and construction principles for non-domestic built assets. In general, the principles are also transferrable to domestic and infrastructure developments.

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 Circular Principles:

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

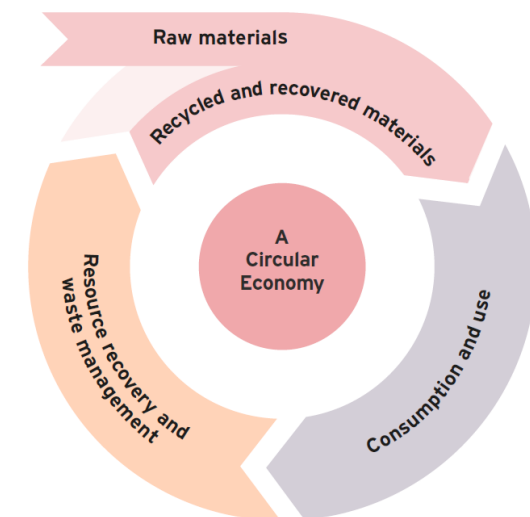
The guidance also aims to ensure that the construction supply chain can effectively deliver circular economy goals and that budget, project

management, and timescale risks are minimised and mitigated.

2.3.2 Our Waste, Our Resources: A Strategy for England

The Our Waste, Our Resources: A Strategy for England (2018)⁶ sets out Government proposals to preserve our stock of material resources by minimising waste, promoting resource efficiency, and moving towards a circular economy (**Figure 2**).

Figure 2: Circular Economy [Waste Strategy for England]



⁵ [UKGBC | Circular Economy Guidance](#)

⁶ [UK Government | Strategy for England](#)

The Strategy aims to make England a world leader in using resources efficiently and reducing the amount of waste created. By prolonging the lifespan of materials and goods, society can move away from the inefficient 'linear' economic model of "take-make-use-dispose" towards a more circular economy through which resources will be in use for as long as possible so that maximum value can be extracted from them.

The Strategy is framed by natural capital thinking and guided by two overarching objectives:

- To maximise the value of resource use.
- To minimise waste and its impact on the environment.

2.3.3 Guidance from the Greater London Authority

The Greater London Authority (GLA) Circular Economy Statement Guidance⁷ provides a detailed approach for new development to demonstrate how circular economy has been addressed during design and construction. The guidance is referred to as current best practice in lieu of alternative local policy.

The core principles of the guidance document, which can be applied to all development, are:

- Building in layers – ensuring that different parts of the building are accessible and can

be maintained and replaced where necessary.

- Designing out waste – ensuring that waste reduction is planned in from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials.
- Designing for longevity.
- Designing for adaptability or flexibility.
- Designing for disassembly.
- Using systems, elements or materials that can be reused and recycled.

Each of these principles incorporates several commitments to manage quantities of materials, resources, and waste.

2.4 Policy and Guidance Summary

MCC has a clear ambition to move to a circular economy, as demonstrated within the Manchester Climate Change Framework and emerging PFE.

In the current absence of specific guidance from MCC, this CES follows the approach outlined within the GLA Circular Economy Guidance to demonstrate how Echo Street will be a resource

efficient development, incorporating the principles of circular economy.

⁷ [GLA Circular Economy Guidance \(March 2022\)](#)

3. Circular Economy Principles and Commitments

3.1 Introduction

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.

For circular principles to be successful, a whole building lifecycle approach is required. Therefore, the goals of the CES are closely entwined with the approach of the LCA, BREEAM strategy and other sustainability measures as set out within the Environmental Standards Statement submitted with the planning application.

3.2 Strategic Approach

From project conception, the applicant and project team have prioritised the delivery of a sustainable and resource efficient development. The decision trees shown in **Figures 3** and **4** set out the design approach for new development where there are existing building elements on site, and for new construction.

