Manchester (Port Street) Limited

CIRCULAR ECONOMY STATEMENT

Post Construction Statement



JUNE 2026

PUBLIC

Manchester (Port Street) Limited

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Post Construction Statement

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APPENDICES

1 INTRODUCTION

1.1.1. The circular economy is an innovative approach that aims to redefine traditional models of production and consumption by fostering sustainable resource use, minimising waste, and maximising the longevity and utility of materials and products. Unlike the conventional linear economy, which follows a 'take, make, dispose' pattern, the circular economy focuses on designing out waste, keeping products and materials in use for as long as possible, and regenerating natural systems. This model encourages practices such as reusing, repairing, refurbishing, and recycling, ultimately contributing to environmental resilience and resource efficiency.

1.1.2. A Circular Economy Statement (CES) is a critical component in the development of new infrastructure. A CES provides a transparent account of how circularity principles have been integrated into the design and delivery process of the development. By demonstrating the strategies employed to reduce resource consumption, manage waste sustainably, and extend the lifecycle of building elements, the CES assures stakeholders that environmental considerations have been prioritised. It also helps to fulfil regulatory requirements and aligns the project with broader – and local - sustainability objectives, serving as a benchmark for responsible development and continuous improvement.

1.1.3. WSP has been commissioned to develop a post-construction CES on behalf of Manchester Port Street Ltd, with consideration to the proposed residential development at Port Street (as described in Section 2).

1.1.4. This CES is submitted to satisfy Conditions 12 and 13 being:

Condition 12: *"the development hereby approved shall be carried out in accordance with the targets set out within the "Affinity Living, Port Street, Manchester Energy Statement" by Futureserv dated November 2021, and "AFFINITY LIVING, PORT STREET, Sustainability Statement" by WSP dated December 2021, and, "ES Climate Change Chapter (6)", all stamped as received on 13-12-21".*

Condition 13: "*Prior to above ground works, a feasibility study considering the measures detailed in tables 6.22 and 6.23 contained within the ES Climate Change Chapter (6), will be submitted for approval to the local authority. A post construction statement shall be submitted within 12 months of occupation of the development."*

1.1.5. The CES reports against the targets and commitments that were identified for adoption across the evolution of the design within the previous detailed CES which was developed for the development in August 2023.

1.1.6. The structure of this post-construction CES reflects best practice[1] and is as follows:

- Development Description;

[1] This Circular Economy Statement reflects the structure and content of the Greater London Authority which has provided guidance to the development of Circular Economy Statements. This is available online at: https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance/circular-economy-statement-guidance This approach was approved by Planning Building Control and Licensing - Growth and Development, Manchester City Council on 14th February 2025.

- Circular Economy Statement;
- Circular Economy Target Reporting;
- Circular Design Principles by Building Layer;
- Bill Of Materials;
- End Of Life Deconstruction Strategy;
- Waste Management Plan;
- Recycling And Waste Reporting; and
- Lessons Learnt and Key Achievements.

Circularity at Port Street: At a glance

Circular economy principles have been deeply embedded into the design and construction of Port Street. The collective team of Designers, Architects, Engineers, Procurement teams and Project Managers have each ingrained circularity into all decisions including concept design, detailed design, sustainable material selection, procurement, modern methods of construction and handover. Examples are shown below which demonstrates the comprehensive considerations taken by the project team and the range of outcomes delivered.

Examples are shown below and discussed in detail throughout this CES.



Refuse: In working with existing site levels Port Street has designed out additional excavation works and material arisings.



Reduce: Clever use of internal footprint has created productive use of the basement level, reducing the building footprint.



Durability: The site incorporates design decisions that ensure hard wearing and long lasting properties e.g. kickplates and hard wearing tiles.



Efficient routing of electrical and plumbing servies reduce material use



Exposed Services enable non-disruptive maintenance, repair and replacement.

2 DEVELOPMENT DESCRIPTION

2.1.1. The Development is known as Port Street.

2.1.2. The Development consists of "*part-33, part-11 storey residential building with associated residents' amenity space including gym (Use Class C3), commercial space (Use Class E), basement car parking, cycle parking, landscaping, and other associated works"* as set out in the Planning Application (132489/FO/2021).

2.1.3. The site comprises of 0.48 hectares and is situated on the north side of Manchester city centre. It is classified as part of the Piccadilly Basin Strategic Regeneration Framework (SRF) area.



Figure 2-1 - Site plan of Port Street[2]

2.1.4. The site was previously brownfield land in the form of a surface level car park.

2.1.5. The Development comprises a 'ground plus 32-storey' residential tower (33 stories in total) with a podium level containing 477 residential units, residential amenity as well as commercial uses and underground car parking. The final design was influenced by numerous factors including wind microclimate, public realm provision and the potential impact on the townscape and visual character of the area. The Development is described below in Table 2.1 and mapped against the final constructed area.

[2] *OnePortStr-Manchester.com*

Table 2.1 – Original and Actual Development Details.

Measurement	Proposal	Actual
Site Area	0.48 hectares	0.48 hectares
Development Floorspace	48,870 sq, (GIA)	48,870 sq, (GIA)
Residential (Use Class C3)	Total: 477 homes 1 Bed 1 person (2.9%) 1 Bed 2 persons (29.4%) 2 Bed (65.6%) 3 Bed (2.1%) Residential Amenity: 1167m2	Total: 477 homes 1 Bed 1 person (2.9%) 1 Bed 2 persons (29.4%) 2 Bed (65.6%) 3 Bed (2.1%) Residential Amenity: 1167m2
Commercial (Use Class E)	585m2	585m2
Height	Ground plus 32 storeys (+152.500m AOD)	Ground plus 32 storeys (+152.500m AOD)
External areas	2,005 m2	2,005 m2
Car and Cycle Parking Spaces	485 secure cycle parking spaces 38 car parking spaces (including 10 disabled spaces /10 EV charging, with all spaces future proofed for adaption)	485 secure cycle parking spaces 38 car parking spaces (including 10 disabled spaces /10 EV charging, with all spaces future proofed for adaption)

3 CIRCULAR ECONOMY STATEMENT

3.1.1. Circular Economy Statements are required at various stages of the Development. The structure, and content, are currently led by the London Plan (March 2022) Policy D3 'Optimising Site Capacity Through the Design-led Approach' and Policy SI 7 'Reducing Waste and Supporting the Circular Economy'. Engagement with Council Staff at Manchester Council has confirmed no additional requirements beyond those proposed in the London Plan.

3.1.2. CES are commonly developed at pre-application states, full application and post construction. Requirements of CES are shown in the table below.

3.1.3. This CES is provided at post-construction stage to report against the targets and commitments made in the previous, full application CES of August 2023.

Table 3.1 – Circular Economy Statement Requirements.

Requirement by application stage (see relevant section of guidance for more information)	Pre-application stage (suggested)	Outline application	Full application / reserved matters	Post-construction	Evidence of this requirement being met in this Circular Economy Statement
CE targets	Encouraged	Yes	Yes	Yes (Performance reported)	See Chapter 4
CE design approaches	Yes	Yes	Yes	N/A	See Chapter 5
CE design principles	Yes	No	No	No	See Chapter 5
CE design principles by building layer	No	Yes	Yes	No	See Chapter 5
Pre-redevelopment audit	Encouraged	Yes	Yes	N/A	N/A
Pre-demolition audit	Encouraged	Yes	Yes	N/A	N/A
Bill of materials/WLC	No	Yes (Estimated)	Yes (Estimated)	Yes (Actual)	See Chapter 6
End of life strategy	No	No	Yes	Encouraged	See Chapter 7
Operational waste	No	No	Yes	Encouraged	N/A

Requirement by application stage (see relevant section of guidance for more information)	Pre-application stage (suggested)	Outline application	Full application / reserved matters	Post-construction	Evidence of this requirement being met in this Circular Economy Statement
management plan					
Recycling and waste reporting	No	Yes (Estimated)	Yes (Estimated)	Yes (Actual)	See Chapter 8
Lessons learnt and key achievement	N/A	N/A	N/A	Yes	See Chapter 9

The remainder of this CES will demonstrate:

- **Circular Economy Target Reporting**: showing how the Developer has performed against earlier targets;
- **Circular Design Principles by Building Layer**: demonstrating the range of design and construction decisions taken that reflect circular design principles;
- **Bill Of Materials** showing the quantities of materials utilised across the Development;
- **End Of Life Strategy** showing how the Developers have collated key information to enable future dismantling, reuse and recycling of the building components;
- **Recycling And Waste Reporting** showing statistics on construction wastes; and
- **Lessons Learnt and Key Achievements** from site staff to highlight best practices and lessons learned for the use of other developers.

4 CIRCULAR ECONOMY TARGET AND COMMITMENT REPORTING

4.1.1. The design and construction team at the Development identified and committed to a series of targets and commitments at planning stage concerning material use and wastes.

4.1.2. These targets reflect both best practice as well as site specific opportunities, demonstrating attention given to circularity by the wide project team to match best practice whilst implementing tailored approaches to the site.

4.1.3. This section of the report examines the circular economy targets and commitments for Port Street. These are listed below in Table 4.1. Evidence to show how these targets have been achieved is provided where available both in this document and in the accompanying appendices.

4.1.4. Commitments which echo targets, but without metrics, are included in Table 4.2.

Table 4.1 - Targets for Port Street.

Category	Target at planning stage	Has this target been achieved?	Evidence proving target
Construction and demolition wastes	95 per cent reuse/recycling/recovery of construction and demolition waste	Achieved	Waste summary attached to the appendix C shows an overall recycling rate of 95%.
Beneficial use of excavation wastes	95 per cent beneficial use of excavation waste	Achieved	Excavation was extremely limited due to the existing levels on the site. Excavated material was reused as fill on site to create landscaping.
Reinforcing steel	Reinforcing steel will contain 90-95% recycled steel material, insofar as possible; any steel sourced from Electric Arc Furnace processes will comprise 100% recycled steel content.	Achieved	Celsa EPD attached to Appendix A showing recycled content in rebar.
Structural steel	The specification for the Development states that 100% of structural steel should, where possible, be sourced from either a BES 6001-Framework Standard for Responsible Sourcing - or an EMS certified supplier to a certification standard of “very good” with a minimum content from Responsible Steel™ Certified Steel (or equivalent) or Low Embodied Carbon Steel.	Achieved	Certificate proving structural steel complies with BES 6001 attached to Appendix A - **Expired Certificate**

Table 4.2 – Commitments for Port Street.

Category	Commitment at planning stage	Has this commitment been achieved?	Evidence proving target
Concrete	Concrete will be specified to be sourced in accordance with BES 6001-Framework Standard for Responsible Sourcing - level "very good" or equivalent.	Achieved	Heidelberg Materials - Certificate of Conformity showing compliance with BES 6001 provided in Appendix A.
Concrete	Use of Ground Granulated Blast-furnace Slag (GGBS) - in place of Portland cement - will be encouraged where available.	Achieved	Bill of Quantities attached showing 20% replacement of GGBS specified within elements provided in Appendix A.
Concrete	Embodied carbon of all concrete mixes to be provided by site contractors, in accordance with BS EN 15978:2011 Sustainability of construction works.	Achieved	Bill of Quantities and EPDs of cement mixes attached showing 20% replacement of GGBS specified within elements provided in Appendix A.
Aggregate	Recycled aggregates will be used where applicable and where permitted, in accordance with the Structural Specification for the Development.	Achieved	The Developer has confirmed that recycled aggregates have been used in piling mats and landscaping.
Masonry	Masonry will be specified to be sourced in accordance with BES 6001-Framework Standard for Responsible Sourcing - level "good" or equivalent.	Achieved	MichelMersch Certificate of Conformity of BES 6001 (Good) provided in Appendix A.
Masonry	Facing Bricks – MichelMersch Porcelain White Brick– compliant with BES 6001 Very Good Rating	Achieved	MichelMersch Certificate of Conformity of BES 6001 provided in Appendix A. (Good level)
Masonry	Embodied carbon of masonry will be provided by site contractors, in accordance with BS EN 15978:2011 Sustainability of construction works.	Achieved	Crest brick EPD provided in Appendix A. Evidence shows the embodied carbon of bricks.

