Paddington Green Police Station

2 – 4 Harrow Road, London, W2 1XJ

Circular Economy Statement

WSP

01/04/2021

Berkeley
Designed for life

Berkeley Homes (Central London) Ltd.

PADDINGTON GREEN POLICE STATION, WESTMINSTER

Detailed Circular Economy Statement

Berkeley Homes (Central London) Ltd.

PADDINGTON GREEN POLICE STATION, WESTMINSTER

Detailed Circular Economy Statement

CONFIDENTIAL

PROJECT NO. 70069424

OUR REF. NO. PGPS-WSP-XX-XX-ST-ES-0002-P01

DATE: APRIL 2021

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CONTENTS

TABLES

FIGURES

1. EXECUTIVE SUMMARY

This Circular Economy Statement is submitted in support of the detailed planning application ('the Application') made on behalf of Berkeley Homes (Central London) Ltd ('the Applicant') for Paddington Green Police Station (the Proposed Development) in the Westminster City Council (WCC) London.

WSP has been commissioned by the Applicant to write the Circular Economy Statement (CES) for the Proposed Development, which will be submitted as part of the planning application.

This CES has been produced to demonstrate how the design and construction of the development addresses the challenges of the climate emergency by prompting resource efficiency and adopting a circular economy approach that contribute to a sustainable development.

1.1. SUMMARY OF CIRCULAR ECONOMY COMMITMENTS

CONSERVE RESOURCES

The Proposed Development has been designed to ensure that material and resources are effectively used, managed and reduced as far as possible, in accordance with the GLA first principle of the circular economy. The development has also ensured that material quantities and other resources are minimized, responsibly and local sourced throughout the development process.

This will be instructed as part of the Sustainable Procurement Plan in the Contractor Prelims.

A Whole Life Carbon Assessment has been undertaken, taking a holistic view to help reducing buildings embodied and operational carbon emissions.

ELIMINATE WASTE

The Proposed Development has also been designed to eliminate waste generation as far as possible, in accordance with the GLA second principle of circular economy. The development has been designed to be flexible and adaptable, therefore increasing the building durability and longevity and thereby reducing construction, demolition, and excavation waste arising.

A BREEAM Pre-assessment workshop took place during RIBA Stage 2, where Waste and Material requirements were discussed and associated BREEAM credits targeted (e.g. Wst. 1, Mat 05 & Wst. 06).

MANAGE WASTE SUSTAINABLY

The Proposed Development has been designed to manage waste sustainably, in accordance with the GLA third principle of the circular economy. Before any work will start on site, a Pre-demolition audit along with a site-specific Site Waste Management Plan, will be carried out to help set a target, manage and divert construction waste from the landfill. Moreover, a waste management strategy has been developed to help with the operation waste of the building during occupation. Sufficient and compliant bins area and appropriately sized bins have been provided to help maximise recycling and the reuse of municipal waste in accordance with the local and GLA requirements.

A Pre-demolition Audit will be instructed to be carried out before works commence on site, by the Demolition Contractor. A 95% waste diversion from landfill will be set in compliance with the GLA requirement.

A Waste Management Strategy report has been produced and it is submitted along with the development planning application.

1.2. IMPLEMENTATION APPROACH

The CES will be reviewed throughout all the design stages of the Project, alongside the following reports:

- Environmental Statement
- Site Waste Management Plan
- Material Durability Report
- Functional Adaptability Study
- BREEAM Pre-assessment (Excellent rating target)
- Pre-Demolition Audit
- Sustainable Procurement Plan
- Waste Management Strategy

Moreover, progress will be reported at practical completion, as requested by the GLA against each of the key commitments.

2. INTRODUCTION

Figure 2-1 - Birdseye view of the Development

2.1. OVERVIEW

This report has been produced to respond to the adopted London Plan (March 2021) D3 'Optimising site capacity through the design led approach' and Policy SI7 'Reducing waste and supporting the Circular Economy'. A Circular Economy Statements (CES) is required to inform early design decisions and should be submitted at these planning stages:

- Draft Circular Economy Statements: Submitted at outline/pre-app stage
- Detailed Circular Economy Statements: Submitted at full planning stage; and
- 'As Built' Circular Economy Statement: Submitted at post-completion stage.

This report covers the Detailed Circular Economy Statement submission, which is submitted as part of the detailed planning application along with other documents commissioned by the Client.

2.2. DEVELOPMENT DESCRIPTION

WSP has been commissioned by Berkeley Homes (Central London) Ltd. to develop and prepare a Circular Economy Statement for Paddington Green Police Station (the Proposed Development) in the Westminster City Council (WCC) London.

The Applicant is submitting a full detailed planning application for the redevelopment of the former Paddington Green Police Station site to provide 3 buildings of between ground + 14 and ground + 31 storeys including commercial space (Class E use), 556 residential units (including 210 affordable housing homes), landscaping and associated car and cycle parking.

The client's ambition for the site is to deliver a high quality residential led mixed-use development that will complete the West End Gate masterplan. The scheme will complement and enhance the local environment including the Paddington Green and the wider Church Street area, improve the quality of life for local people and provide a sustainable development for new residents. The proposals will regenerate this part of the Edgware Road providing active frontages on Edgware Road and Harrow Road, in hand with an improved public realm and townscape.

