



ELEMENT
SUSTAINABILITY

1NQ, TARIFF STREET MANCHESTER

CIRCULAR ECONOMY STATEMENT ADDENDUM REPORT

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1. INTRODUCTION

Element Sustainability have been commissioned by Marco Living 2 Ltd and Axis RE Ltd to develop a Circular Economy Statement for the new residential scheme, 1 NQ, Tariff Street in Manchester.

The purpose of this statement is to outline the Circular Economy measures that will be integrated with the design of the proposed development for both buildings and the public realm. This Circular Economy Statement should be read in conjunction with the Environmental Standards Statement.

This statement will demonstrate Marco Living 2 Ltd's and Axis RE Ltd's commitment to circular economy in practice, as well as highlight how the development seeks to reduce its carbon emissions and waste footprint through the principles of circular economy, in line with local and national guidance.



2. POLICY AND GUIDANCE

2.1 Local Planning Policy

2.1.1 Manchester Core Strategy

Manchester's Core Strategy was adopted on 11th July 2012. The strategy sets out the long term strategic policies for Manchester's future development and will form the framework that planning applications will be assessed against.

Although there is no specific policy on Circular Economy within the Core Strategy, the following policies have been reviewed to ensure that the *intent* behind the principles of circular economy, namely resource conservation and climate change mitigation, have been captured within the design of the development. These policies, that have been considered relevant for the purpose of developing this statement are:

- **Policy EN4 – Reducing CO2 Emissions by Enabling Low and Zero Carbon Development** calls for the use of sustainable building materials with low embedded carbon
- **Policy EN19 – Waste** calls for proposals to demonstrate their alignment with the Waste Hierarchy principles. In addition, the policy requires the provision of sustainable waste management measures that promote a close-loop system.

2.1.2 Greater Manchester Joint Waste Development Plan (2012)

The Plan's objective is for the movement of waste up the waste hierarchy in order to maximise the diversion of waste from landfills. In addition, the Plan recognises the need to adapt to climate change through measures that seek to improve energy efficiency and reduce carbon dioxide (CO₂) emissions.

2.1.3 Places for Everyone Joint Development Plan Document (Emerging Policy)

The Draft 'Places for Everyone' (PfE) Plan is a new long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been prepared by the GMCA on behalf of these nine districts.

The Draft Plan will determine the kind of development that takes place across the city-region, maximising the use of brownfield land and urban spaces while protecting green belt land from the risk of unplanned development. It will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

On 1st March 2022, the Secretary of State appointed three planning inspectors to conduct an independent examination of the Places for Everyone Joint Development Plan Document. It is therefore considered that the Plan is in an advanced stage of preparation.

One of the Plan's ambitious targets is to create a circular and zero waste economy through its **Policy JP – 7 Resource Efficiency**, which calls for:

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 Zero Waste Strategy is also currently in development and will expand upon the measures that developments will need to comply against to demonstrate evidence of circular economy and zero waste principles.

A final policy of note within the Draft Places for Everyone Development Plan, **Policy GM-S 2 Carbon and Energy**, will prescribe developments to include a carbon assessment to demonstrate how the design and layout of the development sought to maximise reductions in whole life CO₂ equivalent carbon emissions.

2.2 Best Practice Guidance

2.2.1 The Waste Hierarchy

The Department for Environment, Food and Rural Affairs (DEFRA) provides guidance on applying the waste hierarchy for any kind of business or development that generates, handles or treats waste.

The Waste Hierarchy is a tool that ranks waste management options (top to bottom) from what is the best option for the environment (prevention) to the least preferred option (landfill disposal).

Figure 2.1 - DEFRA Waste Hierarchy Model



Source: www.defra.gov.uk

2.2.2 Circular Economy Principles for Building Design

The European Commission issued the Circular Economy – Principles for Building Design guidance in 2020 to present a set of principles for stakeholders within the built environment sector. The objective of these principles was to help design sustainable buildings with the aim to create less waste during the lifecycle of the development and facilitate the reuse and recycling of materials.