Category	Commitment at planning stage	Has this commitment been achieved?	Evidence proving target
Masonry	Coloured Mortars – Tarmac Mortars – to be compliant with BES 6001 Excellent Rating	Achieved	Tarmac certificate showing BES 6001 Excellent Rating provided in Appendix A.
Masonry	Facing Bricks – Crest Buckingham Multi – whilst these materials do not hold BES 6001 certification; the Developer has produced a dedicated sustainability policy/statement	Achieved	Keystone's sustainability procurement policy attached to Appendix A
Masonry	Masonry Support – IG/ Keystone Group – whilst these materials do not hold BES 6001 certification; the Developer has produced a dedicated sustainability policy/statement and are seeking BES 6001 accreditation during 2024.	Achieved	Keystone's sustainability procurement policy attached to Appendix A
Reinforcing steel	Reinforcing steel will be specified to be sourced in accordance with BES 6001-Framework Standard for Responsible Sourcing - level "good", or equivalent.	Achieved	Certificate proving reinforcing steel complies with BES 6001 attached to Appendix A – Expired Certificate
Reinforcing steel	Reinforcing steel that is used across this Development will contain 90-95% recycled steel material, insofar as possible; any steel sourced from Electric Arc Furnace processes will comprise 100% recycled steel content. The volume and proportion of these elements, as a percentage of all steel used, can be calculated as the design evolves.	Achieved	Celsa EPD attached to Appendix A showing 85.7% recycled content in rebar

Category	Commitment at planning stage	Has this commitment been achieved?	Evidence proving target
Structural steel	The specification for the Development states that 100% of structural steel should, where possible, be sourced from either a BES 6001-Framework Standard for Responsible Sourcing - or an EMS certified supplier to a certification standard of “very good” with a minimum content from Responsible Steel™ Certified Steel (or equivalent) or Low Embodied Carbon Steel.	Achieved	Certificate proving structural steel complies with BES 6001 attached to appendix
Structural steel	Grade S355 steel will generally be adopted in the design and in accordance with the following technical delivery requirements unless otherwise specified: • BS EN 10 025 Hot rolled products of structural steels - Technical delivery conditions for non-alloy structural steels (Parts 2 to 6) • BS EN 10210-1 Hot finished structural hollow sections of non-alloy and fine grain steels; and • BS EN 10219-1 Cold formed welded structural hollow sections of non-alloy and fine grain steels).	Achieved	Certificate proving structural steel complies with BES 6001 attached to appendix
Timber	100% of timber used for formwork will be responsibly sourced and obtained from well managed forests/plantations in accordance with the laws governing forest management. Documentary evidence will	Achieved	Evidence from Irmass showing FSC certification attached in Appendix A.

Category	Commitment at planning stage	Has this commitment been achieved?	Evidence proving target
	be supplied as part of procurement practice.		
Policy EN 19	Require all developers, including those of new waste management facilities within the district, to demonstrate the proposal's consistency with the principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal)	Achieved	As set out across this CES, the Developer has worked extensively to implement circular solutions that prevent, reduce, reuse, recycle and recover materials. This spans design decisions as well as operational waste management decisions (see appendix for evidence of waste performance).
Policy EN 19	Require all developers to submit a waste management plan to demonstrate how both construction and demolition waste will be minimised and recycled on site wherever possible and how the sustainable waste management needs of the end user will be met.	Achieved	Waste Management Strategy demonstrates that wastes will be minimised and segregated for recycling by waste contractors. This was evidenced during a site audit visit by WSP (see photographs in Appendix).
Policy EN 19	Require waste management practices to have full regard to the environmental, social and economic impacts of such development and encourage long-term benefits in improving the environment, the regeneration of areas in need of investment and co-location with other employment uses where appropriate.	Achieved	Waste Management Strategy demonstrates efforts that ensure wastes are minimised and segregated for recycling by waste contractors. This was evidenced during a site audit visit by WSP (see photographs in Appendix).
Policy EN 19	Encourage communities to take responsibility for the waste they create through the provision of accessible facilities.	Achieved	Householders will be provided with recycling facilities in the individual apartments which will then be taken to onsite facilities for segregation and collection.

5 CIRCULAR DESIGN PRINCIPLES BY BUILDING LAYER

5.1.1. Applying circular design principles to the design, construction and operation of the Development can bring significant benefits.

- Maximising efficient use of material by eradicating unnecessary materials and designing for non-disruptive repair and replacement can reduce costs;
- Extending the lifespan of material by designing for durability can reduce costs associated with replacing damaged items;
- Eliminating and minimising waste (and subsequent disposal) will reduce potential polluting impacts to land, water, and air;
- The reduction in material and energy usage can reduce the embodied carbon impacts of buildings, which can in turn contribute towards the goal of achieving net zero carbon buildings and developments;
- Finally, the circular economy supports social equity through supporting local supply chains, and innovators, as well as in driving skills development and well-being.

5.1.2. To identify, implement and report against circular economy aspirations the GLA set out a framework of overarching design principles and commitments which seek to tease out decisions showing circular credentials. Each principle aligns to the Waste Hierarchy whereby avoiding or reducing waste is prioritised and sustainable resource management is considered good practice. The design principles are listed in Table 5.1.

Table 5.1 – CE Design Principles.

CE Design Principles	Description
Conserve resources, increase efficiency and source sustainably	Minimise the quantities of materials used
	Minimise the quantities of other resources used (such as technological assets)
	Specify and source materials and other resources responsibly and sustainably (including using locally sourced and recycled material)
	Reuse and retrofit of existing buildings
	Reuse of components and materials with minimal processing
	Material selection based on life expectancy of the building and embodied resource demands and/or maintenance requirements
	Efficient fabrication using modern methods of construction

CE Design Principles	Description
	Use of lightweight materials
Design to eliminate waste (and for ease of maintenance)	Design for longevity and durability
	Designing for adaptability and flexibility
	Designing for replaceability or disassembly
	Design out construction, demolition, excavation and municipal waste arising
	Design building shape and form for efficient material used during construction and operation
Manage waste sustainably and at the highest value	Manage/ minimise demolition and excavation waste
	Manage/ minimise construction waste
	Manage/ minimise municipal waste during operation, if applicable
	Minimise operational water use and other 'peripheral' materials during construction
Preserving and regenerating the natural environment	Use of materials that can be returned to natural nutrient cycles once their function has been fulfilled
	Use of carbon-absorbing materials

5.1.3. The design principles have been incorporated into Port Street's building design process through a range of design workshops initiated at the design stage, and continued across design and construction, to continue to identify, implement, and monitor adoption of circular opportunities.

5.1.4. To apply the design principles Greater London Authority (GLA) guidance recommends that building design and construction should follow a layered approach, where each layer has its own lifecycle and circular economy approach based on its respective function and expected lifespan.

5.1.5. Each layer should be independent, accessible, removable, and adaptable while retaining its value to support its reuse and recycling. Building layers include the site, façade, structure, substructure, building services, interior space, contents, and construction materials, each with a distinct lifespan as shown in Figure 5.1. The layered design of the building enables independent upgrades or replacements of the layers.

5.1.6. By considering the varied lifetimes of building components during the design process, the building becomes adaptable to different functions, typologies, volumes, and layouts, among others. Strict separation of building materials helps promote end-of-life strategies such as building and

componentry reuse (repurposing), upcycling and recycling of materials, and energy recovery - all aligning with the principles of Design for Disassembly and circular economy goals.

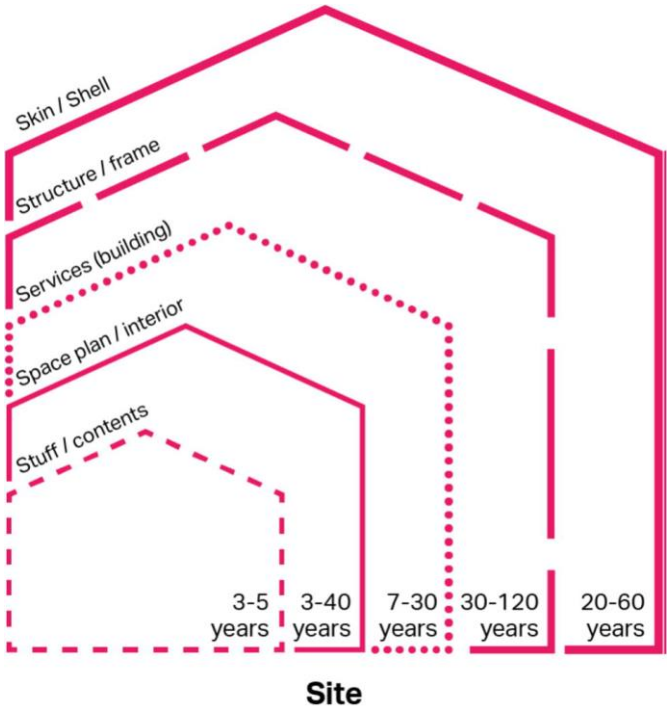


Figure 5.1 - Building layers and their indicative lifespans[3]

5.1.7. This section of the report explains what design decisions were implemented on Port Street to address the circular economy targets, commitments and design principles at each layer.

5.1.8. The developer has confirmed achievement of the design decisions. Where further evidence of this has been given, this is discussed below and evidenced in the Appendix.

5.2 CONSERVE RESOURCES, INCREASE EFFICIENCY AND SOURCE SUSTAINABLY

5.2.1. The tables below demonstrate example where the Development has incorporated decisions reflecting the design principle to conserve materials and to source materials through sustainable procurement practices, across relevant layers.

[3] Adapted from Figure 2 in Greater London Authority (2022) circular_economy_statements_lpg_0.pdf

Table 5.2 – Minimise the quantities of materials used.

Design Layers	Decisions
Skin / shell	The design avoids overspecification of components. The building is of a sleek design and avoids any intrusive design elements which impose on the local street or neighbouring buildings. Façade structures are simplified to avoid unnecessary complexity and use of materials. Windows are flush with the building to eradicate overhang which would demand significant materials.
Structure / Frame	Design avoids overspecification of components with grid frame systems minimising material use in the construction of the superstructure and substructure.
Services	Services are located centrally through the building cores and routed in the most efficient manner, taking the shortest route to minimise use of material. Stack transfers are avoided between apartments, minimising material use. Oversizing of services has been avoided where possible. The size and dimensions of services have been considered in the design to avoid excessive cut offs and wastage. *Evidence provided in appendix B shows central line plumbing and electrics running up the core of the building to minimise the need for complex routing to apartments.*
Space / interior	The Developer has made purposeful use of the basement level, which is commonly an underutilised space; the swimming pool, parking, bike storage and facility management storage spaces are all located within the basement footprint. *Evidence provided in appendix B shows the placement of the pool, parking and bike storage areas within the basement space.*
Contents	Apartment kitchens have been designed to suit the layouts in the most efficient manner, increasing in size only with the occupancy (1, 2, or 3 beds). *Evidence provided in appendix B shows the smart layout of kitchen spaces in a 2-bedroom apartment.*

Table 5.3 – Minimise the quantities of other resources used (e.g., technological assets).

Design Layers	Decisions
Skin / shell	The project's construction management plan included measures to reduce use of other resources including leasing of plant (opposed to ownership), just-in-time procurement, and waste segregation and recycling services. *Evidence provided in appendix B shows waste collections on site.*
Structure / Frame	
Services	Port Street features a combined ventilation system for the basement, which can be used for both environmental ventilation and smoke clearance when required. This removes the need for secondary infrastructure, reducing material use.
Space / interior	A skylight has been incorporated into the swimming pool, integrated within the landscape - providing natural light and reducing the need for artificial lighting.

	Apartments are provided with Juliet balcony access to maintain air flow and temperature, designing out the need for energy intensive air conditioning service. *Evidence provided in appendix B shows the inclusion of Juliet balconies within apartments.*
Contents	The building provides common facilities, such as a pool, gym and communal socialising areas which can be used by multiple individuals, reducing the need for residents to acquire their own equipment, demonstrating the circular principle of shared assets. *Evidence provided in appendix B shows swimming pool, gym and communal areas available for common use.*

Table 5.4 – Specify and source materials and other resources responsibly and sustainably (including using locally sourced and recycled material).

Design Layers	Decisions
Skin / shell **Structure / Frame**	Structural systems specified high recycled content in materials including steel, aggregates and cement to reduce primary material demand. Port Street reduced primary material demand by using recycled content such as GGBS in concrete where available and aimed for high levels of recycled content within reinforcing steel (ranging from 90-95% to 100% of recycled content). *Evidence provided in appendix A shows recycled content in materials including accreditation statements and supplier documentation.*
Services	Timber supplies were sourced from sustainable and accredited suppliers. *Evidence provided in appendix A shows that timber was sourced from accredited suppliers.*
Space / interior	Timber supplies were sourced from sustainable and accredited suppliers. *Evidence provided in appendix A shows that timber was sourced from accredited suppliers.*
Contents	Timber supplies were sourced from sustainable and accredited suppliers. *Evidence provided in appendix A shows that timber was sourced from accredited suppliers.*

Table 5.5 – Reuse of components and materials with minimal processing.

Design Layers	Decisions
Skin / shell	As the Development was situated on an existing car park, there was limited opportunity to recover and reuse existing materials. However, the use of crushed and graded demolition material from ground floor slabs was considered for use in the piling mat and in landscaping across the development. *Evidence provided in appendix B shows landscaping works including reused materials.*
Structure / Frame	
Services	
Space / interior	
Contents	

Table 5.6 – Material selection based on life expectancy of the building and embodied resource demands and/or maintenance requirements.

Design Layers	Decisions
Skin / shell	Rockwool insulation, and a low u value (as a measurement of thermal transmittance) have been installed across the scheme, which will reduce the energy consumption through the scheme lifespan. *Evidence provided in appendix B shows rockwool thermal insulation used on the external walls*
Space / interior	Natural and low-carbon materials with minimal processing were selected for elements in the Space of the building. For example, durable materials - like porcelain tiles - for reception and common areas, to withstand the high traffic demand have been specified which will significantly reduce the need for repair or replacement. *Evidence provided in appendix B shows hard wearing materials in hallways including use of porcelain tiles and kickplates.*

Table 5.7 – Efficient fabrication through the use of modern methods of construction (e.g., modular systems, precision manufacturing etc).

Design Layers	Decisions
Skin / shell	Resource-efficient methods of manufacturing such as off-site manufacturing / prefabrication were used for suitable elements of the Shell/Skin. The structural frame used in-situ concrete materials using recycled content and GGBS, where possible.
Structure / Frame	

Design Layers	Decisions
Services	Production-efficient methods such as off-site manufacturing were used for elements of the services (and space/interior), reducing material wastage that commonly arises with typical approaches to on-site fitting.

Table 5.8 – Use of lightweight materials.