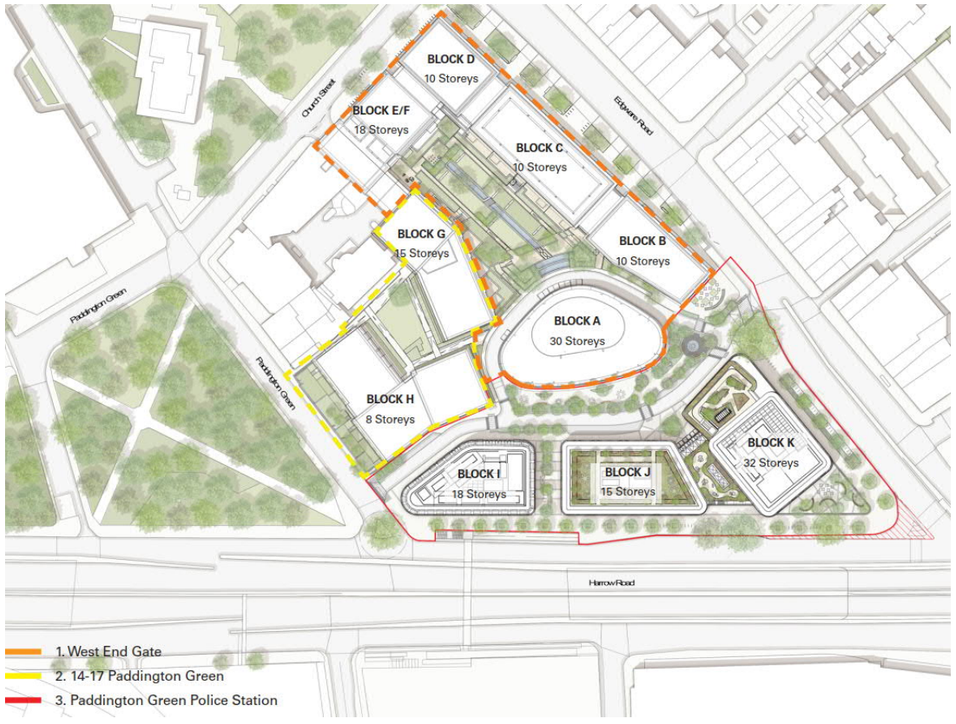

Figure 2-2 - Roof View showing the West End Gate Masterplan with the Proposed Development identified with the red line

2.3. CIRCULAR ECONOMY METHOD STATEMENT

The next section (3) will cover the approach and the goals that was considered to achieve a CE for the development and give details of the specific targets that are set, following the London Plan CES guidance, in relation to the nine circular economy principles below. This section will also give details of how the measures identified will be incorporated and monitored during the whole design process, up to practical completion.

Table 2-1 – GLA's Circular Economy Principles

Principle	**Develop commitments to:**
Conserve resources, increase efficiency and source sustainable	• Minimise the quantities of materials used • Minimise the quantities of other resources used • Specify and source materials and other resources sustainably
Design to eliminate waste (and for ease of maintenance)	• Design for longevity, adaptability or flexibility and reusability or recoverability • Design out construction, demolition, excavation and municipal waste arising
Manage waste sustainable and at the highest value	• Manage demolition waste • Manage excavation waste • Manage construction waste • Manage municipal waste

The Proposed Development is targeting a BREEAM rating of Excellent under the BREEAM New Construction 2018 scheme for the non-residential areas. This included an emphasis on targeting credits within the Materials and Waste sections.

The BREEAM pre-assessment process involved a series of workshops with the design team, Client representative and the BREEAM Assessor/Accredited Professional, during which several sustainability topics were covered, including circularity of the developments, such as: material efficiency and durability, pre-demolition audit, excavation and construction waste monitoring, waste and recycling targets, operational waste management and functional adaptability and flexibility, recycled content of material and sustainable/local sourcing of materials.

It is planned that these sustainability workshops will continue over the course of the design process to capture and monitor the project progress against the targets set. These will be summarised in the 'Circular Economy Aspiration –in Section 8 of this report.

Early engagement will be sought with contractors to assist in refining the sustainability strategy for delivery.

As mentioned previously, as per the GLA policy, the report will be reviewed in full and updated with the 'as built' information if required at post completion stage.

The following design measures/principles were considered during the design of the Proposed Development, in no order of importance:

- Minimisation of demolition / excavation waste
- Re-use of materials on-site
- Design for Manufacture and Assembly (DfMA)
- Offsite / modular construction
- Material efficiency
- Recycled content
- Material circularity
- Structural and fabric resilience
- Life-cycle assessments
- Low carbon construction
- Lean design principles
- Adaptability
- Flexibility
- Responsible procurement
- Sustainable sourcing
- Local sourcing
- Supply chain engagement
- Material procurement via leasing frameworks
- Tenant engagement

2.4. POLICY CONTEXT REVIEW

The CES has been produced in response to the planning requirement and guidelines outlined in the following table:

Table 2-2 - London Plan (March 2021) - Relevant to CES

NEW LONDON PLAN (MARCH 2021)	
Policy D3 Optimising site capacity through the design-led approach	A) All development must make the best use of land by following a design-led approach that optimises the capacity of sites, including site allocations. The design-led approach requires consideration of design options to determine the most appropriate form of development that responds to a site's context and capacity for growth, and existing and planned supporting infrastructure capacity (as set out in Policy D2 Infrastructure requirements for sustainable densities), and that best delivers the requirements set out in Part B. B) Development proposals should: • Quality and character: – 12) be of high quality, with architecture that pays attention to detail, and gives thorough consideration to the practicality of use, flexibility, safety and building lifespan through appropriate construction methods and the use of attractive, robust materials which weather and mature well; – 13) aim for high sustainability standards (with reference to the policies within London Plan Chapter's 8 and 9) and take into account the principles of the circular economy.
Policy SI7 Reducing waste and supporting the circular economy	A) Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to: 1) promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible; 2) encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products; 3) ensure that there is zero biodegradable or recyclable waste to landfill by 2026; 4) meet or exceed the municipal waste recycling target of 65 per cent by 2030; 5) meet or exceed the targets for each of the following waste and material streams: a) construction and demolition – 95 per cent reuse/recycling/recovery b) excavation – 95 per cent beneficial use 6) design developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food. B) Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate: 1) how all materials arising from demolition and remediation works will be re-used and/or recycled; 2) how the proposal's design and construction will reduce material demands and enable building materials, components, and products to be disassembled and re-used at the end of their useful life;
NEW LONDON PLAN (MARCH 2021)	
	3) opportunities for managing as much waste as possible on site; 4) adequate and easily accessible storage space and collection systems to support recycling and re-use; 5) how much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy; 6) how performance will be monitored and reported. C) Development Plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported.

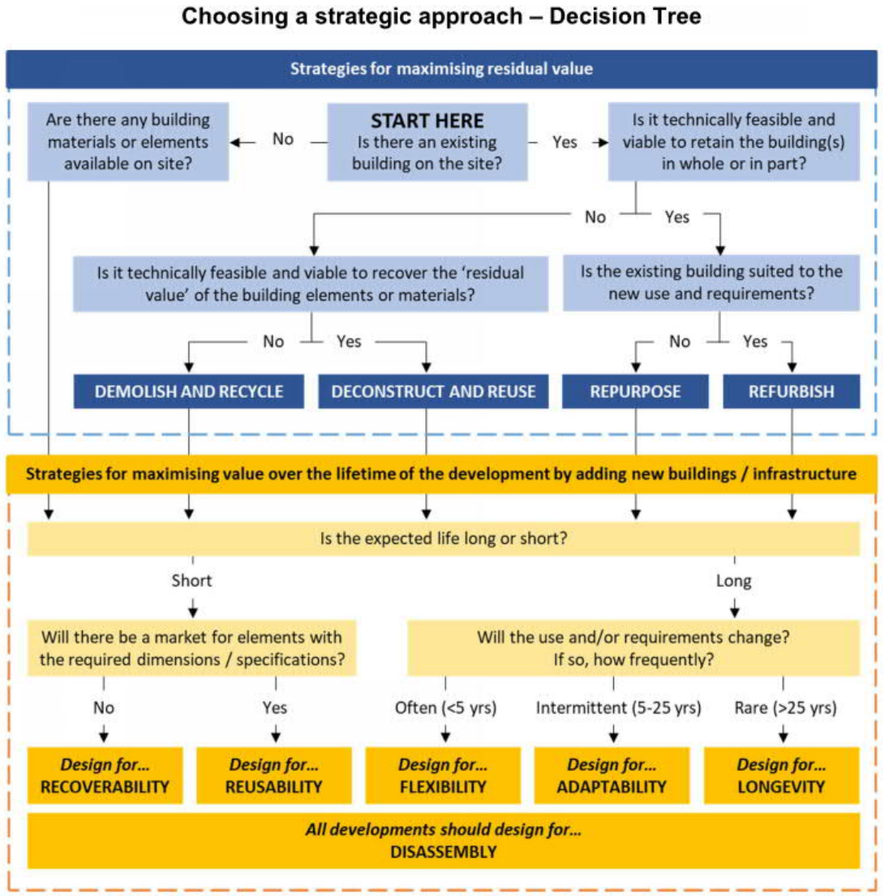

Figure 2-3 - Source: GLA CES Guidance (October 2020 version)

3. CIRCULAR ECONOMY APPROACH

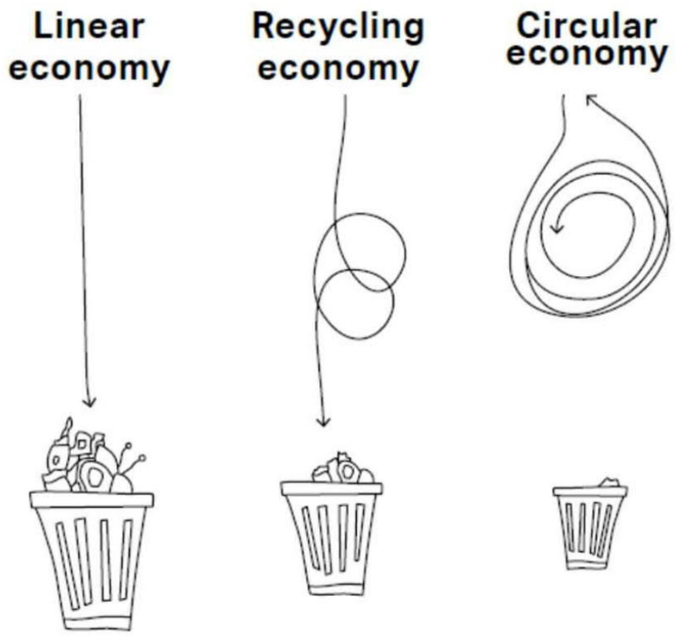

Figure 3-1 - Difference between a linear economy vs a circular economy (Source: GLA CES Guidance, Oct. 2020)

This section of the reports provides a detailed information on how the circular economy principles will be implemented for the Proposed Development; this includes specific measures to conserve resources, eliminate waste and manage waste efficiently as per the GLA CES guidance.