Figure 3: Decision tree for design approach for existing buildings / structures (GLA CE Guidance)

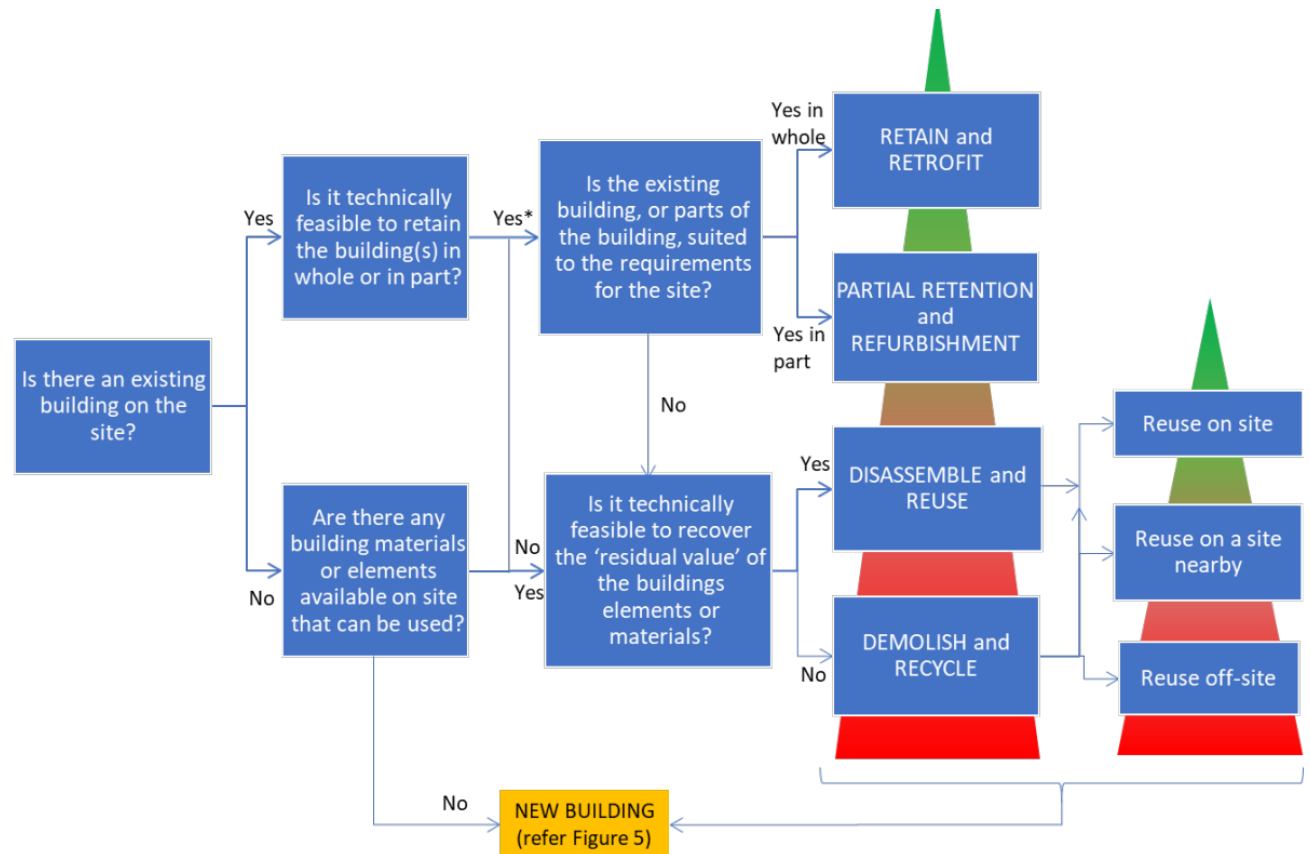
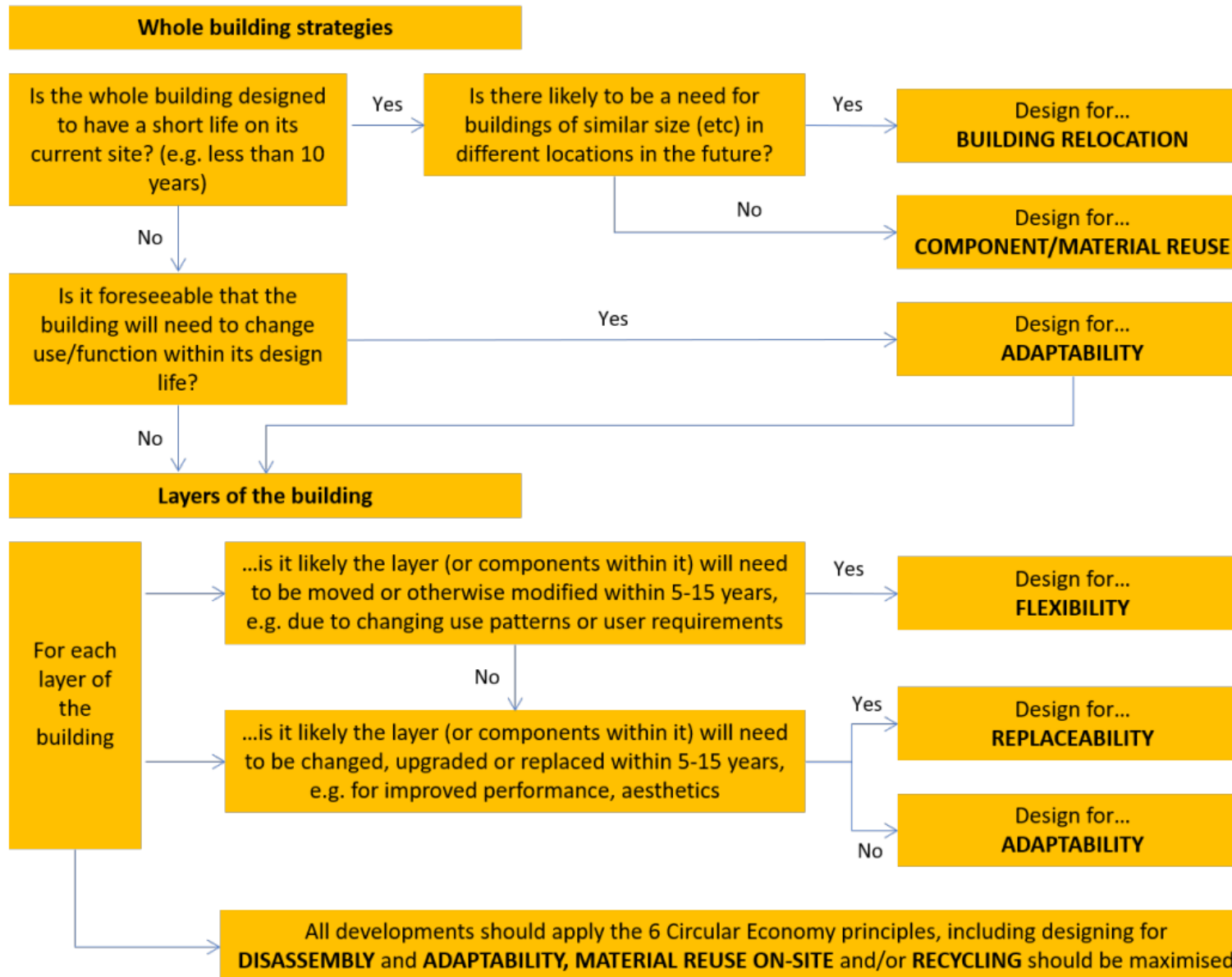