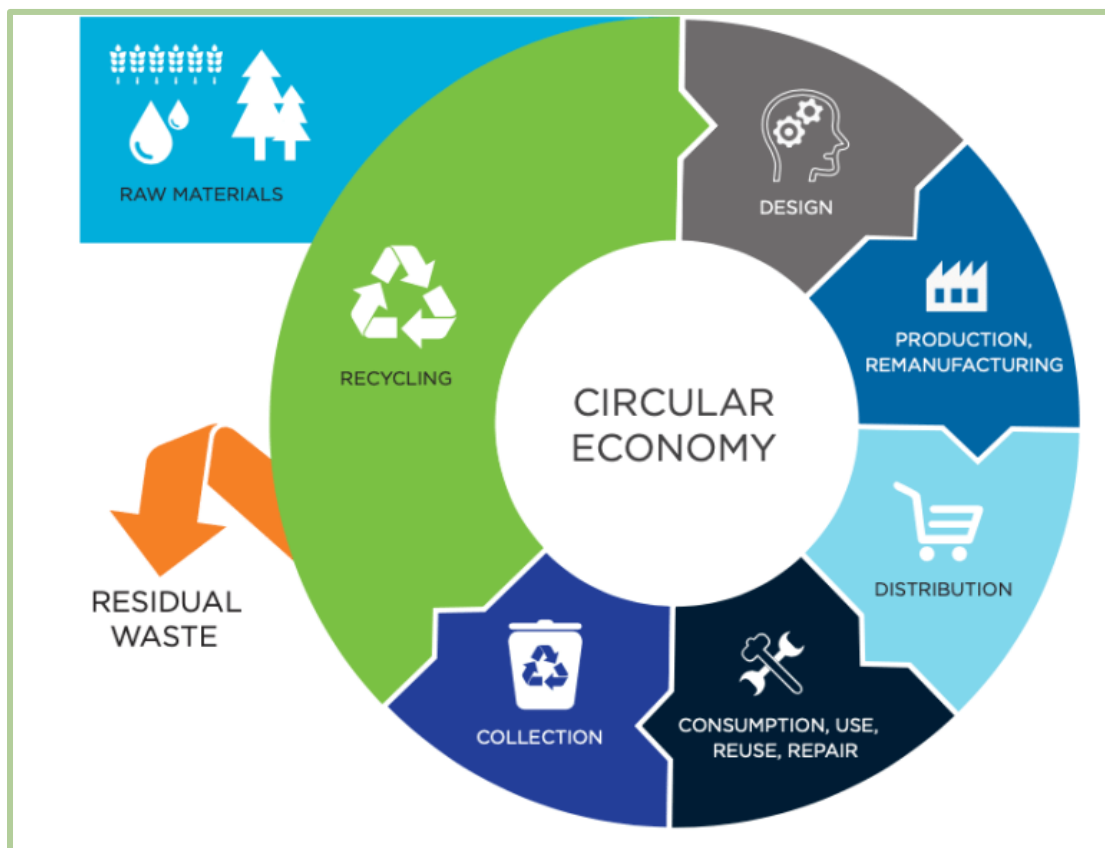


The core principles relate to:

- **Durability:** buildings to be better designed and improved construction systems that can extend the longevity of the materials;
- **Adaptability:** buildings to be adaptable for future transformations where the buildings and their components can be re-used and recycled; and
- **Management of Waste:** buildings to encourage occupants to be able to reuse, reduce, recycle and recover products where possible and using recycled products in construction.

Figure 2.2 presents these principles in action, where the input of raw materials is limited, and solutions are proposed for the output in terms of residual waste.

Figure 2.2 - Principles of Circular Economy



Source: Ellen McArthur Foundation, 2021

2.2.3 Mayor of London Circular Economy Guidance

The London Plan 2021, through its policy **S1 17 Reducing Waste and Supporting the Circular Economy**, requires all new developments to submit a Circular Economy Statement in their planning applications on a bid to transition to zero carbon city by 2030. To support this requirement, a guidance document (currently in draft) has been developed to help developers outline their circular economy commitments as well as structure their circular economy statements for planning approval. Whilst the 1 NQ, Tariff Street residential scheme is not located within the Greater London area, the guidance set out within this document is currently the industry best practice relating to circular economy and as such will be used to inform the circular economy commitments for this development.



2.3 Key Objectives

This Statement has drawn from the guidance provided and has applied the following key objectives that underpin and support the principles of circular economy:

- Conserve resources, increase efficiency and source sustainably;
- Design to eliminate waste (including design for adaptability); and
- Manage waste sustainably (all streams of waste).