Circular Economy consideration is part of the project sustainability strategy, given the size, location and the client's wider sustainability aspirations. These design principles are most effective when explored and considered at early design stages of the development process.

3.1. DESIGN TO CONSERVE RESOURCES

MINIMISING QUANTITIES OF MATERIAL

EXISTING SITE

For the proposed development, the project team concluded it was not commercial feasible or desirable to retain the existing building on site. However, it is anticipated that a Pre-Demolition Audit will be carried out prior to works commencing on site to establish types and quantities of expected demolition materials, pending the appointment of a Contractor. The Contractor will be encouraged to utilise demolition materials directly on site if and where feasible, e.g. the use of crushed bricks and concrete for blinding concrete and mass concrete fill.

In the event contaminated materials are identified onsite, as part of the ground contamination inspection, the contaminated material will be segregated and disposed of accordingly. Otherwise, most of the demolition waste will be diverted from landfill. The current aspiration is to divert circa 95% of weight of material or more.

NEW DEVELOPMENT

Material efficiency is a priority for the Design Team and one of the key considerations during detailed design. Potential measures for reducing the material demand and for designing out waste has been and will even be further explored by all key design team disciplines at each design stage Material efficiency seeks to optimise the use of materials within building design, procurement, construction, maintenance and end of life; and the aim is to reduce the quantities of new materials used in the development. A Whole Life Carbon (WLC) Assessment has been carried out in order to help identify and manage the carbon emission arising from the material specification of the development.

The environmental impact of the proposed materials palette has regard for selecting components that score well under the BRE's 'The Green Guide to Specification'[1]. Furthermore, the design team will review the wider environmental impact of the materials considered when choosing between different options. This will include reviewing Environmental Product Declarations.

Internally, the design and specifications will ensure that environmentally sensitive (non-toxic) building materials are used throughout. Specifically, the design and specification of materials used internally will be based on the use of products that contain low levels of or no Volatile Organic Compounds (VOCs).

The selection criteria for external materials will include the specification of low toxicity to humans and the wider environment, especially those that deplete stratospheric ozone.

[1] www.thegreenguide.org.uk

MINIMISING QUANTITIES OF OTHER RESOURCES

The Proposed Development has also focussed on minimising the use of other resources such as land, ecosystems, energy and water.

It has maximised the utilization of the site, which includes utilising 100% of the previously developed land and increasing the density of the development while maintaining the footprint of the existing site and ensured that it minimises its visual impacts on existing views and the existing townscape.

During the construction stage the Principal Contractor will be required to set targets for energy and water used on site and ensure measures are put in place to minimise consumption of these resources. These could consist of:

- Low carbon energy source used during construction phase (Renewable sources of energy and offset of main utilities)
- Use of highly efficient plant and battery power energy storage.

As seen from the Energy and Sustainability Statement, the energy demand of the Proposed Development has followed the London Plan Energy Hierarchy (BE LEAN – BE CLEAN – BE GREEN – BE SEEN). Moreover, a 'fabric first' approach was considered to reduce energy demand and carbon emissions, with the aim of meeting the GLA carbon reduction. As stated previously a WLC has been carried out for the development and it includes the impact of the decarbonization of the grid for both operational energy and material replacement/repair cycle.

As outlined in the accompanying Sustainability Statement, the Proposed Development will be fitted with water efficient fixtures and fittings, and water meters will be provided to enable the monitoring of water use.

- For the residential units, a daily water consumption of 105l/p/day will be targeted, as per the GLA requirements, through the installation of low/dual flow sanitary fixtures and fittings.
- While the non-residential areas will target at least a 25% - 50% water reduction in the correspondent water use BREEAM credit (Wat 01). Additionally, in non-residential areas water meters will be linked to a central Building Management System which will enable monitoring and evaluation of water usage by the building management team.
- Systems will be specified to detect a major water leak on the mains supply both within the building and between the building and the utilities water meter. Proximity controls will be installed in the non-residential toilet blocks to ensure that water supply is turned off when toilets are not in use.

RESPONSIBLE SOURCING AND SPECIFICATION

The responsible sourcing of materials will be a key consideration in the selection of suppliers, and a sustainable procurement strategy will be produced for the development prior to construction. Materials from suppliers who participate in responsible sourcing schemes such as the BRE BES 6001:2008 Responsible Sourcing Standard will be prioritised.

All timber specified will be sourced from schemes supported by the Central Point of Expertise for Timber Procurement such as Forest Stewardship Council (FSC) accreditation – which ensures that the harvest of timber and non-timber products maintains the forest's ecology and its long-term viability.

Where viable the design team will specify materials that are grown or made locally. Likewise, the appointed contractor will be asked to prioritise local sourcing of materials.

Natural resource depletion will be minimised throughout the development, and materials such as peat and natural weathered limestone will not be used in the buildings or landscape features.

Additionally, a WLC has been undertaken and it will be used to guide the material selection of product.

3.2. DESIGN TO ELIMINATE WASTE

The Proposed Development has ensured that the second core principle of CE is imbedded in the design of the project by ensuring the design is flexible and adaptable, therefore increasing the building's lifecycle. Furthermore, any waste that is generated during the construction, operation, maintenance and refurbishment/de-construction of the project in the future has been reduced as far as possible

DESIGN FOR LONGETIVITY, ADAPTABILITY/FLEXIBILITY AND REUSABILITY/RECOVERABILITY

The Proposed Development has been designed with functional adaptability and flexibility in mind throughout the design stages.