Figure 4: Decision tree for the design approach for new buildings over the lifetime of the development (GLA CE Guidance)



3.2.1 Design Approach for Existing Elements

The following sections set out the strategic approach in line with the decision tree shown in **Figure 3**.

Retain and Retrofit

The existing foundations on site, consisting of piles and ground beams, will be retained as part of the substructure strategy for the proposed development. Some strengthening will be required in the form of pile caps, further ground beams, and ground bearing slab.

It is therefore anticipated that limited, if any, disassembly and demolition will be required. These approaches are therefore not considered further in line with the decision tree.

3.2.2 Design Approach for New Construction

This section considers how the proposed development will be optimised in terms of material efficiency and circular economy.

Following the design tree in **Figure 4**, it is not anticipated that the development will have a short lifespan or major change of use over its design life. The following sections therefore focus primarily on longevity, flexibility, replaceability and adaptability.

Longevity

To ensure that circular economy principles are embedded within the design and construction

process, the development aims to meet long term needs while being durable and resilient.

As part of the detailed design, Sheppard Robson will review durability and resilience of the development materials and components in line with the BREEAM Mat 05 Designing for Durability and Resilience criteria.

Flexibility

New developments should be designed to allow easy rearrangement of its internal fit-out and arrangement to suit the changing needs of occupants. PBSA developments typically require less flexibility, as generally the needs of students are consistent over time, although the ground floor currently includes a multifunctional adaptable space.

Replaceability

Replaceability should be considered at building layer level (e.g., skin/structure/services) to facilitate easy removal and upgrade of elements on a part-by-part basis.

The building façade will be maintained through the implementation of a trolley system along the parapet. 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.

Furthermore, the interior of the PBSA will be designed for ease of maintenance and replacement.