Design Layers	Decisions
Skin / shell	Concrete grades were regularly reviewed to reduce the weight of reinforcement.
Structure / Frame	
Services	Lightweight plastic pipework was used within apartments, rather than copper.
Space / interior	Lightweight partitions were used within units and communal areas to minimise material use.

5.3 DESIGN TO ELIMINATE WASTE (AND FOR EASE OF MAINTENANCE)

5.3.1. The tables below demonstrate example where the Development has incorporated decisions that eliminate waste over the lifespan of the building and across relevant layers.

Table 5.9 – Design for longevity and durability.

Design Layers	Decisions
Skin / shell	Kick plates have been provided to the exterior of the Development to avoid damage to exterior walls. *Evidence provided in appendix B shows kickplates on external walls to protect the fabric of the building.*
Structure / Frame	In the Development, relevant superstructure elements that are not easily accessible have been constructed with generous corrosion protection, exceeding a 50-year life for predicted environmental conditions. Substructure elements cast against ground are designed for a working life of more than 50 years. Concrete element design meets an ‘At least 100 years’ designation in accordance with BS 8500 Concrete - Guidance and Specifications and e*vidence provided in appendix A shows BS standards from concrete suppliers.*
Space / interior	Double layer plasterboard has been installed in common areas for additional robustness

Design Layers	Decisions
Contents	Door stoppers are provided within the apartments to avoid damage to the doors/walls

Table 5.10 - Designing for adaptability and flexibility.

Design Layers	Decisions
Skin / shell	Higher cladding line loads have been used to allow for façade flexibility and the introduction of future technologies
Structure / Frame	A flat slab (with flat soffit) has been built to allow flexibility to change the services layout, if required in future Columns and foundations have been designed with spare structure capacity for one extra storey
Services	As a general principle. adaptability and flexibility have been considered for the design of the 'Services and Space' layouts to minimise waste generation during maintenance and future reconfigurations
Space / interior	A uniformly distributed load allowance has been made for non-structural partitions, so that in-resident layout can be changed in future. The floor-to-floor height has been designed for flexibility and future conversion, with consideration for both office and residential use
Contents	Open plan layouts have been designed to suit the variety in residents' lifestyles and use of spaces across the building lifespan. This open plan approach allows the spaces to adapt as residents' needs evolve

Table 5.11 - Designing for replaceability or disassembly.

Design Layers	Decisions
Skin / shell	The design considers future disassembly and recycling opportunities. The tower has been designed with modular items - such as unitised curtain walls - that can be easily replaced, upgraded and disassembled. The podium has also been designed with bricks that can be reutilised when replaced or dismantled.
Structure / Frame	
Services	The development uses a cold-water booster with four separate pumps. This means that, should one fail, the individual pump can be replaced rather than the whole unit. Internal access panels enable non-disruptive repair, upgradability and replacement of services throughout the building and in apartments. *Evidence provided in appendix B shows access panels throughout communal areas and within apartments.*

Design Layers	Decisions
Space / interior	The plasterboard used on internal walls and ceilings can be reutilised
Contents	Internal finishes and decoration, whilst high quality and durable, can easily be replaced and maintained if required i.e.: Luxury Vinyl Tile flooring (LVT), carpets, furniture, etc

Table 5.12 – Design out construction, demolition, excavation and municipal waste arising.

Design Layers	Decisions
Skin / shell	The design has considered the different levels already existing on site to minimise the excavation of materials. *Evidence provided in appendix B shows existing levels reused on site. No extensive excavation was required to create basement spaces as is common on other developments.*
Structure / Frame	
Space / interior	The swimming pool was designed within the basement footprint, but without encroaching the tower core foundations, reducing excavation depth. *Evidence provided in appendix B shows swimming pool located within the basement footprint.*

Table 5.13 – Design building shape and form for efficient material used during construction and operation.

Design Layers	Decisions
Skin / shell	Not applicable
Structure / Frame	The building's main tower floor plan and core wall arrangement have adopted a regular and repeated square shape which allows for efficiency in slab design, column design, stability, cladding uniformity and eliminates the need for transfer structures. The main tower core pile cap has been raised to the underside of the basement slab (typically set to the base of any lift shafts) and is designed as a 'donut' style cap to reduce excavation depths and improve efficiency in design. Floor slab analyses will allow for incremental deflections during design life (rather than making assumptions). This improves the efficiency of the slab and in turn reduces reinforcement requirements

Design Layers	Decisions
Services	The layout and shape of the building allow for central distribution of services, and the tall simplistic tower shape is very efficient for minimising services runs to each apartment. *Evidence provided in appendix B shows the central distribution of plumbing and electrical services.*

5.4 MANAGE WASTE SUSTAINABLY AND AT THE HIGHEST VALUE

5.4.1. The tables below demonstrate example where the Development has incorporated decisions that manage any arising wastes effectively and to the highest levels of the waste hierarchy, across relevant layers.

Table 5.14 – Manage/ minimise demolition and excavation waste.

Design Layers	Decisions
Structure / Frame	Use of crushed and graded material from the limited demolition or site preparation works were re-used in the temporary piling mat during construction. All efforts were taken to reuse the limited existing materials on the cleared site. Soil was reused on landscaping and, where necessary, the Developer ensured suitable treatment of hazardous soil where applicable by an authorised contractor. *Evidence provided in appendix B shows existing levels reused on site and landscaping. No extensive excavation was required to create basement spaces as is common on other developments.*
Services	Incoming services from the adjacent highway take the shortest route possible to minimise length of trench required to be excavated
Space / interior	Plasterboard wastes were taken to a Waste Transfer Station, by our Waste Contractor, and recycled where possible

Table 5.15 – Manage/ minimise construction waste.

Design Layers	Decisions
Skin / shell	The construction management plan outlined measures to minimise waste generation, reuse materials for temporary works, implement a clear labelling system for waste segregation, use just-in-time procurement, store materials correctly, utilise plasterboard recycling services, offer take-back schemes for packaging materials, and engage staff through training.
Structure / Frame	
Services	Wastes were segregated onsite and offsite by an authorised wastes contractor.

Design Layers	Decisions
Space / interior	*Evidence provided include waste reports demonstrating the segregation and recycling of wastes arising across the works.*
Contents	

Table 5.16 – Manage/ minimise municipal waste (and industrial waste) during operation, if applicable.

Design Layers	Decisions
Skin / shell	Waste was cleared daily to a main holding skip. The waste was segregated into five categories at an off-site waste transfer station; the categories were:
Structure / Frame	CAT A: Hazardous waste – Paint tins, mastic etc CAT B: Metal CAT C: Timber CAT D: Plasterboard CAT E: General Waste Waste collection suppliers sorted waste for recycling (providing relevant percentage data), and hazardous wastes were stored separately. *Evidence provided in appendix B shows waste bin located around site. Evidence also shows waste data reports provided by the authorised waste contractor.*
Services	The development is forecast to generate 120,000L and 133,000L of waste for residential and commercial uses, respectively; the main waste streams are expected to be general, dry mixed, glass, and organic recycling. Suitable waste containers will include 1,100L Eurobin and 240L wheeled bins, with 50% of these vessels designated for recycling. Council and private contractor collections will be used, and the building management company, Affinity Living, will monitor and promote high recycling rates by educating residents and placing recycling bins closer to access gates.
Space / interior	
Contents	

Table 5.17 – Minimise operational water use and other 'peripheral' materials during construction.

Design Layers	Commitments
Skin / shell	The construction management plan outlined measures to minimise waste generation, reuse materials for temporary works, implement a clear labelling system for waste segregation, use just-in-time procurement, store materials correctly on-site, utilise plasterboard recycling services, offer take-back schemes for packaging materials, and engage staff through training
Structure / Frame	
Contents	Sanitary fittings have flow restrictors fitted to limit the flow to 9l/m to each shower, 4.5l/m to each wash hand basin. The mechanical contractor has supplied and installed flow restrictors of 5.0l/m to each kitchen sink and all the accessible and adaptable apartment bathrooms.

5.5 PRESERVING AND REGENERATING THE NATURAL ENVIRONMENT

Table 5.18 – Use of materials that can be returned to natural nutrient cycles once their function has been fulfilled.

Design Layers	Commitments
Skin / shell	Port Street provides green roofing and landscaped areas, replacing the previous surface level carpark (hardstanding). *Evidence provided in appendix B shows ongoing landscaping works in preparation for final handover in December 2025.*
Space / interior	When timber resources reach the end of their lifespan, opportunities will be explored that allow for this material to be recycled where possible

6 BILL OF MATERIALS

6.1.1. A Bill of Materials (BoM) is a comprehensive inventory outlining the components, materials, and products required to construct any given building. It typically includes quantities and descriptions for each item, serving as a foundational document for procurement, construction, and maintenance.

6.1.2. By documenting the origin, composition, and intended use of materials, a BoM provides clear evidence of how resources are deployed throughout a building project. This enables stakeholders to assess the environmental impact of material choices, including embodied carbon, recyclability, and toxicity. When integrated with digital platforms or material passports, a BoM can track materials from cradle to grave or cradle to cradle, supporting informed decisions about reuse, refurbishment, or recycling at the end of the Development's life.

6.1.3. In circular economy terms, a BoM acts as a ledger of potential value recovery. It helps identify which materials may be available at disassembly, which components can be repurposed, and where closed-loop supply chains can be activated. This visibility supports circular outcomes such as reduced waste, extended product lifecycles, and regenerative resource flows. Ultimately, a well-structured BoM transforms a building from a static asset into a dynamic reservoir of materials, ready to be reintegrated into future projects.

6.1.4. The Bill of Materials for Port Street is shown below.

Table 6.1 – Bill of Materials.

S.N.	Material	Specification	Vendor	Actual Quantity	Unit	Application	Recycled material used (If any)	% of recycled material used
1	Concrete	Different grade and mix types	Hanson	20,608	m^3		GGBS	9.70%
2	Steel	Reinforcement for in situ concrete to BS4449, 4482, 4483 or 6744	NW Steel	2,999	Tonne	Sub Structure (15%), Basement (11%), Superstructure (73%)		95.00 %
3	Unitised curtain walling to Tower	Focchi Bespoke UCW	Focchi	11,572	m^2			
4a	Hot melt roof (Upper Roof's)	IKO Permatec	IKO	1,988	m^2			
4b	Hot melt roof (GF Podium)	Soprema Duoflex	Soprema UK	1,060	m^2			
5	Green Roofing	Sedum Blanket		402	m^2			
6	Glazing to Podium (Aluminium)	PURe system	Senior Aluminium	2,046	m^2			
7a	Stick Curtain Walling to Tower	Focchi Bespoke CW	Focchi	622	m^2			

S.N.	Material	Specification	Vendor	Actual Quantity	Unit	Application	Recycled material used (If any)	% of recycled material used
7b	Stick Curtain Walling to Podium	PURe system	Senior Aluminium	572	m^2			
8a	Brickwork	Buckingham Multi Blend 65mm	Crest	2,693	m^2			
8b	Brickwork	Porcelain White Smooth 65mm	MichelMersh	1,011	m^2			
9a	Blockwork (Below Dpc)	Solid Modulite Paint Grade 7.3N - 100mm	CCP	22	m^2			
9b	Blockwork (Ground & Basement)	Solid Modulite Paint Grade 7.3N - 100mm	CCP	1,997	m^2			
9c	Blockwork (Ground & Basement)	Solid Modulite Paint Grade 7.3N - 140mm	CCP	1,313	m^2			
10a	Steel Framing System (SFS) - Upper Floors	EOS Light Steel Infill Framing, through wall system comprising external 12.5mm Siniat Weather Defence Board & Mineral Wool Insulation	Remagin	3,983	m^2			
10 b	Steel Framing System (SFS) - Ground Floor	EOS Light Steel Infill Framing, through wall system comprising external 12.5mm Siniat Weather Defence Board & Mineral Wool Insulation	Remagin	749	m^2			
11a	MF Ceilings	MF Ceiling - GTEC standard board (12.5mm)	Siniat	28,914	m^2			

S.N.	Material	Specification	Vendor	Actual Quantity	Unit	Application	Recycled material used (If any)	% of recycled material used
11b	MF Ceilings	MF Ceiling - GTEC mr board (12.5 & 15mm)	Siniat	3,176	m^2			
11c	MF Ceilings	MF Ceiling - GTEC dB board (15mm)	Siniat	662	m^2			
12	Internal Dry Lined Walls	Various wall build-ups, 1 sided & partitioning providing 2 sides wall finish; GTEC various board finishes - Measure provided = plasterboard surface area	Siniat	115,188	m^2			
13a	Timber doors (Vicaima)	3D Dekordor	Vicaima	1,208	m^2			
13b	Timber doors (Paint Grade)	Ply faced Paint Grade Doorsets	Datim	4,810	m^2			
13c	Steel Security Doors	Steel Security Doorsets	Datim	16	m^2			
13d	Mesh Cycle Store Doors	Mesh Cycle Store Doorsets	Morgan Bros	16	m^2			
14a	Carpets (Apartment Bedrooms)	Apollo Elite, incl 9mm Tredaire Ambience underlay	Cormar	10,631	m^2			
14b	Carpets (Communal Corridors)	Interface Composure	DCT UK	2,976	m^2			
14c	Carpets (Amenity B, G & L7)	Carpet Tile, Industrial Landscape (Tom Dixon Range)	Ege Carpets	77	m^2			

S.N.	Material	Specification	Vendor	Actual Quantity	Unit	Application	Recycled material used (If any)	% of recycled material used
14 d	Gym Matting	Sportec Range & Powerturf	TVS Gym Flooring	98	m^2			
15	Laminate Flooring	12mm heringbone laminate, x-lock plank	Alsa Flooring	15,274	m^2			
16	LVT Flooring (Amenity B, G & L7)	2.5mm Dryback, Moduleo Roots	IVC Commercial	723	m^2			
17a	Porcelain Wall and Floor Tiles (Apartments)	Natural Rocks	Waxman Ceramics	13,461	m^2			
17 b	Porcelain Wall and Floor Tiles (Amenity G & L7)	Quaint, Lisbon & Synthesis Ranges	Waxman Ceramics	86	m^2			
17c	Porcelain Wall and Floor Tiles (Amenity Ground Floor)	Lithos Range	Domus Tiles	183	m^2			
17 d	Porcelain Wall and Floor Tiles (Amenity Pool Hall)	Union Stone	Domus Tiles	279	m^2			

S.N.	Material	Specification	Vendor	Actual Quantity	Unit	Application	Recycled material used (If any)	% of recycled material used
17e	Porcelain Wall and Floor Tiles (Amenity Pool Hall)	Norway More	Domus Tiles	29	m^2			
18	Skirting Board - timber	119x18mm mdf skirting		35,526	m^2			

7 END OF LIFE STRATEGY

7.1 DECONSTRUCTION STRATEGY

7.1.1. The Developers have commissioned a brief End of Life Deconstruction Strategy (see Appendix). This provides information that informs future contractors of opportunities to safely dismantle the Proposed Development for reuse and recycling.