SERVICES

Replacement of major items of plant at basement and roof levels should not be required during the normally anticipated life expectancy of the plant. However, as the anticipated life of the building is in excess of the life of the plant (typically 20-25 years) consideration has been given as to how these services can be replaced without significant impact on the building structure. A detailed plant replacement strategy will be developed at the next design stage.

Major items of plant are located at basement and roof levels. The plant replacement strategy is such that normal periodic plant maintenance activities and minor equipment replacement can be carried out using normal access routes such as the lifts and staircases. A drainage strategy has been developed considering future changes in terms of temperature and precipitation. While the SuDS strategy incorporates an allowance for climate change related increases in peak runoff, the plant replacement strategy ensures that cooling equipment with increased capacity can be brought in when required.

The development will include measures for water sustainable urban drainage strategy that considers climate change impacts;

STRUCTURES / INTERNAL LAYOUT

Core, bracing shear wall and columns are the only fixed elements internally, which allows maximum flexibility of the internal layout. Moreover, generous floor to ceiling heights allows for adaptation to different uses of the non-residential areas. Internal partitions are to be of lightweight construction that could be easily

modified to allow for alternative configuration within the use of the Proposed Development. Finally, design protection measures and robust finishes will ensure the maintenance and replacement cycle of the building is reduced and therefore reducing the opportunity to generate waste and reduce carbon emission.

DESIGN OUT CONSTRUCTION, DEMOLITION, EXCAVATION AND MUNICIPAL WASTE ARISING

It has been acknowledge in the wider industry that the best way for the developments to design out waste (for both construction and demolition waste) is for the development to use '***material standardisation and modularity***' of building component and '***offsite construction'***; this will help minimise waste of materials during construction and elements can easily be dissemble after the end of life of the building and reused or repurposed depending on their lifespan.

According to the WRAP case study (WAS031), as seen from Figure 3-3, there was circa 50% savings in material waste when a site base construction is compared to a volumetric construction.