Such measures could include fitting carpet tiles rather than a continuous carpet, so that sections can be replaced when needed rather than the whole carpet with associated resource consumption and waste generation benefits.

Furthermore, hard floor finishes such as vinyl and/or tiles will be specified in circulation areas associated with high pedestrian usage. The benefits of these material types include being easier to clean than carpets, and individual tiles can be replaced if damaged.

Adaptability

Buildings should be designed with thought of how they could be easily altered to prolong life, for instance by alteration, addition, or contraction, to suit new uses or patterns of use.

A Disassembly and Adaptability Assessment will be undertaken by Sheppard Robson in line with the BREEAM Wst 06 Design for Disassembly and Adaptability criteria. The assessment will consider the feasibility of adopting different strategies in the future, such as change of function, change of performance, and change in climate.

3.3 Targets for Resource Efficiency

The following table sets out a number of high-level commitments and targets for Echo Street to reduce carbon emissions associated with resource usage during construction and operation, thereby supporting MCC's carbon neutral ambition.

These commitments will be developed further at detailed design with the main contractor.

Commitment	Target / Metrics	Responsibility	Implementation
Minimise carbon emissions and environmental impact of new materials	Optimise structural materials including floor slabs, foundations, and columns <u>BREEAM</u> Mat 01 Environmental Impacts from Construction Products - Building LCA Wst 01 Construction Resource Efficiency	Structural Engineer Main Contractor	The project team will endeavour to reduce carbon, informed by a Life Cycle Assessment options appraisal. This exercise will identify carbon 'hotspots' and any measures which could reduce these emissions, particularly those associated with construction and materials.
	100% timber to be FSC certified <u>BREEAM</u> Man 03 Responsible Construction Practices Mat 03 Responsible Sourcing of Construction Products	Main Contractor	The main contractor will ensure that all temporary and permanent timber used at Echo Street is FSC certified (or equivalent).
	Procure materials with recycled content where possible <u>BREEAM</u> Mat 01 Environmental Impacts from Construction Products - Building LCA	Main Contractor Sheppard Robson Apex	As outlined above, an LCA options appraisal will be undertaken to inform ways in which embodied carbon can be reduced. Where possible, materials with recycled content will be procured. Such materials could include steel, concrete, plasterboard, and internal finishes.
	Materials will be sourced in accordance with the Sustainable Procurement Plan <u>BREEAM</u> Mat 03 Responsible Sourcing of Construction Products	Main Contractor	The main contractor will procure materials in line with the Sustainable Procurement Plan produced by the project team.

Commitment	Target / Metrics	Responsibility	Implementation
Minimise the quantities of other resources used during construction and operation	Reduce water usage by 25% against the baseline target <u>BREEAM</u> Wat 01 Water Consumption (1 credit)	Waterman iQ (Operator) Sheppard Robson	In line with BREEAM New Construction 2018 Wat 01 Water Consumption credit issue, water usage of sanitary fittings will be limited to reduce water consumption by 25% against the baseline target. This improvement will be achieved through specifying: - Reduced flush WCs - Restricted shower flow rates - Restricted and/or automatic shut off taps - Water efficient kitchen equipment
	Reduce regulated carbon emissions during operation <u>BREEAM</u> Ene 01 Energy Performance Ratio	Watermans	The scheme will achieve a 2.4% reduction in carbon emissions against Part L 2021, which was introduced in June 2022 and equates to a circa 27% improvement over Part L 2013. The proposed development incorporates an all-electric building services strategy. Space heating, cooling and hot water will be provided by air source heat pumps in the form of a Variable Refrigerant Flow (VRF) system which is an energy efficient low carbon technology. The all-electric strategy will ensure the development benefits from ongoing grid decarbonisation, supporting net zero carbon in operation. Furthermore, a solar PV array is proposed at roof level to meet a portion of energy demand on site.
	Reduce resource (water, electricity, and diesel) consumption during construction <u>BREEAM</u> Man 03 Responsible Construction Practices	Main Contractor	Environmental targets for Echo Street will be set prior to start on site, monitored monthly, and reported against key performance indicators on SmartWaste software (or similar). This initiative reduces carbon emissions from alternative fuels such as diesel and reduces negative impacts on local air quality.