7.1.2. At the time of writing, it is unknown what technology will be available to future contractors and recovery agents during actual deconstruction (potentially post-2090), however, proposed current potential options (2025) include:

- soft stripping of potential materials from the building including glass, cladding, gypsum boards, wood, flooring, service distribution cables and pipework, etc which will be suitable for recovery or reuse.
- demolition of the structure, from the top down, using conventional methodologies with all steel and concrete arisings processed for reuse or recycling.

7.1.3. Additional reports have been produced which detail how specific elements of the building can be carefully dismantled for reuse and recycling, including a glass replacement strategy by “Focchi” and can be provided upon request.

7.1.4. The remainder of this chapter details opportunities to reuse material from the site as well as to repurpose the building into other uses if no longer required for the purpose of apartments.

REUSE POTENTIAL

7.1.5. Recovery options have been developed and detailed for the Structure and Shell/ Skin.

7.1.6. The material recovery options listed in the Table below reflect current technologies and are intended as a guide. As these methods evolve, a new assessment will be needed at the end of each structure’s design life to ensure materials are recovered using best practices available.

Table 7.1 – Reuse potential at end of life.

Material/Waste type	Project Phase	Waste minimisation Option	Proposed waste management route	Comments
Concrete	Demolition	Segregate at source	Recycling	Concrete will be crushed to an approved specification to allow re-use as granular fill (Class 6F2 mixed or Type 1 pure concrete) Dependent on Site development plans; crushing can either be completed on-Site and re-used or sent to a crushing facility and sold as resource from there (Class 6F5)

Material/Waste type	Project Phase	Waste minimisation Option	Proposed waste management route	Comments
Tiles, ceramics and brickwork	Demolition	Segregate at source	Recycling	Tiles, ceramics and brickwork can be crushed with concrete for use as Class 6f2 OR 6f5
Brickwork	Strip out / demolition	Segregate at source	Reuse	Brickwork can be cleaned of the mortar and repurposed
Steel/rebar	Demolition	Segregate at source	Recycling	Structural steel members and reinforcing bar will be segregated by size and set for recycling at a suitably permitted facility
Wood	Strip out / demolition	Segregate at source	Recycling	Wood will be segregated and sent to a specialist recycling facility. The new regulatory position statement requires segregation of wood at source by grade and classification. The majority of timber is reused as chipboard with some grades us as energy from waste feedstock
Glass	Strip out / demolition	Segregate at source	Recycling	Glass will be segregated at source and sent to a specialist recycling facility that will need to consider the grade and classification of the waste stream. A specialist deglazing contractor may be employed to remove all glass that can be repurposed or recycled for a higher value
Plastics	Strip out / demolition	Segregate at source	Recycling/ Feedstock	Plastics will be segregated at source and set to an appropriately permitted facility. Subject to grade and classification plastics is recycled as pellets and alternative feedstock, with some plastic still entering landfill or energy from waste facilities

Material/Waste type	Project Phase	Waste minimisation Option	Proposed waste management route	Comments
Metals	Strip out / demolition	Segregate at source	Recycling	The majority of metals will be sorted at source by grade and classification and set for off Site recycling
Plasterboard	Strip out	Segregate at source	Recycling	Plasterboard will be kept clean segregated and sent to a specialist recycling for further processing as gypsum feedstock
Mixed Waste	Strip out	Mixed general waste	Recovery at transfer station	Mixed waste will be sent for recovery at a materials recycling facility where materials will be segregated into individual streams and sent to specialist recycling facility. The generation of mixed waste shall be minimised and discouraged

ADAPTABILITY OPTIONS FOR DWELLING SPACES

7.1.7. Port Street features a variety of apartment layouts with a consistent design strategy of open-plan configurations with consolidated and rationalised service stacks. This approach facilitates potential adaptability of the spaces into alternative uses. The Podium block is arranged in a linear format with a repetitive structural grid and uniform floor-to-floor heights. These characteristics make it well-suited for future adaptation into alternative uses such as a hotel or purpose-built student accommodation. Similarly, the Tower's layout and vertical circulation could support conversion into office space, offering long-term flexibility in response to changing market demands.

ADAPTABILITY OPTIONS FOR COMMERCIAL SPACES

7.1.8. The commercial units are designed as adaptable spaces capable of accommodating a variety of changing Class E business uses which will enable futureproofing to support changing business tenants. Multiple entrances have been incorporated to enable the subdivision or merging of units, offering flexibility in response to evolving needs. The units benefit from double-height volumes and sufficient depth to support potential conversion into residential accommodation however such a change would necessitate modifications to the façade to meet domestic requirements, including considerations for ventilation, fire compartmentation, and privacy.

ADAPTABILITY OPTIONS FOR BASEMENT SPACES

7.1.9. The basement area comprises a range of facilities including plant rooms, cycle storage, car parking bays, and a swimming pool. If the upper levels of the building are repurposed, the basement has the potential to accommodate this change. The plant rooms may be modified, parking provisions

adjusted, and additional amenities introduced including changing rooms, staff facilities, lockers, or laundry areas subject to the changing requirements of future users.

8 RECYCLING AND WASTE REPORTING

8.1.1. Accurate reporting of waste and recycling tonnages is a critical step in ensuring environmental accountability and regulatory compliance at the end of construction works. Construction activities generate significant volumes of waste from packaging and surplus materials to demolition debris, and, without precise measurement, it is difficult to assess the true environmental footprint of the Port Street Development. Transparent monitoring of waste management performance enables the Developer to quantify diversion from landfill, identify opportunities for reuse, and to benchmark performance against sustainability targets or industry standards.

8.1.2. In the context of a circular economy, this data plays a pivotal role in demonstrating efforts to move materials away from disposal, or recovery, and into valuable use through reuse and recycling channels, closing material loops and designing out waste. By capturing detailed waste and recycling figures, project teams can evaluate which materials were successfully recovered, which were lost to disposal, and how future Developments might improve resource efficiency. This feedback loop informs procurement strategies, encourages the selection of recyclable or reusable materials, and supports the development of take-back schemes or secondary markets for construction products.

8.1.3. This section summarises the actual recycling and wastes reported across the construction of the Port Street Development.

8.1.4. The project achieved a 95% recycling rate by tonnage, and a material breakdown is provided in the snapshot report below. A material specific record is included as appendix.

Figure 8-1 - Material recycling rates.

Item No:	Month:	Year:	Overall Tonnage	UoM:	Recycled Tonnage	UoM:	Overall Recycle Rate %
1	January	2024					
2	February	2024					
3	March	2024					
4	April	2024					
5	May	2024					
6	June	2024					
7	July	2024					
8	August	2024	203.1	Tonnes	195.37	Tonnes	96.19%
9	September	2024	150.9	Tonnes	143.93	Tonnes	95.38%
10	October	2024	280.9	Tonnes	270.28	Tonnes	96.22%
11	November	2024	218.4	Tonnes	206.88	Tonnes	94.73%
12	December	2024	131.7	Tonnes	125.05	Tonnes	94.95%
13	January	2025	179.4	Tonnes	169.36	Tonnes	94.40%
14	February	2025	187.6	Tonnes	177.35	Tonnes	94.54%
15	March	2025	222.1	Tonnes	209.64	Tonnes	94.39%
16	April	2025	169.4	Tonnes	159.74	Tonnes	94.30%
17	May	2025	155	Tonnes	145.90	Tonnes	94.13%
18	June	2025	217.5	Tonnes	207.45	Tonnes	95.38%
19	July	2025	145.6	Tonnes	139.07	Tonnes	95.52%
20	August	2025	212	Tonnes	202.90	Tonnes	95.71%
21	September	2025	201	Tonnes	192.60	Tonnes	95.82%
22	October	2025	206	Tonnes	197.30	Tonnes	95.78%
23	November	2025	27	Tonnes	25.90	Tonnes	95.93%
24	December	2025	121	Tonnes	118.25	Tonnes	97.73%

9 LESSONS LEARNT AND KEY ACHIEVEMENTS

9.1.1. Reflecting on completed construction projects is a vital practice for continuous improvement, enabling the teams involved in the design and construction of Port Street to capture lessons learned for application across future developments.

9.1.2. This process involves critically evaluating what worked well, what challenges arose, and how decisions impacted outcomes across cost, quality, time, and sustainability. By documenting insights from design, procurement, construction, and handover stages, teams involved in the Port Street Development, and those referencing this CES, can build institutional knowledge that strengthens resilience, reduces risk, and fosters innovation.

9.1.3. Lessons learned can reveal examples of positive outcomes in introducing design decisions that reduced material use, avoided wastes and reduced costs. The exercise can also identify inefficiencies in material selection, highlight missed reuse or recycling opportunities, and inform better integration of circular principles into future design and practices.

9.1.4. A workshop was held with the team across Port Street to identify both positive and challenging lessons learned from the design and construction of the development. This section summarises those lessons learned.

9.1.5. These consider design, procurement, construction, handover and end of life planning.

Table 9.1 – Lessons Learned.

Topic	Description of Lesson Learned or Best Practice	Actions taken	Results	Key takeaway
Supply chain engagement.	Early engagement with suppliers to discuss data requirements can ensure timely data provision to report against circular performance.	The team engaged with suppliers during works to detail data requirements e.g. confirming recycled content in supplies etc.	Early delays in obtaining data from suppliers. Following the actions taken, suppliers are aware of data requirements and provide this more effectively and efficiently.	Early engagement with suppliers is important to ensure they understand the data to be reported that enables monitoring against circularity requirements. Procurement specifications could include requirements for suppliers to provide data and evidence to support monitoring of circular economy commitments.
Local supply chains can reduce environmental impacts,	Use of local suppliers can reduce carbon emissions.	Some materials were originally due to be provided by suppliers in Italy. The developer has sourced local suppliers, reducing carbon miles.	Reduced carbon associated with transport whilst supporting local supply chains.	Exploration to local suppliers can deliver cost or environmental savings whilst supporting local businesses.
Using increased levels of recycled content.	Increased levels of recycled content in concrete could lead to that concrete underperforming against project requirements.	Concrete requirements were continually reviewed and agreed between designers and engineers. Where GGBS was included, greater curating time was enabled to enable the	Suitable levels of GGBS content were included within concrete. This was then monitored carefully to ensure required strength was achieved.	Ensure that programmes incorporate adequate time for curating the GGBS content, with a testing programme in place to ensure required strength is achieved.

Topic	Description of Lesson Learned or Best Practice	Actions taken	Results	Key takeaway
		concrete to achieve required strength. Early engagement with the substructure team had to respecify concrete to reflect target recycling rates.		
Take back agreements with suppliers to remove surplus supplies and packaging materials.	Takeback schemes can reduce wastes remaining on site for management by the Project Manager. This can return material to the supplier for reuse. Takeback schemes also reduce costs associated with the collection and management of wastes.	The kitchen installers were appointed with an agreement to remove surplus materials and packaging from site. Pallets were also taken back by suppliers.	This reduces the volumes of wastes arisings on site with material instead being taken by suppliers for reuse or recycling. The associated waste management costs are avoided.	Ensure procurement agreements include take back agreements for surplus and spent supplies, and for packaging materials.
Just in time deliveries to minimise material use and wastes.	The project's construction management plan included measures to reduce use of other resources including just-in-time procurement.	Deliveries of supplies were carefully planned on a floor-by-floor basis to minimise storage space required and risk of damage, loss etc. Dry liners for plasterboard were allocated careful quantification of boards which reduce wastes.	Minimal to no materials were lost to damage, theft or weather damage as a result of the careful procurement programme adopted.	Early and consistent engagement with procurement teams, and Project Managers, can create a delivery schedule that reduce the need for storage space on tight sites, whilst reducing costs associated in replacing damaged or lost supplies stored on site for significant time.