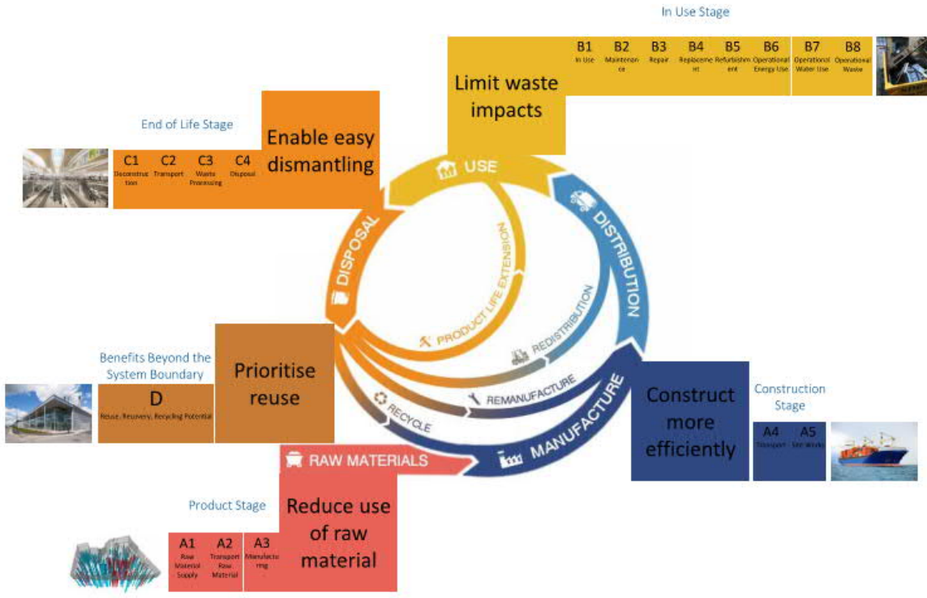

Figure 3-2 - Benefits of Offsite and Modular Construction

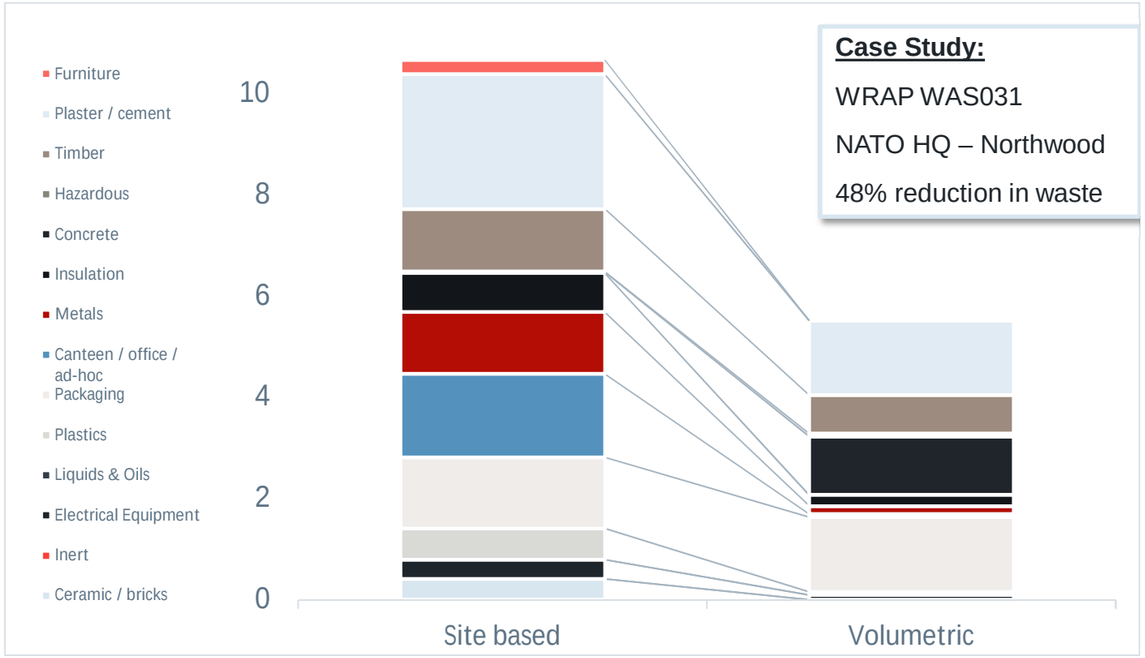

Figure 3-3 - WRAP Case Study - waste reduction by using Volumetric method of construction

Another method that encourages waste reduction during the operation is the, '***supplier take-back schemes'*** where the supplier is responsible for collecting and recycling/dismantling/remanufacturing of said product/element once it has reached its end of life or faulty and needs to be replaced. This method will reduce municipal waste and encourage waste to be diverted from landfill. This will also help the supplier reduce the use of raw material for manufacturing new product as they can easily dismantle and reuse elements that are still in good condition from the element/product collected from the development.

Other methods include, but not limited to:

- Design for Manufacturing and Assembly (DfMA)
- Modular Construction
- Offsite construction
- Supplier take-back scheme
- Just-in-time delivery
- Larger pack sizes to reduce amount of package per unit. (e.g. Paints delivered in tanks than containers)
- Excavation waste arising from the development will be removed from site, treated where necessary, and re-used as fill on suitable projects.

- As discussed previously, all concrete materials will be recovered from the demolition process, they will be crushed (onsite or offsite, depending on size of machinery) graded and stockpiled, where they can be used as concrete infill or pilling. Moreover, 100% of the rebar steel, structural steel, copper will be recovered and recycled.

During the sustainability conversation/BREEAM Pre-assessment meeting, some of these methods were discussed and considered. In general, as the design progresses, these methods will be investigated further for incorporation to help reduce waste generation. It is anticipated that once a Contractor is appointed, a Site Waste Management Plan (SWMP) will be prepared for the project, in accordance with the local plan and BREEAM requirements. Moreover, a pre-demolition audit will be commissioned and will be carried prior to works commencing on site.

3.3. MANAGE WASTE SUSTAINABLEY

The Proposed Development will incorporate best practice waste reduction measures developed in line with the waste hierarchy to reduce, reuse, and recycle. These include:

CONSTRUCTION WASTE

- Exploring the potential for using prefabricated and standardised modulation components
- A pre-demolition audit will be produced to understand the potential for salvaging components and recycling of demolition waste

A Construction Environmental Management Plan (CEMP) or Site Environmental Management Plan, should be drafted and later completed by the appointed contractor, including the following:

- Setting of a target benchmark for Construction Site Waste Management (in line with BREEAM Wst 01)
- Procedures and commitments for minimising non-hazardous waste in line with the benchmark.
- Procedures for minimising hazardous waste
- Procedures for monitoring, measuring and reporting hazardous and non-hazardous site waste
- Procedures for sorting, reusing and recycling construction waste into defined waste groups.
- 80% per volume or 90% by tonnage non-hazardous construction waste generated by the development will be diverted from landfill and reused or recycled. (in line with BREEAM Wst 01)
- At least 95% of the demolition waste will be recovered for recycling and diverted from landfill.

OPERATIONAL WASTE

A Waste Management Strategy has been produced separately to support the planning application of the Proposed Development, please refer to the report for full information. A summary is provided below:

RESIDENTIAL WASTE

- Residential units will incorporate sufficient internal waste storage containers to promote the separation of recyclable materials at source.
- Three residential waste storage areas will be provided at basement level and will be located in close proximity to each of the blocks' service cores.
- Residents within Block K will be provided with a waste chute that serves each residential floor and discharges into a waste chute room at basement level.
- Residents within Blocks I and J will transport their own waste directly to the waste storage areas at basement level. Sufficient space within each of the waste storage areas has been provided to accommodate the required number of refuse, recyclables and food waste containers assuming a weekly waste collection frequency.
- Container numbers have been quantified using residential waste generation metrics source from the Guidance.
- On collection days, the on-site FM team will be responsible for transporting the bins from each waste storage areas to the waste presentation area at basement level. The on-site FM team will return the bins to the waste storage areas once emptied.

	Waste generation per week (L)	1100L Euro bin
Block J		
General Waste	7,140	6
Food Waste	2,380	2
Recycling	14,280	13
TOTAL		22
Block I		
General Waste	6,840	6
Food Waste	2,280	2
Recycling	13,680	12
TOTAL		21

Block K	Waste generation per week (L)	Compaction Ratio	1100L Eurobin (No.)
General Waste	16,350	2 to 1	7
Food Waste	5,450	-	5
Recycling	32,700	-	30
TOTAL			42

Figure 3-4 - Waste Calculations (Residential)

RESIDENTIAL AMENITY SPACE

- The proposed residential amenity space within the Proposed Development will be for the exclusive use of the residents and therefore it is assumed that it will be classified as mixed municipal waste, and that these areas will generate minimal waste levels.
- Any waste generated within the Proposed Developments residential amenity space will be stored in domestic type bins and will be removed by the on-site FM team during cleaning activities and will be placed in the Block K residential waste storage area for disposal.