3. CIRCULAR ECONOMY STATEMENT

3.1 Circular Economy Principles

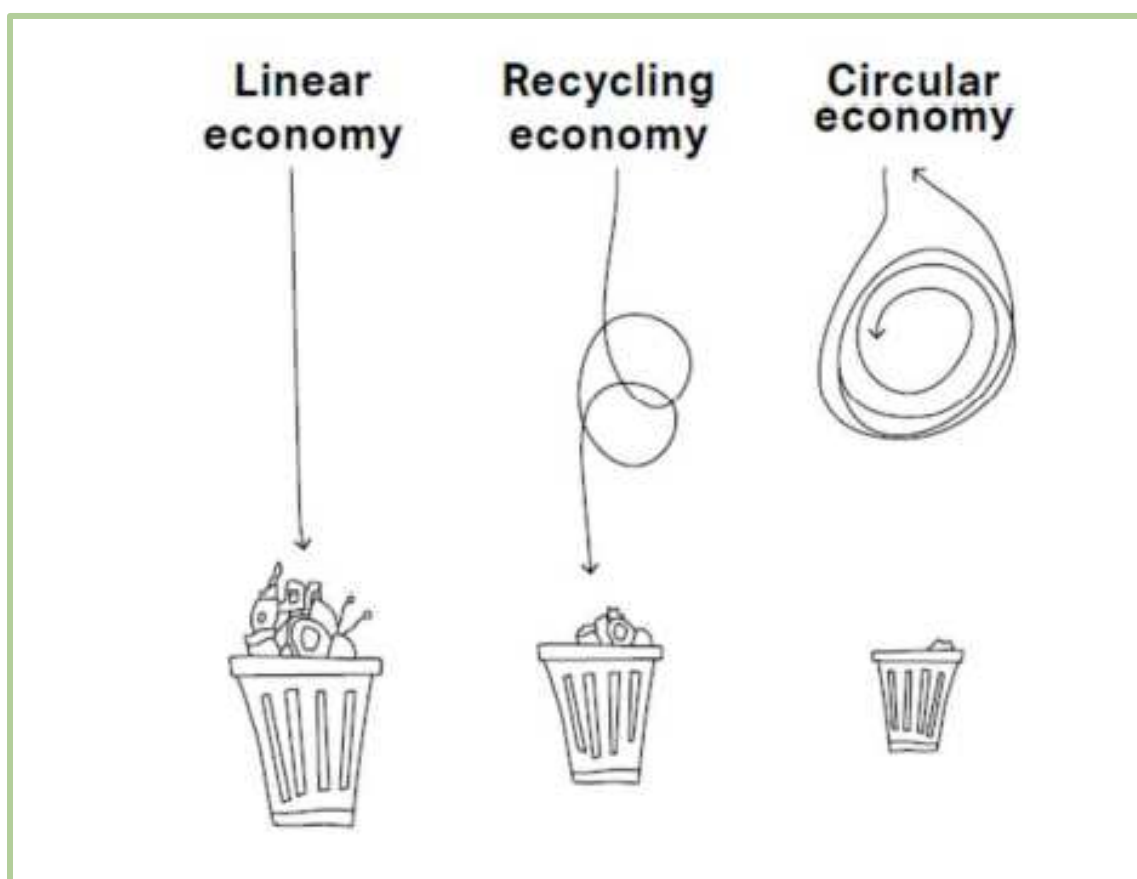
Circular Economy (CE) is typically defined as a closed-loop system where resources are retained for as long as possible and re-used and recycled continuously so that there is minimal or zero waste sent to landfill.

Often the by-product of one material becomes the raw material for another activity, so that there is a reduced demand for additional resource inputs, and as a result a smaller carbon footprint. It is envisaged that the emerging Places for Everyone Plan in Manchester will seek to follow the same pathway, especially given the city's aspirations for becoming zero carbon by 2038.

A Circular Economy differs significantly from a linear one, where often resources are used inefficiently and are sent to landfill, or when resources are recycled but eventually still end up in landfill.

Figure 3.1 below shows the three types of economies and highlights the transformational change that need to be considered in the design of new developments.