Topic	Description of Lesson Learned or Best Practice	Actions taken	Results	Key takeaway
Leasing of plant opposed to purchase and ownership.	The procurement team leased plant from local suppliers reducing the costs and impacts associated with the purchase, maintenance and transport of plant that would have been procured for full ownership.	The procurement team leased plant as appropriate across the project.	Costs were reduced due to the lack of capital expenditure. Leased plant were serviced and maintained by the supplier, avoiding risks and impacts of plant failure. Plant would then be returned to the supplier when no longer needed. This approach also supports local suppliers in the area.	Encouraging the procurement team to lease from local suppliers can reduce costs and support local businesses.
Working with existing site levels can reduce excavation wastes and programme impacts.	Using existing site levels can reduce excavation wastes and material use.	The team utilised existing site levels, using land gradients to embed basement level facilities, designing out additional excavation works and material arisings.	This design decision avoided the need for extensive digs that would generate excess wastes for treatment. This also enabled the team to use the existing site to embed basement level communal facilities.	Using existing site topography can deliver material and waste savings whilst delivering valuable space for resident facilities.
Clever use of internal footprint can maximise the value of floorspace.	The developer made productive use of the development's internal footprint to add resident facilities including a communal pool, bike	To enable maximum use of the basement space, the developer removed a section of block wall to enable movement of material into the space that	Increased cost.	Careful consideration of the overall footprint can enable incorporation of resident facilities at the earliest design stages. In doing this, careful programme planning

Topic	Description of Lesson Learned or Best Practice	Actions taken	Results	Key takeaway
	parking facilities and storage facilities.	was then used to construct the communal pool. A sophisticated winch system was used to manoeuvre materials, such as the stainless-steel panels, through the roof light area.		can then identify solutions – such as use of the (as yet uncovered) roof light area – as a means to move supplies into the appropriate space as needed; failing to consider the construction programme use of the roof winch in this way would otherwise have complicated installation of the pool.
Off-site manufacturing can reduce wastes.	The team sourced pre-manufactured solutions to minimise preparation and assembly required on site, reducing wastes associated with production as well as health and safety risks to staff e.g. injuries associated with manufacturing/building products on site.	Resource-efficient methods of manufacturing such as off-site manufacturing / prefabrication were used for suitable elements of the Shell/Skin. Door sets were delivered to site pre-assembled. The pool was manufactured offsite as stainless steel panels and welded into place onsite. Internal wall panels were manufactured offsite and precut.	Reduction in wastes associated with production and manufacture of components onsite e.g. offcuts, surplus wastes, damaged components etc.	Consideration to components that can be manufactured offsite and easily assembled onsite can reduce wastes (and waste management costs) associated with production and assembly.

Topic	Description of Lesson Learned or Best Practice	Actions taken	Results	Key takeaway
Corrosion protection can extend the lifespan of components.	Corrosion protection to hidden components or those exposed to challenging conditions can extend the lifespan of components.	In the Development, relevant superstructure elements that are not easily accessible have been constructed with generous corrosion protection, exceeding a 50-year life for predicted environmental conditions. The pool presents a high chlorine environment which required special protection on the metal materials in the space; this extended to 50 years.	Durable components will have a long lifespan avoiding the costs, materials and wastes associated with replacing these at earlier intervals.	Careful consideration and acknowledgement of challenging environments can help identify solutions to extend the lifespan of components and materials.
Designing for disassembly.	The design considers future disassembly and recycling opportunities.	The tower has been designed with modular items - such as unitised curtain walls - that can be easily replaced, upgraded and disassembled	Components can be easily dismantled for reuse, recycling or repurposing at end of life.	Careful consideration to the materials adopted now, and the construction processed deployed, can ready the site for reuse and recycling solutions at end-of-life stage.

APPENDICES

A. Evidence
B. Onsite CE Principles
C. Waste Summary
D. GLA CE Excel Template
E. Technical Note - Port street post construction CE template

APPENDIX A – EVIDENCE

Target evidence	What it shows
Appendix 1 to Certificate No CPRS 00001 Issue No: 13 **Heidelberg Materials** **Second Floor, Arena Court, Crown Lane, Maidenhead, Berkshire, SL6 8QZ** Scoring Table:	Heidelberg Materials Certificate of Conformity against BES 6001
	Evidence from Irmass showing FSC certification

Section		Score					
		C	1	2	3	4	5
4.2	**Organisational Management Requirements**						
4.2.1	Responsible sourcing policy	C					
4.2.2	Compliance obligations	C					
4.2.3	Management systems & operational management of responsible sourcing	C					
4.2.4	Procurement & supplier management system	C					
4.3	**Supply Chain Management Requirements**						
4.3.1	Quality management systems in the supply chain	C					
4.3.2	Environmental Management systems in the supply chain	C					
4.3.3	Health & Safety Management systems in the supply chain	C					
4.4	**Requirements Related to The Management of Sustainable Development**						
4.4.1	Greenhouse Gas Emissions	C					
4.4.2	Energy Use	C					
4.4.3	Resource Use and Product Circularity	C					
4.4.4	Waste Prevention and Waste Management	C					
4.4.5	Water Usage or Abstraction	C					
4.4.6	Life Cycle Assessment (LCA)	C					
4.4.7	Ecotoxicity	C					
4.4.8	Transport Impacts	C					
4.4.9	Biodiversity & Site Stewardship	C					
4.4.1	Human Rights and Modern Slavery	C					
4.4.10	Business Ethics	C					
4.4.12	Employment & Skills	C					
4.4.13	Local Communities	C					

Key		Points Scored	
		Possible clause score	
	C	Compulsory	
Total Section Score	C+	Sections 4.2 and 4.3	15
	C+	Section 4.4	32
Overall Rating		**Excellent**	

In accordance with the scheme requirements, CPC must be notified of any changes in circumstances so that the certification details can be amended.

CERTIFICATE

CERTIFICATION CODE: CU-COC-806248

Field of attention:
FSC® Chain of Custody (COC)

Issued to:
Irmass Company Ltd
Manchester, GREAT BRITAIN
Project in: GREAT BRITAIN

Standard:
FSC-STD-40-004 V3-0 Chain of Custody Certification;, FSC-STD-50-001 V2-0 Requirements for use of the FSC trademarks by Certificate Holders;

Valid until: 06 March 2027

The validity of this certificate shall be verified on http://info.fsc.org/

Control Union Certifications declares to have inspected the article, and/or products of the above mentioned certificate holder, and have found them in accordance with the standards mentioned above.

This certificate covers the article, and/or product(s) as mentioned in the authenticated annex of this certificate. A full list of product groups covered by the certificate can be found on the FSC database of registered certificates (http://info.fsc.org).

This certificate itself does not constitute evidence that a particular product supplied by the certificate holder is FSC-certified (or FSC Controlled Wood). Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents.
This certificate remains in force until further notice, provided that the participant continues to meet the conditions as laid down in the client contract with Control Union Certifications B.V. and verified in inspections by Control Union Certifications B.V.

Date of certification:
07 March 2022
Place and date of issue:
Zwolle, 10 March 2022

CERTIFICATE No: C 806248CU-COC-01.2022
REGISTRATION No: CU 806248

Declared by:

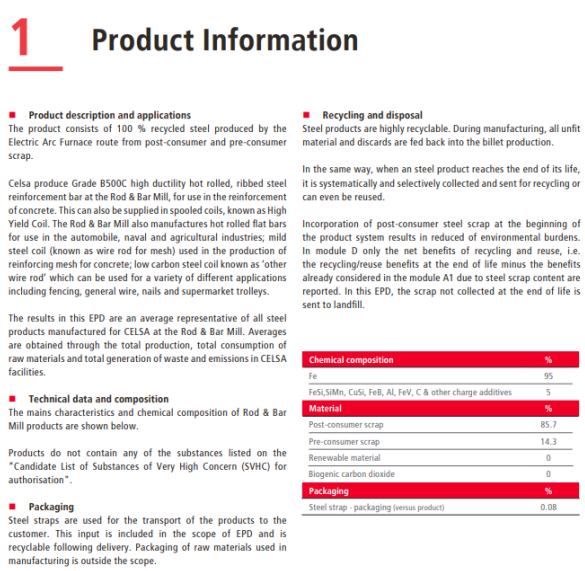
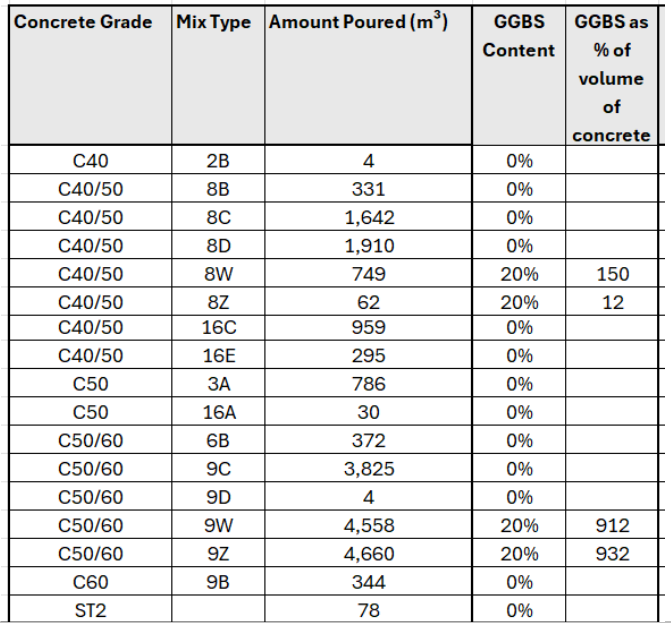
On behalf of the Managing Director

Mr. G Stegeman

Certifier
Control Union Certifications B.V.
Meeuwenlaan 4-6
8011 BZ ZWOLLE
The Netherlands
http://www.controlunion.com
tel.: +31(0)38-4269100

FSC
www.fsc.org
FSC® A000507

The mark of responsible forestry

Target evidence	What it shows
	Celsa EPD showing 85.7% recycled content of rebar
	Extract of Bill of Quantity showing GGBS content in concrete

1 Product Information

Product description and applications

The product consists of 100 % recycled steel produced by the Electric Arc Furnace route from post-consumer and pre-consumer scrap.

Celsa produce Grade B500C high ductility hot rolled, ribbed steel reinforcement bar at the Rod & Bar Mill, for use in the reinforcement of concrete. This can also be supplied in spooled coils, known as High Yield Coil. The Rod & Bar Mill also manufactures hot rolled flat bars for use in the automobile, naval and agricultural industries; mild steel coil (known as wire rod for mesh) used in the production of reinforcing mesh for concrete; low carbon steel coil known as 'other wire rod' which can be used for a variety of different applications including fencing, general wire, nails and supermarket trolleys.

The results in this EPD are an average representative of all steel products manufactured for CELSA at the Rod & Bar Mill. Averages are obtained through the total production, total consumption of raw materials and total generation of waste and emissions in CELSA facilities.

Technical data and composition

The mains characteristics and chemical composition of Rod & Bar Mill products are shown below.

Products do not contain any of the substances listed on the "Candidate List of Substances of Very High Concern (SVHC) for authorisation".

Packaging

Steel straps are used for the transport of the products to the customer. This input is included in the scope of EPD and is recyclable following delivery. Packaging of raw materials used in manufacturing is outside the scope.

Recycling and disposal

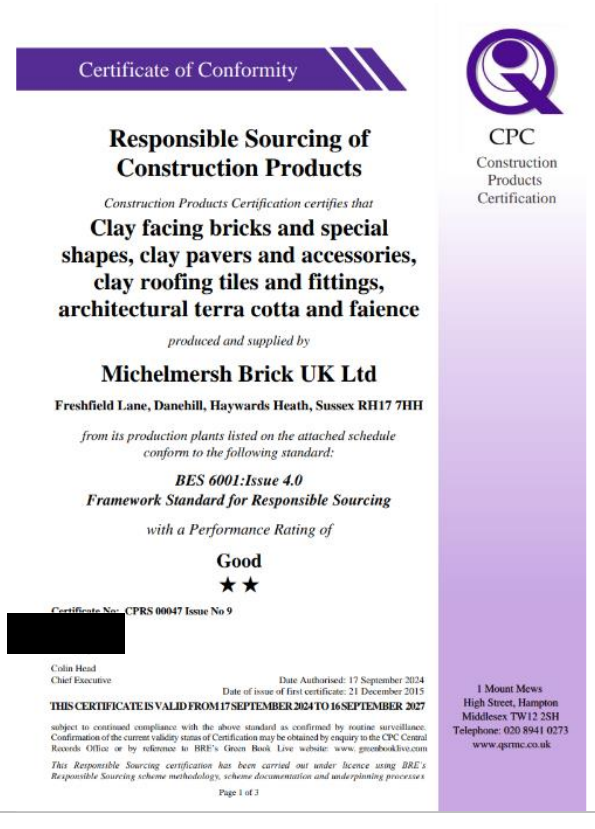
Steel products are highly recyclable. During manufacturing, all unfit material and discards are fed back into the billet production.

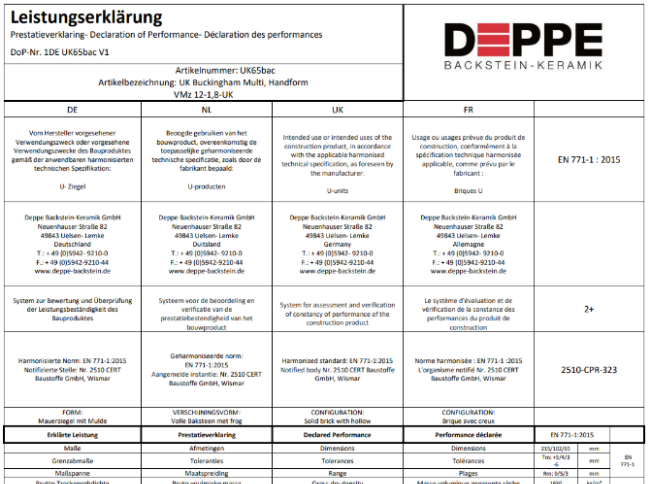
In the same way, when an steel product reaches the end of its life, it is systematically and selectively collected and sent for recycling or can even be reused.