OFFICE WASTE

- Three Office waste storage areas will be provided at basement level and will be located in close proximity to the office core. The office management team will transport their own waste directly to the waste storage areas at basement level.
- Sufficient space within each of the waste storage areas has been provided to accommodate the required number of refuse, recyclables and food waste containers assuming a weekly waste collection frequency.
- Container numbers have been quantified using residential waste generation metrics sourced from the Guidance.
- On collection days, the on-site FM team will be responsible for transporting the bins from each waste storage area to the waste presentation area at basement level. The on-site FM team will return the bins to the waste storage areas once emptied.

COMMERCIAL WASTE

- Each commercial tenant will be required to provide temporary waste storage areas within their demise which have sufficient capacity to separately store refuse and recyclables.
- The commercial tenants will be provided with a communal waste store located at ground floor level which will be used by all the tenants.
- On the agreed collection days, the commercial waste management contractor appointed by the on-site FM team will collect the commercial waste directly from the commercial waste store.

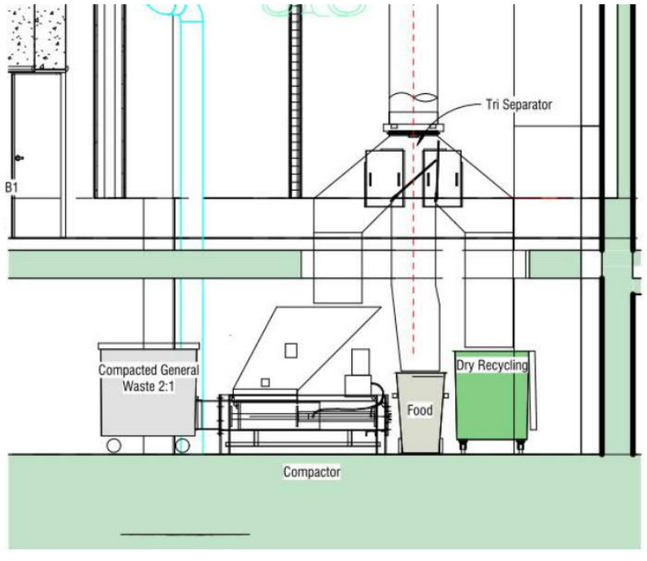

Figure 3-5 - Waste Chute

4. END OF LIFE STRATEGY

The Proposed Development has been designed and constructed to reduce material demands and as far as practicable, enable components or element to be disassembled and/or reused/recycled at the end of their useful life.

STRUCTURE

The building structure has been designed with the industry design life of 50 years (as per the British Standards and Eurocodes), however it is anticipated this building could easily last between 60-100 years.

SERVICES

Modularity and supplier ‘take-back scheme’ will be encouraged to allow for disassembly and reuse at the end of their useful life. Building information will be stored to allow for end of life strategy, future reuse, disassembly, waste reduction/avoidance.

5. STRATEGIC APPROACH SUMMARY

Aspect	Steering approach	Strategy implemented	Target	Supporting analysis / studies / surveys / audits
Existing Site	Maximise recovery, reuse and recycling of demolition waste.	A pre-demolition audit will be undertaken to help identify opportunities for reuse, recycling or recovery, disposal and opportunities for reuse within development works. **Potential opportunities for reuse within the development:** – Excavated material for filling. - Concrete could be crushed, stockpiled and reused on site for pilling platforms or landscape areas.	Waste targets for non-hazardous construction waste generated from the building (excluding demolition and excavation waste) need to be set at no more than 3.4m3 or 3.2tonnes per 100m2 of gross internal floor area. In addition at least 70% by volume or 80% by tonnage for non-hazardous construction waste and 80% by volume or 90% by tonnage for demolition waste will need to be diverted from landfill. 95% diversion from landfill (Based on the GLA Waste target).	BREEAM Wst. 01 Credit Pre-Demolition Audit Site Waste Management Plan
New Building	Sustainable Sourcing of Materials Manage Construction Waste Optimise Material Use Functional Adaptability Reuse, Recycling & End of Life	Local Sourced Materials will be priorites 100% of material should be Responsible Sourced Main Contractor to develop and operate a Sustainable Procurement Plan Conctractor should record, monitor and manage constuction waste. Waste target should be set in the Site Waste Management Plan before work commence on site Material are efficiently and procured to reduce wastage on site Desing for Adaptability and Flexibility which in result will increase buildign lifespan Design for Disassembly and deconstruction - This is to ensure all materials have been ultilized to their maximum potential	Materials from suppliers who participate in responsible sourcing schemes such as the BRE BES 6001:2008 Responsible Sourcing Standard will be prioritised. All timber specified will be sourced from schemes supported by the Central Point of Expertise for Timber Procurement such as Forest Stewardship Council (FSC) accreditation – which ensures that the harvest of timber and non-timber products maintains the forest's ecology and its long-term viability. Where viable the design team will specify materials that are grown or made locally. Likewise, the appointed contractor will be asked to prioritise local sourcing of materials. Natural resource depletion will be minimised throughout the development, and materials such as peat and natural weathered limestone will not be used in the buildings or landscape features. < 6.5 tonnes of construction waste (excluding excavation waste) / 100m2 GIA	Sustainable Procurement Plan Pre-Demolition Audit Sustainability strategy Operational Waste Management Strategy BREEAM Pre-assessment Pre-construction engagement with main contractor and supply chain.
Municipal Waste Arising during operation	Compliant Bin storage and segregation of operational waste	A project-specific Operational Waste Management Strategy has been prepared in accordance with relevant requirements, in order to embed and enable sustainable waste management in operation. Bin sizes and storage have been calculated to provide sufficient storage for recycled, non recycled waste and food waste.		Operational Waste Management Strategy BREEAM Pre-assessment