Figure 3.1: A comparison of linear, recycling and circular economy models



Source: Mayor of London Circular Economy Guidance, 2021



3.2 Circular Economy Principles at Tariff Street

This Statement has been prepared in line with international and national best practice and aims to reflect the following key principles of circular economy (CE), which have been included within the design of the development.

Table 3.2 – Key Principles of CE at Tariff Street

Key Principles of Circular Economy
Materials: • Reduce demand for materials and minimise quantities used • Reduce demand for the quantity of other resources – energy, water etc. • Source materials responsibly and sustainably Design: • Design for longevity, adaptability or flexibility and reusability or recoverability Waste Management: • Reduce (and manage) the amount of waste generated, from: ○ Demolition; ○ Excavation and construction activities; and, ○ Operational activities.

3.3 Materials

3.3.1 Reduce Demand for Materials and Minimise Quantities Used

During the early design stages, the project team committed to delivering a sustainable and resource efficient development. The following measures have been specified to help deliver a scheme that will prioritise reducing material demand and minimising quantities used in line with the waste hierarchy:

- Excavated material (such as soil and substructural elements) from construction and demolition works will be used, where practical, for landscaping purposes and within the public realm;
- The structural design of the residential tower blocks have been optimised to reduce the quantity of concrete used on site;
- Robust materials such as permeable paving, block paving and stone will be utilised for hard landscaping therefore, minimising the frequency of replacement and maximising materials optimisation and extending replacement intervals;
- Where possible, precast concrete will be used to minimise the amount of concrete used during construction; and,
- The demolition of a derelict building within the site boundary to the northeast will be required for the development. Through use of a demolition audit, where possible, existing materials from the derelict building will be reused to reduce the demand for new materials during construction.



3.3.2 Reduce Demand for the Quantity of Other Resources

The below section provides an appraisal of the specific approach, design features and specifications which will contribute to reducing the demand for various resources. Key specifications, site characteristics and design measures of the proposed development are considered below. These will help to reduce the demand for the quantity of non-material resources throughout the development's operational lifecycle.

Reduced Demand for Energy

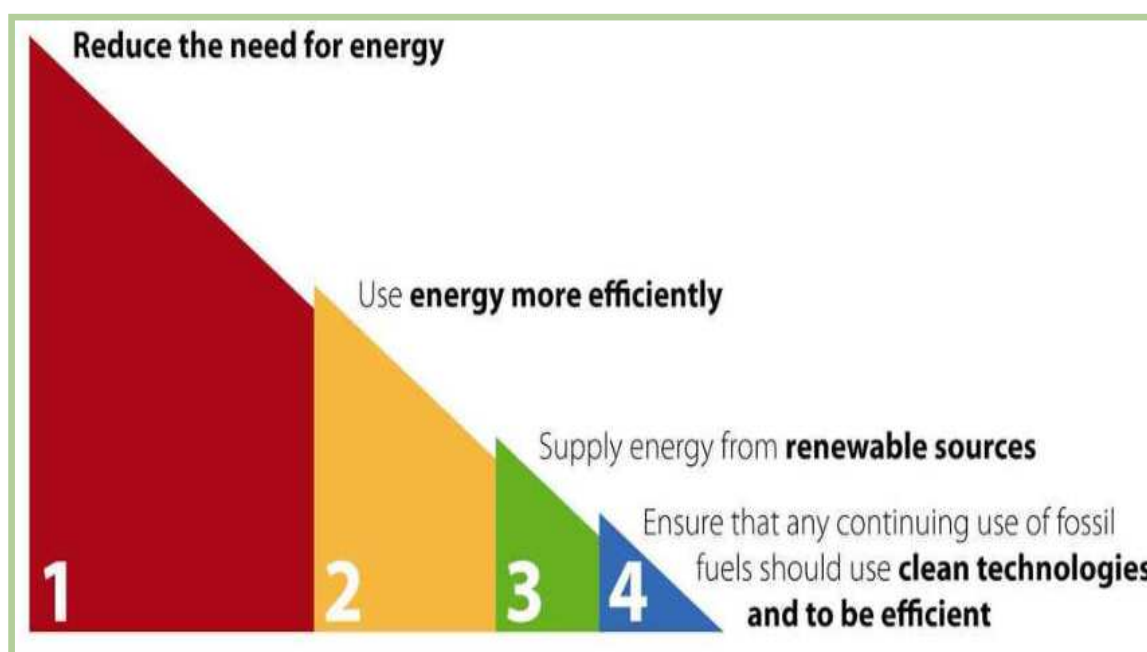
The energy strategy for the proposed development looks at a number of improvements in the building fabric, as well as the installation of energy efficient systems that will contribute to the reduced demand for energy.