Commitment	Target / Metrics	Responsibility	Implementation
Minimise carbon emissions associated with the replacement and disposal of materials	Specify materials which can be reused at end-of-life / deconstruction	Sheppard Robson Main Contractor	Many elements of the design can be reused or recycled at end of life. These materials include: – Steel – can be melted and recycled. – Plasterboard – Can be directly recycled by manufacturers via take back schemes. – Concrete – crushed and recycled directly on site. – Floor finishes – carpet tiles can be refurbished and re-used, providing low-cost flooring to households and charities. The main contractor will avoid permanent fixing of products, such as by glue to enable end of life deconstruction and salvage of building elements.
	Specify durable materials to reduce replacement and maintenance emissions <u>BREEAM</u> Mat 05 Designing for Durability and Resilience	Sheppard Robson Main Contractor	By specifying durable and adaptable building products, the building's life can be extended. Sheppard Robson will complete an exercise to review durability and resilience of the development. Examples could include specifying robust interior finishes and protecting the façade / roof against environmental factors.
Design out construction, , excavation, and municipal waste arising	≤ 11.1 tonnes (or 13.3m³) construction waste generated per 100m² (GIA) <u>BREEAM</u> Wst 01 Construction Resource Efficiency	Main Contractor	The proposed approach to management of construction waste is to follow the waste and circular economy hierarchies. The proposed development will aim to minimise the total amount of construction waste produced on-site through best practice material handling procedures. The main contractor will produce a Site Waste Management Plan, outlining procedures for the reduction of construction waste generated. During construction, the team will work with suppliers to further investigate packaging reduction measures. Sub-contractors will be encouraged to reduce packaging waste and take unrequired materials back with them for reuse elsewhere.

Commitment	Target / Metrics	Responsibility	Implementation
Reduce construction waste	80% construction waste (by tonnage) diverted from landfill <u>BREEAM</u> Wst 01 Construction Resource Efficiency	Main Contractor	Careful segregation of waste will occur where space allows on site, which enables higher quality recycled materials and encourages local reprocessing. The main contractor will maximise site segregation of construction waste to enable local reuse of waste materials and increase the quality of recyclable materials. KPIs will be monitored via SmartWaste (or similar). The KPIs will include waste generation, segregation, and diversion from landfill.
Manage municipal waste	Meet the municipal waste recycling target of 50% <u>BREEAM</u> Wst 03 Operational Waste	Sheppard Robson iQ (Operator)	Appropriately sized recycling and general waste storage areas have been provided within the design of the PBSA, as detailed within the DAS. They are located for ease of access, both by building occupants and waste collection. The operator will work with tenants to ensure that internal waste bins are provided to encourage recycling. The management company would be responsible for the monitoring of recycling rates and promote actively high recycling rates in the building, e.g. by providing information on segregation.

4. Conclusion

The design of Echo Street embraces the principles of resource efficiency and circular economy, addresses the climate emergency, and supports Manchester City Council's ambition to become a zero-carbon city by 2038.

This Circular Economy Statement has been prepared to support the planning application to MCC and demonstrate how the proposed PBSA will deliver the principles of circularity as set out within national and GLA guidance (used in lieu of local policy).

From project conception, design decisions have been made to imbed circularity, improve resource efficiency, and reduce carbon emissions over the life of the development. The following circular economy targets have been proposed and will be monitored through the duration of the project:

- Reusing the existing substructure, saving a significant amount of demolition and construction waste, and new materials brought onto site.
- Design for longevity, flexibility, replaceability and adaptability.
- Optimise structural materials including floor slabs, foundations, and columns.
- Broadly aligning with RIBA 2030 Climate Challenge targets for embodied carbon target metrics.
- 100% timber to be FSC certified.
- Procure materials with recycled content where possible.
- Source material in accordance with the Sustainable Procurement Plan.
- Specify materials which can be reused after end-of-life / deconstruction.
- Specify durable materials to reduce replacement and maintenance emissions.
- Reduce water usage by 25% against the baseline.
- Reduce regulated carbon emissions during operation by meeting Part L 2021 and exceeding it where possible.
- Incorporating an all-electric building services approach with on-site energy generation, benefitting from ongoing grid decarbonisation and supporting net zero carbon in operation.
- Reduce resource (water, electricity, and diesel) consumption during construction.
- ≤ 11.1 tonnes (or 13.3m^3) construction waste generated per 100m^2 (GIA).
- Divert 80% construction waste (by tonnage) from landfill.
- Meet the municipal waste recycling target of 50% by providing appropriate refuse storage and encouraging best practice during building operation.

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