Incorporation of post-consumer steel scrap at the beginning of the product system results in reduced of environmental burdens. In module D only the net benefits of recycling and reuse, i.e. the recycling/reuse benefits at the end of life minus the benefits already considered in the module A1 due to steel scrap content are reported. In this EPD, the scrap not collected at the end of life is sent to landfill.

Chemical composition	%
Fe	95
FeSi,SiMn, CuSi, FeB, Al, FeV, C & other charge additives	5
Material	**%**
Post-consumer scrap	85.7
Pre-consumer scrap	14.3
Renewable material	0
Biogenic carbon dioxide	0
Packaging	**%**
Steel strap - packaging (versus product)	0.08

Concrete Grade	Mix Type	Amount Poured (m^3)	GGBS Content	GGBS as % of volume of concrete
C40	2B	4	0%	
C40/50	8B	331	0%	
C40/50	8C	1,642	0%	
C40/50	8D	1,910	0%	
C40/50	8W	749	20%	150
C40/50	8Z	62	20%	12
C40/50	16C	959	0%	
C40/50	16E	295	0%	
C50	3A	786	0%	
C50	16A	30	0%	
C50/60	6B	372	0%	
C50/60	9C	3,825	0%	
C50/60	9D	4	0%	
C50/60	9W	4,558	20%	912
C50/60	9Z	4,660	20%	932
C60	9B	344	0%	
ST2		78	0%	

Target evidence	What it shows
	Crest Brick EPD
	**Michelmersh brick Certificate of Conformity against BES 6001**

Target evidence	What it shows
	Certificate confirming Tarmac hold a BES 6001 Excellent Rating
	Crest Buckingham Multi Brick statement

bsi.

Certificate of Registration

Responsible Sourcing of Products

This is to certify that:

Tarmac Cement & Lime Limited
Part of Tarmac Holdings Limited
T3, Ground Floor
Trinity Park, Bickenhill Lane
Solihull
Birmingham
B37 7ES
United Kingdom

Holds Certificate Number: BES 573009

and complies with the requirements of BES 6001: Issue 4.0 – Framework Standard for the Responsible Sourcing of Products for the following scope. This responsible sourcing certification has been carried out under licence using BRE's responsible Sourcing scheme methodology and underpinning processes.

Cementitious Products - performance rating Excellent.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2011-03-10
Latest Revision Date: 2024-02-07

Effective Date: 2024-02-08
Expiry Date: 2027-02-07

Page: 1 of 4

...making excellence a habit.

Leistungserklärung

Prestatieverklaring- Declaration of Performance- Déclaration des performances

DoP-Nr. 1DE UK65bac V1

Artikelnummer: UK65bac
Artikelbezeichnung: UK Buckingham Multi, Handform
VMz 12-1,8-UK

DEPPE BACKSTEIN-KERAMIK

DE	NL	UK	FR	
Vom Hersteller vorgesehener Verwendungszweck oder vorgesehene Verwendungszwecke des Bauproduktes gemäß der anwendbaren harmonisierten technischen Spezifikation: U- Ziegel	Beoogde gebruiken van het bouwproduct, overeenkomstig de toepasselijke geharmoniseerde technische specificatie, zoals door de fabrikant bepaald: U-producten	Intended use or intended uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer: U-units	Usage ou usages prévue du produit de construction, conformément à la spécification technique harmonisée applicable, comme prévu par le fabricant : Briques U	EN 771-1 : 2015
Deppe Backstein-Keramik GmbH Neuenhauser Straße 82 49843 Uelsen- Lemke Deutschland T.: + 49 (0)5942- 9210-0 F.: + 49 (0)5942-9210-44 www.deppe-backstein.de	Deppe Backstein-Keramik GmbH Neuenhauser Straße 82 49843 Uelsen- Lemke Duitsland T.: + 49 (0)5942- 9210-0 F.: + 49 (0)5942-9210-44 www.deppe-backstein.de	Deppe Backstein-Keramik GmbH Neuenhauser Straße 82 49843 Uelsen- Lemke Germany T.: + 49 (0)5942- 9210-0 F.: + 49 (0)5942-9210-44 www.deppe-backstein.de	Deppe Backstein-Keramik GmbH Neuenhauser Straße 82 49843 Uelsen- Lemke Allemagne T.: + 49 (0)5942- 9210-0 F.: + 49 (0)5942-9210-44 www.deppe-backstein.de	
System zur Bewertung und Überprüfung der Leistungsbeständigkeit des Bauproduktes	Systeem voor de beoordeling en verificatie van de prestatiebestendigheid van het bouwproduct	System for assessment and verification of constancy of performance of the construction product	Le système d'évaluation et de vérification de la constance des performances du produit de construction	2+
Harmonisierte Norm: EN 771-1:2015 Notifizierte Stelle: Nr. 2510 CERT Baustoffe GmbH, Wismar	Geharmoniseerde norm: EN 771-1:2015 Aangemelde instantie: Nr. 2510 CERT Baustoffe GmbH, Wismar	Harmonized standard: EN 771-1:2015 Notified body Nr. 2510 CERT Baustoffe GmbH, Wismar	Norme harmonisée : EN 771-1 :2015 L'organisme notifié Nr. 2510 CERT Baustoffe GmbH, Wismar	2510-CPR-323
FORM: Mauerziegel mit Mulde	VERSCHIJNINGSVORM: Volle baksteen met frog	CONFIGURATION: Solid brick with hollow	CONFIGURATION: Brique avec creux	

Erklärte Leistung	Prestatieverklaring	Declared Performance	Performance déclarée	EN 771-1:2015		
Maße	Afmetingen	Dimensions	Dimensions	215/102/65 Tol. +5/-4/3 -5	mm mm mm	EN 771-1
Grenzabmaße	Toleranties	Tolerances	Tolérances			
Maßspanne	Maatspreiding	Range	Plages	Rm: 3/5/3		
Brutto-Trockenrohdichte	Bruto veulmieke massa	Gross dry density	Masse volumique apparente sèche	1600	kg/m³	EN 772-1
Netto-Trockenrohdichte	Netto droog volumieke massa	Net dry density	Masse volumique absoute sèche	NPD	kg/m³	
Rohdichte Grenzen	Toleranties volumieke massa	Density tolerances	Masse volumique tolérances	D1: 10	%	
Gesamtvolumen von Mulden	Totaal volume frogs	Volume of frogs	Total des auges de volume	<20	%	EN 772-3
Druckfestigkeit* Senkrecht zur Lagerfläche	Druksterkte* Loodrecht op het legvlakken	Pressure strength * Perpendicular to the leg surfaces	Résistance à la compression* Perpendiculaire à la face de pose			
*mittlere	* gemiddelde	* mean	* moyenne	>10	N/mm²	EN 771-1
*normierte	* genormaliseerde	* normalised	* normalisé	NPD	N/mm²	
Kategorie	Categorie	Category	Catégorie	I		
Frostwiderstand	Vorst / dooiweerstand	Freeze / thaw resistance	Résistance au gel	F2		EN 771-1
Wasseraufnahme	Wateropname	Water absorption	L'absorption d'eau	<8	%	EN 772-7
Anfängliche Wasseraufnahme	Initiële wateropzuiging	Initial rate of water absorption	Taux initial d'absorption d'eau	0,1-4,0	Kg/m² min	EN 772-1
Gehalt an aktiven löslichen Salzen	Gehalt actieve oplosbare zouten	Active soluble salts content	Teneur en sels solubles actifs	S2		EN 772-5
Gefährliche Substanzen	Gevaarlijke stoffen	Dangerous Substances	Substances dangereuses	NPD		Nach ZA.3
Brandverhalten	Brandreactie	Reaction to fire	Le comportement du feu	A1		EN 771-1

Die Leistung des Produktes entspricht der erklärten Leistung.
Verantwortlich für die Erstellung dieser Leistungserklärung ist allein der Hersteller

De prestaties van het omschreven product zijn conform de verantwoord aangegeven specificaties.
Deze prestatieverklaring wordt verstrekt onder de exclusieve verantwoordelijkheid van de fabrikant.

The performance of the product identified in conformity with the declared performance.
This declaration of performance issued under the sole responsibility of the manufacturer.

Les performances du produit sont conformes aux performances déclarées.
La présente déclaration des performances est établie sous la seule responsabilité du fabricant.

Uelsen, den 15.03.2023

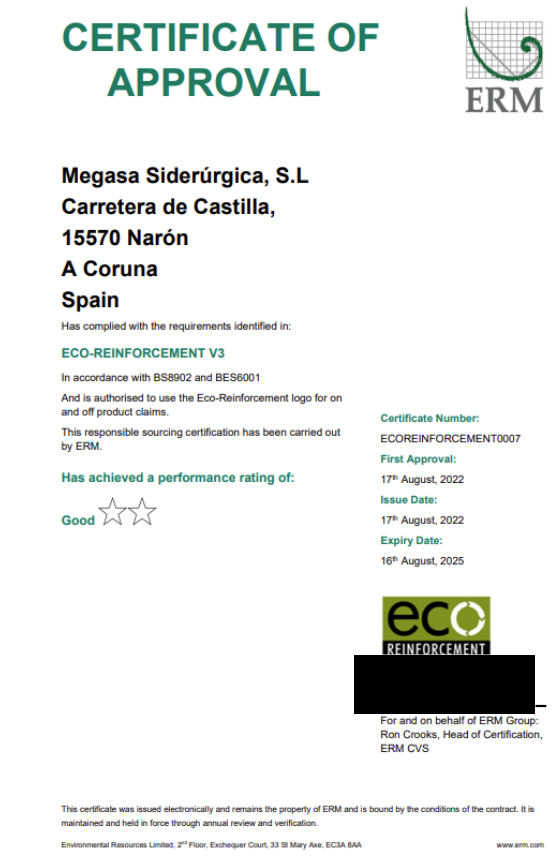
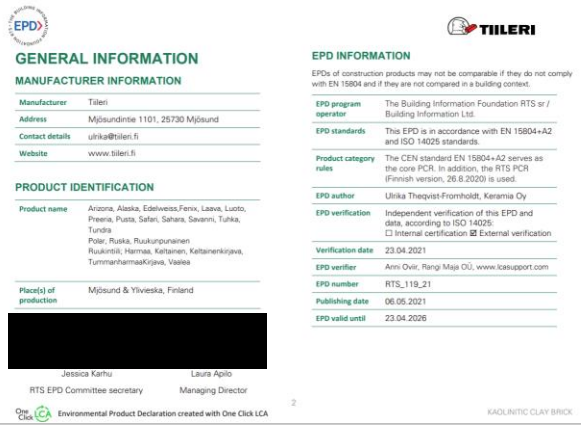
Unterzeichnet für den Hersteller und im Namen des Herstellers von:

Ondertekend voor en namens de fabrikant door:

Signed for and on behalf of the manufacturer by:

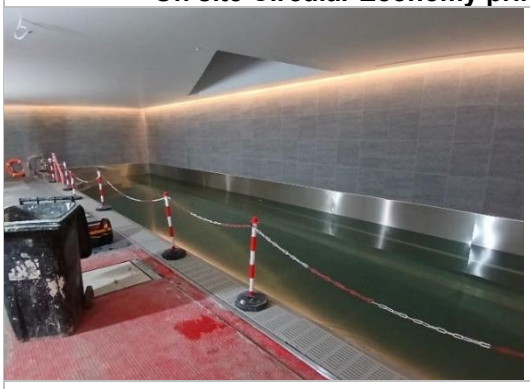
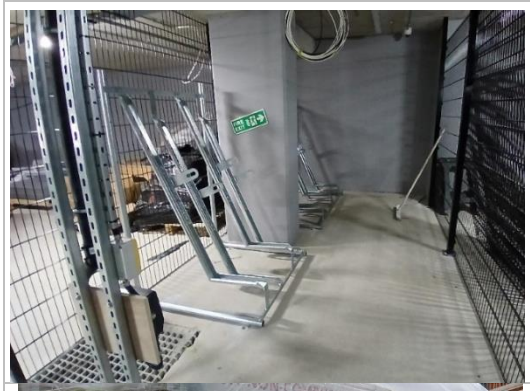
Signé pour le fabricant et pour le compte du fabricant de:

Dr. Dirk Deppe

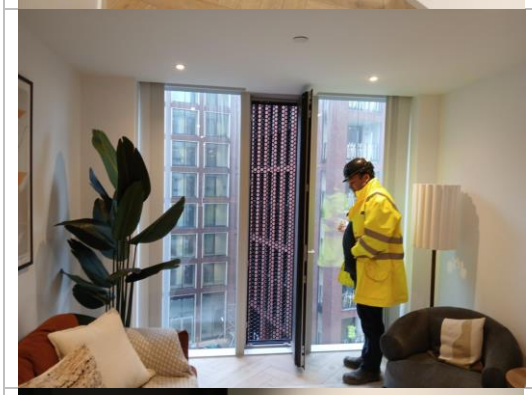
Target evidence	What it shows
	Certificate proving structural steel complies with BES 6001 - **Expired Certificate**
	Tiileri bricks EPD