The following measures have been specified:

- High performance thermal insulation;
- Low air permeability;
- Heat recovery ventilation systems (MVHR);
- High efficiency electric panel heaters;
- Sophisticated heating controls; and,
- 100% low energy and/or LED internal lighting.

The Energy Hierarchy has been used as a framework to guide this energy strategy to achieve practical and cost-effective carbon emission reductions. It is intended that the construction, design and specification proposed for this scheme will deliver dwellings that are inherently efficient and cost-effective during occupation. The hierarchy prioritises such demand-side activities to reduce wastage and improve efficiency (see Figure 3.2).

Figure 3.2 – The Energy Hierarchy



Reduced Demand for Water

The proposed development will be designed to reduce mains/potable water consumption and will include the following water efficient design and equipment:

- 'A' rated appliances will be used for dishwashers and washing machines (where provided) for their water saving capabilities;
- Specification of efficient water fixtures throughout the scheme (low flow taps and showers, dual flush WCs and low volume baths); and,
- In order to reduce water demand, the sanitary fixtures will be specified to achieve a calculated daily consumption of <110 litres/person/day.

Reduced Demand for Other Resources

The proposed 1 NQ, Tariff Street development makes use of previously developed land (an existing car park). As a result, no virgin land will be altered during construction and there will be minimal disruption to the existing landscape

In addition, the development will be car-free, with secure cycle provision being provided for each apartment instead. This, coupled with the site being located within an urban centre, in a highly sustainable location; particularly in relation to distance to amenities, key pedestrian routes, rail, and bus transport nodes, will mean that there will be a reduced need for residents to own cars. These factors will result in lower carbon emissions being produced from the development's operation.

3.3.3 Source Materials Responsibly and Sustainably

This development will contribute towards the responsible and sustainable sourcing of materials in the following ways:

- Materials will be responsibly sourced from suppliers operating an Environmental Management System or procuring timber verified by either the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification standard (PEFC);
- A commitment has been made with Manchester City Council to maximise the use of local labour force, where possible, via a Local Labour Agreement; and,
- Construction materials will be sourced locally where feasible and viable, which will minimise the impact of carbon dioxide emissions associated with the transportation of materials.

3.4 Design

3.4.1 Design for Longevity, Adaptability or Flexibility and Reusability or Recoverability

The development has been designed with the aim of the being able to meet long term needs of its occupants whilst being durable and resilient to any internal or external pressures. To achieve this, the following actions will be implemented:



- Given the future climate change projections, dense urban areas such as Manchester are expected to face the risk of the Urban Heat Island (UHI) effect. To help protect and reduce the development's contribution towards the urban heat island effect passive cooling measures such as trees and shading will be implemented;
- Materials will be specified to be recyclable and detachable where feasible and practicable; and
- Materials will be procured that adhere to specified durability standards to protect the developments external surfaces. The aim being to extend replacement intervals.

3.5 Waste

3.5.1 Reduce (and Manage) the Amount of Waste Generated

Demolition Waste

The demolition of the derelict building on the northeast of the site will provide an opportunity for the reuse of materials on site.

A pre-demolition audit, conducted in compliance with the waste hierarchy, will be completed to accurately gauge what materials from the building will be viable for reuse within the development. Any materials procured from the demolition that are deemed to be unsuitable for reuse on-site will be considered for reuse elsewhere, before finally being recycled at an appropriate recycling facility if deemed unusable.

Excavation and Construction Waste

Prior to commencement of the construction phase, a site waste management plan (SWMP) will be produced by the developer to limit and manage the on and off-site waste produced through development construction. The SWMP will detail:

- Recycled and secondary materials;
- Waste reduction;
- Waste segregation;
- Waste recovery; and,
- Waste disposal.

This scheme will promote the minimisation of waste arising and seek to maximise the use of recycled materials in construction. The site waste management plan will identify opportunities and divert any unusable construction waste away from landfill to a waste transfer station, where it will be segregated into:

- Recyclable materials;
- Metal;
- General waste and debris; and,
- Hazardous waste

On-site excavation will be required to allow for the development's foundations to be constructed. Spoil from the excavation (such as soil) will be reused on site where feasible and diverted away from landfill to a waste transfer station where unfeasible.



Operational Waste

The operational waste strategy for the scheme focuses on the segregation of waste at source, in order to maximise the potential for residents and visitors to recycle in accordance with Manchester City Council Core Strategy Policy EN19.

The proposed strategy has been developed in compliance with the above policy:

- Waste will be segregated at source with the help of segregated bins. It is expected that there will be multiple streams of waste – general, recyclables and compost / green waste;
- Residents will be required to take their waste (via lifts) to the refuse store on the ground floor;
- The number of bins and subsequently the size of the refuse store is based on waste generation figures for each apartment;
- Signage will be posted across the development to show the location of the bins and information on recycling will be provided to all occupants of the scheme.
- The management company will be responsible for transferring the waste from the refuse store to a hardstanding service area on the day of collection by refuse operators; and
- Following collection, the bins will be returned to the refuse store.



4. CIRCULAR ECONOMY MONITORING FRAMEWORK

A monitoring framework has been developed which outlines the objectives that this Circular Economy Statement has established. A number of key activities have been proposed which will be benchmarked against each objective. The person(s) responsible for delivering the evidence supporting the activities and the project's lifecycle stage in which these activities will be carried out has also been assigned in the table below.

Table 5 – Monitoring Framework for Tariff Street Development

Objective	Activity	Lead / Responsibility	Timeline
Reduce demand for materials and minimise quantities used.	Issue a Pre-Qualification Questionnaire (PQQ) to check compliance of suppliers with the Developer's Circular Economy commitments. Bill of Materials to benchmark quantity of recycled content and re-used building materials.	Developer / Construction Contractor	Pre-Construction to Post-Completion
Source materials responsibly and sustainably.	Request for Environmental Product Declarations (EPD) for recycled products, and products with low embodied carbon.	Developer / Construction Contractor	Pre-construction to Construction Phase
Reduce the amount of construction waste.	Construction Environmental Management Plan, with a Construction Waste Management Strategy to maximise diversion of construction waste from landfills.	Construction Contractor	Construction Phase
Reduce the amount of operational waste.	Operational Waste Management Plan. Recycling facilities.	Operator	During occupancy
Reduce the Quantity of Other Resources	Site Visit and ESS Verification to record progress of the sustainability measures proposed.	Developer / Operator	Practical Completion



5. CONCLUSION

The design proposed for the 1 NQ, Tariff Street development has been assessed against the key principles of Circular Economy, which have been influenced by national guidance and local planning policy framework. These principles were based around the following criteria:

Materials:

- Reduce demand for materials and minimise quantities used
- Reduce demand for the quantity of other resources – energy, water etc.
- Source materials responsibly and sustainably

Design:

- Design for longevity, adaptability or flexibility and reusability or recoverability

Waste Management:

- Reduce (and manage) the amount of waste generated, from:
 - Demolition;
 - Excavation and construction activities; and,
 - Operational activities.

The development will meet the above criteria through the following measures:

- Materials with a low environmental impact, which are responsibly and locally sourced will be prioritised during development. Furthermore, where possible, existing materials from the to be demolished derelict building will be reused to reduce the demand for new materials during construction;
- The enhanced fabric and mechanical specification coupled with the installation of water efficient systems will ensure that the proposed development has a smaller carbon footprint due to reduced operational resource consumption;
- The development has been designed for longevity, flexibility and adaptability through use of detachable and durability standard materials. In addition, mitigation measures to reduce the impact of climate change and the Urban Heat Island Effect have been considered;
- Waste arising during demolition, construction, and excavation will be minimised through the implementation of a Waste Management Plan (WMP). The WMP will be used to ensure that there is adequate management and storage of demolition/construction waste takes place. Opportunities for the possible recycling of construction from excavation works will also be considered in line with best practice.
- The implementation of the operational waste strategy has been designed to encourage the occupants to segregate their waste at source and maximise the potential for recycling.

In conclusion, the 1 NQ, Tariff Street development is aligned with the principles of Circular Economy, accords with national best practice and supports the vision for Manchester City to become a zero-waste city in the near future.