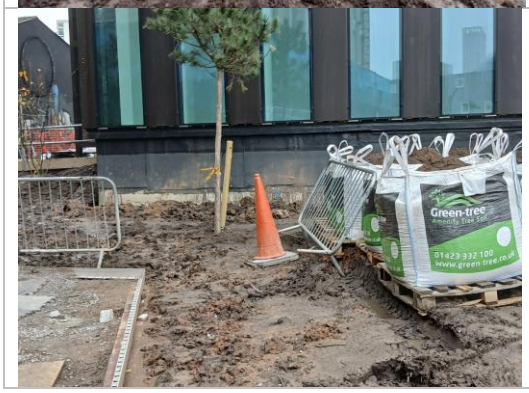
Target evidence	What it shows
THE KEYSTONE GROUP consisting of: Keystone Lintels Ltd IG Lintels IG Masonry Support Systems Smart roof IG Elements Ltd Keylite Roof Windows Ltd Keyfix Ltd **Sustainable Procurement Policy 2023** The Keystone Group's Sustainability Policy states that we will "implement ethically and environmentally responsible procurement". The Sustainable Procurement policy supports this statement and provides guidelines and objectives for achieving a sustainable procurement procedure that is embedded in Keystone's culture. It is recognized that our purchasing decisions have a large impact outside of the company and this policy aims to minimise any negative environmental and social impacts; to this end we will: • Comply with, and where possible exceed, relevant legislation; • In the first instance, reduce the demand for goods and services by minimising waste and focusing on the re-use and recycling of existing goods where applicable; • Review environmental risks and target high-risk contracts and high-expenditure commodities; • Consider 'whole life' costs and impacts when assessing equipment for purchase; • Make Purchasing decisions based not only on economic, but also social and environmental factors; • Purchase and/or prioritise those items that are manufactured with a high recycled content; • Include relevant sustainability criteria within all tender exercises and supplier appraisals, where legally appropriate; • Engage with suppliers to: Promote awareness, Encourage suppliers to adopt similar policies and sustainable approaches in their supply chains, encourage development and promotion of new sustainable products, services and initiatives; • Raise internal awareness of sustainability issues through the promotion and communication of relevant goods and information; • Provide training on sustainable procurement for the appropriate people; • Define key areas for the company and suppliers and monitor and measure sustainable performance in these areas. The policy will be implemented, monitored and reviewed by Senior Management in line with current procedure, the policy will be reviewed annually in August.	Keystone's Sustainability Procurement Policy

APPENDIX B – ONSITE CE PRINCIPLES

On site Circular Economy principles	What it shows
	Basement void used for swimming pool and gym
	Secure bike shelter to encourage green mobility for building users
	Rockwool thermal insulation for external walls
	Central line electrics to reduce cross transfer of services

On site Circular Economy principles	What it shows
	Central line plumbing to reduce cross transfer of services
	Simplified and efficient duct runs to reduce material usage
	Easy to access services under sink for maintenance
	Waste bins located on site

On site Circular Economy principles	What it shows
	Smart layout of kitchen spaces in a 2-bedroom apartment
	Inclusion of Juliet balconies within apartments.
	Hard wearing materials in hallways including use of porcelain tiles and kickplates.
	Kickplates on external walls to protect the fabric of the building

On site Circular Economy principles	What it shows
	Access panels within apartments.
	Access panels throughout communal areas
	Existing levels reused on site. No extensive excavation was required to create basement spaces as is common on other developments.
	Ongoing landscaping works in preparation for final handover in December 2025

APPENDIX C – WASTE SUMMARY

Recycling Rates

Project: 1.101 - Port Street (Manchester)
Post Construction Circular Economy Statement
W Leeson & Son
Waste Management

Dated: 17/06/2026
Revision: 1

			Waste Type: Hardcore				Waste Type: Inert Soils				Waste Type: Timber				Waste Type: Plasterboard			
Item No:	Month:	Year:	Hardcore EWC Code: 17.01.07	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:	Inert Soils EWC Code: 17.05.04	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:	Timber EWC Code: 17.02.01	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:	Plasterboard EWC Code: 17.08.02	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:
1	January	2024																
2	February	2024																
3	March	2024																
4	April	2024																
5	May	2024																
6	June	2024																
7	July	2024																
8	August	2024	45	Tonnes	100.00%	45.00	16	Tonnes	100.00%	16.00	64	Tonnes	100.00%	64.00	44	Tonnes	95.00%	41.80
9	September	2024	37	Tonnes	100.00%	37.00	8	Tonnes	100.00%	8.00	41	Tonnes	100.00%	41.00	32	Tonnes	95.00%	30.40
10	October	2024	77	Tonnes	100.00%	77.00	35	Tonnes	100.00%	35.00	68	Tonnes	100.00%	68.00	47	Tonnes	95.00%	44.65
11	November	2024	49	Tonnes	100.00%	49.00	22	Tonnes	100.00%	22.00	47	Tonnes	100.00%	47.00	36	Tonnes	95.00%	34.20
12	December	2024	37	Tonnes	100.00%	37.00	11	Tonnes	100.00%	11.00	29	Tonnes	100.00%	29.00	22	Tonnes	95.00%	20.90
13	January	2025	42	Tonnes	100.00%	42.00	23	Tonnes	100.00%	23.00	34	Tonnes	100.00%	34.00	31	Tonnes	95.00%	29.45
14	February	2025	44	Tonnes	100.00%	44.00	21	Tonnes	100.00%	21.00	37	Tonnes	100.00%	37.00	38	Tonnes	95.00%	36.10
15	March	2025	44	Tonnes	100.00%	44.00	21	Tonnes	100.00%	21.00	46	Tonnes	100.00%	46.00	59	Tonnes	95.00%	56.05
16	April	2025	31	Tonnes	100.00%	31.00	15	Tonnes	100.00%	15.00	36	Tonnes	100.00%	36.00	43	Tonnes	95.00%	40.85
17	May	2025	26	Tonnes	100.00%	26.00	14	Tonnes	100.00%	14.00	31	Tonnes	100.00%	31.00	40	Tonnes	95.00%	38.00
18	June	2025	56	Tonnes	100.00%	56.00	36	Tonnes	100.00%	36.00	42	Tonnes	100.00%	42.00	32	Tonnes	95.00%	30.40
19	July	2025	36	Tonnes	100.00%	36.00	28	Tonnes	100.00%	28.00	28	Tonnes	100.00%	28.00	19	Tonnes	95.00%	18.05
20	August	2025	57	Tonnes	100.00%	57.00	32	Tonnes	100.00%	32.00	42	Tonnes	100.00%	42.00	32	Tonnes	95.00%	30.40
21	September	2025	58	Tonnes	100.00%	58.00	22	Tonnes	100.00%	22.00	39	Tonnes	100.00%	39.00	32	Tonnes	95.00%	30.40
22	October	2025	62	Tonnes	100.00%	62.00	18	Tonnes	100.00%	18.00	44	Tonnes	100.00%	44.00	32	Tonnes	95.00%	30.40
23	November	2025	10	Tonnes	100.00%	10.00	5	Tonnes	100.00%	5.00	5	Tonnes	100.00%	5.00	1	Tonnes	95.00%	0.95
24	December	2025	48	Tonnes	100.00%	48.00	28	Tonnes	100.00%	28.00	16	Tonnes	100.00%	16.00	17	Tonnes	95.00%	16.15
			759.00	**Tonnes**	**Recycled Tonnes**	**759.00**	**355.00**	**Tonnes**	**Recycled Tonnes**	**355.00**	**649.00**	**Tonnes**	**Recycled Tonnes**	**649.00**	**557.00**	**Tonnes**	**Recycled Tonnes**	**529.15**
					Recycle Rate %	**100.00%**			**Recycle Rate %**	**100.00%**			**Recycle Rate %**	**100.00%**			**Recycle Rate %**	**95.00%**

Project: 1.101 - Port Street (Manchester)

Post Construction Circular Economy Statement

W Leeson & Son

Waste Management

Dated: 17/06/2026

Revision: 1

			Waste Type: Mixed Plastics				Waste Type: Cardboard /Paper				Waste Type: Metals				Waste Type: General Misc			
Item No	Month:	Year:	Mixed Plastics EWC Code: 17.02.03	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:	Cardboard /Paper EWC Code: 15.01.01	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:	Metals EWC Code: 17.04.07	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:	General Misc EWC Code: 19.12.12	Quantity (Tonnes	Approx Recycle Rate %	Recycled Tonnes:
1	January	2024																
2	February	2024																
3	March	2024																
4	April	2024																
5	May	2024																
6	June	2024																
7	July	2024																
8	August	2024	14	Tonnes	80.00%	11.20	8	Tonnes	85.00%	6.80	7	Tonnes	100.00%	7.00	5.1	Tonnes	70.00%	3.57
9	September	2024	12	Tonnes	80.00%	9.60	6	Tonnes	85.00%	5.10	8	Tonnes	100.00%	8.00	6.9	Tonnes	70.00%	4.83
10	October	2024	19	Tonnes	80.00%	15.20	12	Tonnes	85.00%	10.20	14	Tonnes	100.00%	14.00	8.9	Tonnes	70.00%	6.23
11	November	2024	24	Tonnes	80.00%	19.20	14	Tonnes	85.00%	11.90	17	Tonnes	100.00%	17.00	9.4	Tonnes	70.00%	6.58
12	December	2024	15	Tonnes	80.00%	12.00	6.2	Tonnes	85.00%	5.27	6.1	Tonnes	100.00%	6.10	5.4	Tonnes	70.00%	3.78
13	January	2025	18	Tonnes	80.00%	14.40	11.2	Tonnes	85.00%	9.52	9.5	Tonnes	100.00%	9.50	10.7	Tonnes	70.00%	7.49
14	February	2025	17	Tonnes	80.00%	13.60	11.2	Tonnes	85.00%	9.52	8.5	Tonnes	100.00%	8.50	10.9	Tonnes	70.00%	7.63
15	March	2025	18	Tonnes	80.00%	14.40	15.4	Tonnes	85.00%	13.09	6.7	Tonnes	100.00%	6.70	12	Tonnes	70.00%	8.40
16	April	2025	14	Tonnes	80.00%	11.20	15.4	Tonnes	85.00%	13.09	7	Tonnes	100.00%	7.00	8	Tonnes	70.00%	5.60
17	May	2025	16	Tonnes	80.00%	12.80	14	Tonnes	85.00%	11.90	8	Tonnes	100.00%	8.00	6	Tonnes	70.00%	4.20
18	June	2025	19	Tonnes	80.00%	15.20	12	Tonnes	85.00%	10.20	11	Tonnes	100.00%	11.00	9.5	Tonnes	70.00%	6.65
19	July	2025	15	Tonnes	80.00%	12.00	8	Tonnes	85.00%	6.80	7	Tonnes	100.00%	7.00	4.6	Tonnes	70.00%	3.22
20	August	2025	18	Tonnes	80.00%	14.40	12	Tonnes	85.00%	10.20	12	Tonnes	100.00%	12.00	7	Tonnes	70.00%	4.90
21	September	2025	16	Tonnes	80.00%	12.80	14	Tonnes	85.00%	11.90	15	Tonnes	100.00%	15.00	5	Tonnes	70.00%	3.50
22	October	2025	13	Tonnes	80.00%	10.40	14	Tonnes	85.00%	11.90	15	Tonnes	100.00%	15.00	8	Tonnes	70.00%	5.60
23	November	2025	3	Tonnes	80.00%	2.40	1	Tonnes	85.00%	0.85	1	Tonnes	100.00%	1.00	1	Tonnes	70.00%	0.70
24	December	2025	5	Tonnes	80.00%	4.00	4	Tonnes	85.00%	3.40	2	Tonnes	100.00%	2.00	1	Tonnes	70.00%	0.70
			256.00	**Tonnes**	**Recycled Tonnes**	**204.80**	**178.40**	**Tonnes**	**Recycled Tonnes**	**151.64**	**154.80**	**Tonnes**	**Recycled Tonnes**	**154.80**	**119.40**	**Tonnes**	**Recycled Tonnes**	**83.58**
					Recycle Rate %	**80.00%**			**Recycle Rate %**	**85.00%**			**Recycle Rate %**	**100.00%**			**Recycle Rate %**	**70.00%**

Project: 1.101 - Port Street (M

Post Construction Circular Economy S

W Leeson & Son

Waste Management

Dated: **17/06/2026**

Revision: **1**

Item No:	Month:	Year:	Overall Tonnage	UoM:	Recycled Tonnage	UoM:	Overall Recycle Rate %
1	January	2024					
2	February	2024					
3	March	2024					
4	April	2024					
5	May	2024					
6	June	2024					
7	July	2024					
8	August	2024	203.1	Tonnes	195.37	Tonnes	96.19%
9	September	2024	150.9	Tonnes	143.93	Tonnes	95.38%
10	October	2024	280.9	Tonnes	270.28	Tonnes	96.22%
11	November	2024	218.4	Tonnes	206.88	Tonnes	94.73%
12	December	2024	131.7	Tonnes	125.05	Tonnes	94.95%
13	January	2025	179.4	Tonnes	169.36	Tonnes	94.40%
14	February	2025	187.6	Tonnes	177.35	Tonnes	94.54%
15	March	2025	222.1	Tonnes	209.64	Tonnes	94.39%
16	April	2025	169.4	Tonnes	159.74	Tonnes	94.30%
17	May	2025	155	Tonnes	145.90	Tonnes	94.13%
18	June	2025	217.5	Tonnes	207.45	Tonnes	95.38%
19	July	2025	145.6	Tonnes	139.07	Tonnes	95.52%
20	August	2025	212	Tonnes	202.90	Tonnes	95.71%
21	September	2025	201	Tonnes	192.60	Tonnes	95.82%
22	October	2025	206	Tonnes	197.30	Tonnes	95.78%
23	November	2025	27	Tonnes	25.90	Tonnes	95.93%
24	December	2025	121	Tonnes	118.25	Tonnes	97.73%
			3028.60	**Tonnes**	**2886.97**	**Tonnes**	**95%**
						95%	

GREATER**LONDON**AUTHORITY

Post-Construction Stage - Circular Economy Statement

Project details	
Project name	Manchester (Fort Street) Limited
Planning application reference number (if applicable)	21/3499/F/2021
Applicant	Manchester Fort Street Ltd
London Borough	
Brief description of the project	The Development consists of "part-33, part-11 storey residential building with associated residents' amenity space including gym (Use Class C3), commercial space (Use Class E), basement car parking, cycle parking, landscaping and other associated works" as set out in the Planning Application 21/3499/F/2021.
Author/s	
Date of assessment	
Number of Use Types	2
Use Class / Type	**Floor Area by use type (m2)**
Use Class C3	48285
Use Class E	585
Overall GIA (m2)	48870.00

Bill of Materials

Please click the + symbol to the left hand side of the Bill of Materials table to view or hide the input rows for each Building Element Category. The rows for substructure and frame have been unhidden to highlight this. A fixed number of rows has been provided for each Building Element Category based on a sub-set of typical WLCA submissions. Should the number of rows provided not be sufficient to allow input of all materials for a given Building Element Category, Applicants should prioritise the inclusion of the materials with the highest quantity.

BUILDING ELEMENT CATEGORY - LEVEL 1 (based on the RICS New Rules of Measurement (NRM) classification system level 1 sub-elements https://www.rics.org/globalassets/rics-website/media/products/data-products/rics-construction/rics-elemental-standard-form-cost-analysis-4th-nrm-edition-2012.pdf)		PRODUCT AND CONSTRUCTION STAGE (MODULE A)								USE STAGE (MODULE B)					END OF LIFE STAGE (MODULE C)						BENEFITS BEYOND THE SYSTEM BOUNDARY (MODULE D)			
	Building Element Category	Material Type	Material quantity (Module A) (kg)	Material Intensity (Module A) (kgm²GIA)	Performance Indicator (LPG Appendix 1)	Construction Waste Factor (Module A)	Construction Waste (Module A) (kg)	Recycled Content by mass (kg)	Recycled Content by value (%)	Expected Lifespan (years)	Number of Replacements (over assumed 60-year period)	Repair and Replacement quantities of materials (Module B) (kg)	Construction Waste Factor (Module B)	Construction Waste (Module B) (kg)	Design for Disassembly	Assumed End of Life Scenario (Description)	% Reusing	% Recycling	% Landfill	Estimated reusable materials (kg)	Estimated reusable materials intensity (kg/m² GIA)	Estimated recyclable materials (kg)	Estimated recyclable materials intensity (kg/m² GIA)
0.1	**Demolition: Toxic/Hazardous/Contaminated Material Treatment**	-	**0**	**0**	-	-	0	-	-	-	-	0	-	0	-	-	0%	0%	100%	0	0	0	0
0.2	**Major Demolition Works**	-	**0**	**0**	-	-	0	-	-	-	-	0	-	0	-	-	0%	0%	100%	0	0	0	0
0.3	**Temporary Support to Adjacent Structures**	-	**0**	**0**	-	-	0	-	-	-	-	0	-	0	-	-	0%	0%	100%	0	0	0	0
0.4	**Specialist Ground Works**	-	**0**	**0**	-	-	0	-	-	-	-	0	-	0	-	-	0%	0%	100%	0	0	0	0
1	**Substructure**	-	**1,428,954**	**29**	Building Element Category 1, 1st Quartile	-	69,782	-	-	-	-	0	-	0			0%	58%	42%	0	0	833,280	17
		Blockwork (Below Dpc)	3,553	0	-	5%	178	0	0%	61	0	0	5%	0	No	Re (for sub-base layers).	0%	0%	100%	0	0	0	0
		Blockwork (Ground & Basement)	322,496	7	-	5%	16,125	0	0%	61	0	0	5%	0	No	Re (for sub-base layers).	0%	0%	100%	0	0	0	0
		Blockwork (Ground & Basement)	269,636	6	-	5%	13,482	23,112	0%	61	0	0	5%	0	No	Re (for sub-base layers).	0%	0%	100%	0	0	0	0
		Steel	833,280	17	-	5%	39,997	754,998	5%	61	0	0	5%	0	No	Steel recycling	0%	100%	0%	0	0	833,280	17
			0	0	-	0%	0				0	0	0%	0			0%	0%	100%	0	0	0	0

Technical note: Port Street Post Construction Circular Economy Statement

Purpose of this note

WSP has been commissioned by Port Street Ltd. to produce this technical note. The purpose of this technical note is to summarise the results of the post construction Circular Economy Statement (CES) with consideration to the residential development at Port Street (hereafter referred as Development). The CES has been developed at RIBA Stage 06 and is to be submitted as per requirements of condition 4b attached to planning permission 132489/FO/2021. The CES has been prepared in line with best practice guidance set out in the London Plan (March 2022) Policy D3 'Optimising Site Capacity Through the Design-led Approach' and Policy SI 7 'Reducing Waste and Supporting the Circular Economy'[1].

This note accompanies the CES template spreadsheet (Port Street GLA Post Construction Template.xls) that reports on the actual performance and Circular Economy (CE) targets and commitments achieved that were identified for adoption across the evolution of the design within the previous detailed CES which was prepared for the Proposed Development in August 2023. The note contains the following sections:

- Section 1: Methodology
- Section 2: Results
- Section 3: Limitations and assumptions

1. Methodology

The CE statement consists of a written report and a spreadsheet, with the relevant tab(s) filled in at each stage. Each tab contains a number of tables where information should be recorded to reflect material usage, waste arisings and circular design decisions associated with the Development. The post construction stage tab has been filled out in the template. The spreadsheet includes the actual bill of materials (including calculations), end of the life strategies, recycling and waste reporting as well as the lessons learnt and key achievements at the post construction stage. The components of the template are listed below.

1.1. Bill of materials

The bill of materials in the CE statement has been filled out to demonstrate how material demands have been minimised and on-site reuse and recycling maximised. This has been filled out based on the post construction actual quantities of materials.

The quantities of materials were modelled in OneClick LCA software using the available Environmental Product Declarations (EPD) from the database. The results were exported from

[1] Greater London Authority (2022). *London Plan Guidance: Circular Economy Statements*. [https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance/circular-economy-statement-guidance]

the software in the form of a material efficiency report which was used to input information into the CE excel template. The material quantity (module A), construction waste factor (module A and B), recycled content by mass, recycled content by value, expected lifespan, end of life scenario and percentage (%) of recycling (module C) were exported from the material efficiency report and added to the CE template.

The template has used this information to automatically calculate the material and waste quantities throughout the building's life cycle; and calculate the intensity of these indices, where relevant, using the Gross Internal Area (GIA).

It is required to identify opportunities for the use of reused or recycled materials; and aim for at least 20 % recycled or reused content, by value, for the whole building. This target requires both an estimate of the quantities of materials and the capital cost of that material.

In the bill of materials table, the recycled content for each building element or material type has been detailed based on the manufacturer's EPD available in the OneClick LCA tool or based on generic data for UK region. The cost of each component has also been assumed based on the information available in the tool. The OneClick LCA GLA tool calculates the recycled content by value (%) for each component which has been directly added to the GLA template.

The recycled content by value (%) for each component is calculated by the OneClickLCA tool as per the following formula[1].

$$\textbf{Recycled content by value for each component} = \frac{\textbf{Cost per unit x quantity x percentage of recycled content}}{\textbf{Total cost of all components}}$$

The end-of-life scenarios for the materials were modelled as specified in the end-of-life strategy document (Z0-SHP-A180-RP-XX-CES1) or per the manufacturer's EPD if available. The end-of-life plan for the elements of the building has been provided with a calculation of the percentages of waste that can be reused or recycled at end of life. The recycling percentage has been assumed based on current standard industry practices and may change in the future depending upon available technology.

1.2. Recycling and waste reporting

The recycling and waste reporting table contains the total amount of non-hazardous/contaminated waste material arising (tonnes) for excavation, demolition and construction. It also specifies the waste management strategy used for each type of waste. It indicates the amount of non-contaminated material reused on-site (%), recycled on-site (%), reused off site (%) and recycled off-site (%) landfill amount (%) and recovery amount (%).

The waste arising for key streams (t/m^2 GIA) is automatically calculated in the template along with the overall recycling rate.

1.3. Key achievements and lessons learnt

The key achievements and lessons learnt table highlights the actual performance against quantitative and qualitative targets/commitments.

2. Results

The template automatically calculates the material and waste quantities throughout the building's life cycle; and calculate the intensity of these indices, where relevant, using the GIA.

The material intensity of the project was found to be 1,162 kg/m^2. The template also calculates the material intensity for each building element category (based on the RICS New Rules Measurement (NRM) classification system level 2 sub-elements[2]). The table below summarises the calculated material intensity.

Building Element Category (RICS)		**Material Intensity (Module A) (kg/m^2 GIA)**	**Performance Indicator (calculated by template)**
1	Substructure	29	Building Element Category 1, 1st Quartile
2.1	Superstructure: Frame	1,056	Building Element Category 2.1, 4th Quartile
2.2	Superstructure: Upper floors	4	Building Element Category 2.2, 1st Quartile
2.5	Superstructure: External walls	4	Building Element Category 2.5 & 2.6, 1st Quartile
2.6	Superstructure: Windows and external doors	4	Building Element Category 2.5 & 2.6, 1st Quartile
2.7	Superstructure: Internal walls and partitions	46	Building Element Category 2.7 & 2.8, 2nd Quartile
3	Finishes	18	-

All the building element categories apart from the superstructure: frame and internal walls and partitions fall under the 1st quartile which demonstrates good resource efficiency. The superstructure: frame falls under the 4th quartile as it has a high material intensity due to structural components. In order to offset this, Port Street reduced primary material demand by using recycled content such as GGBS in concrete where available and aimed for high levels of recycled content within reinforced steel (ranging from 90-95% to 100% of recycled content).

The London Plan Policy SI 7 sets out circular economy targets for both existing and new developments.

- 95% of demolition, excavation, and construction waste be diverted from landfill through reuse, recycling, or recovery. It also establishes a target to achieve a minimum

[2] RICS (2021). *NRM 1: Order of cost estimating and cost planning for capital building works.* [https://www.rics.org/content/dam/ricsglobal/documents/standards/NRM-1_Oct2022_Update.pdf]

municipal waste recycling rate of 65% by 2030. Furthermore, the policy mandates that no less than 20% of building material elements comprise recycled or reused content. The project's performance against these targets is outlined below.

a) Demolition waste

Demolition waste calculation has been scoped out due to limited availability of data. As the Proposed Development was situated on an existing car park, there was limited opportunity to recover and reuse existing materials. Crushed and graded material from the limited demolition or site preparation works were re-used in the temporary piling mat during construction. All efforts were taken to reuse the limited existing materials on the cleared site. Soil was reused on landscaping and the developer ensured suitable treatment of hazardous soil where applicable by an authorised contractor.

b) Excavation waste

The Development achieved 95% beneficial reuse of excavation waste materials. Excavation was extremely limited due to the existing levels on the site. Excavated material was reused as fill on site to create landscaping. The waste intensity was calculated to be 0.738 tonnes/$m^{2.}$

c) Construction waste materials

95.3% of construction waste materials were diverted from the landfill for reuse, recycling or recovery. The waste intensity was calculated to be 0.062 tonnes /m^2.

d) Municipal waste

The Development is forecast to generate 120,000L and 133,000L of waste for residential and commercial uses, respectively; the main waste streams are expected to be general, dry mixed, glass, and organic recycling. Suitable waste containers will include 1,100L Eurobin and 240L wheeled bins, with 50% of these vessels designated for recycling. Council and private contractor collections will be used, and the building management company, Affinity Living, will monitor and promote high recycling rates by educating residents and placing recycling bins closer to access gates.

a) **Recycled content**

The recycled content by value was calculated to be 30.49% which exceeds the GLA target of 20%.

3. Limitations and assumptions

a) Please note that due to an error in the GLA CE statement template spreadsheet (post construction stage sheet) available on the GLA website[1], the content has been replicated into a new excel file. The new excel sheet has been attached with this note which includes the correct formulas and has been populated with the project information and results.

b) Material and waste quantities are modelled based on the latest available data.

c) Materials were modelled on OneClick LCA with the EPD published by the actual manufacturer mentioned in the bill of materials. Wherever manufacturer's data was not available, generic data for the region has been considered.

d) Recycled content and cost of the material have been considered as per the material specifications and wherever not available, has been assumed with generic data for the region.

e) Recycling percentages at the end of life have been assumed based on current industry practices and may change in the future depending upon technological advancements.

f) Demolition waste calculations have been excluded due to limited availability of data.

g) Standard densities and thickness of materials have been assumed wherever not available to calculate weight from the volume/surface area.



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