6. BILL OF MATERIAL

Item	Value (kg)	Material Intensity (kg/m² GIA)	Recycled Content	Source of Information -
1.Substructure	46,000,000	716.25	20%	Design Team and One Click LCA WLC Calculations
2.1. Frame	23,000,000	358.13	20%	Design Team and One Click LCA WLC Calculations
2.2.Upper floor	45,000,000	700.68	20%	Design Team and One Click LCA WLC Calculations
2.3.Roofs	4,100,000	63.84	20%	Design Team and One Click LCA WLC Calculations
2.4.Stairs and ramps	7,100,000	110.55	20%	Design Team and One Click LCA WLC Calculations
2.5.External walls	14,000,000	217.99	20%	Design Team and One Click LCA WLC Calculations
2.6.Windows and external doors	910,000	14.17	20%	Design Team and One Click LCA WLC Calculations
2.7.Internal walls and partitions	1,200,000	18.68	20%	Design Team and One Click LCA WLC Calculations
3.Internal finishes	6,100,000	94.98	20%	Design Team and One Click LCA WLC Calculations
Excavation Waste	1,400,000	21.80	-	Design Team and One Click LCA WLC Calculations

2,317.08

7. RECYCLING AND WASTE REPORTING

Category	Total Estimate	of which				Source of Information
	Quantity	% reused or recycled (on-site)	% reused and recycled (off-site)	% not reused or recycled		
				% to landfill	% to other (e.g. incineration)	
Demolition waste	TBC	TBC	TBC	TBC	n/a	Pre-Demolition Waste
Construction waste	23,925 m³	TBC	TBC	TBC	TBC	Whole Life Carbon Calculation Site Waste Management Plan
	L/week	**% reused (on or off site)**	**% recycled or composted (on or off site)**	**% not reused or recycled**		
				% to landfill	**% to other (e.g. incineration)**	
Municipal waste	115,561	n/a	70	0	30	Operational Waste Management Plan

8. KEY CIRCULAR ECONOMY COMMITMENTS

Building "Layer" (as per GLA guidance)	Site	Substructure	Superstructure	Shell/ skin	Services	Space	Stuff	Construction
	SECTION A: CONSERVE RESOURCES							
Minimising the quantities of materials used	Circular Economy Principles will be considered and at Practical Completion Circular Economy will help quantity the total material used on site.		The specified materials should meet the following requirements where possible: Responsible sourcing certificates, Environmental Product Declarations (EPD) and Low emitting materials. More than three of the key elements of the buildings' envelope will achieve a rating of A+ to D in the BRE's Green Guide 2. 100% of the timber used will be sourced from accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source. Products holding responsible sourcing certification (EMS/ISO14001 for the key process as per minimum) will be specified for the main building elements (walls, floors, roof).				To be considered with tenant as part of incoming fit- outs.	Suppliers should agree to: - reduce packaging, - use reusable packaging, or - operate a packaging take- back scheme; - 'just-in-time' material delivery to minimise stockpiling and related risk of damage and disposal as waste; - particular attention to material quantity requirements to avoid over- ordering and generation of waste; - reuse of materials where feasible.
Minimising the quantities of other resources used (energy, water, land)	It has maximised the utilization of the site, which includes utilising 100% of the previously developed land and increasing the density of the development while maintaining the footprint of the existing site and ensured that it minimises it visual impacts on existing views and the existing townscape.	The energy demand of the Proposed Development has following the London Plan Energy Hierarchy (BE LEAN – BE CLEAN – BE GREEN – BE SEEN). Moreover, a 'fabric first' approach was considered to reduce energy demand and carbon emissions, with the aim of meeting the GLA carbon reduction. WLC has been carried for the development and it includes the impact of the decarbonization of the grid for both operational energy and material replacement/repair cycle. The Development will be fitted with water efficient fixtures and fittings, and water meters will be provided to enable the monitoring of water use. ☐ For the residential units, a daily water consumption of 105l/p/day will be targeted, as per the GLA requirements, through the installation of low/dual flow sanitary fixtures and fittings. ☐ While the non-residential areas will target at least a 25% - 50% water reduction in the correspondent water use BREEAM credit (Wat 01). Additionally, in non-residential areas water meters will be linked to a central Building Management System which will enable monitoring and evaluation of water usage by the building management team. ☐ Systems will be specified to detect a major water leak on the mains supply both within the building and between the building and the utilities water meter. Proximity controls will be installed in the non-residential toilet blocks to ensure that water supply is turned off when toilets are not in use.				To be considered with tenant as part of incoming fit- outs.	During the construction stage the Principal Contractor will be required to set targets for energy and water used on site and ensure measures are put in place to minimise consumption of these resources. These could consist of: ☐ Low carbon energy source used during construction phase (Renewable sources of energy and offset of main utilities) ☐ Use of highly efficient plant and battery power energy storage.

Building "Layer" (as per GLA guidance)	Site	Substructure	Superstructure	Shell/ skin	Services	Space	Stuff	Construction
Specifying and sourcing materials responsibly and sustainably	The responsible sourcing of materials will be a key consideration in the selection of suppliers, and a sustainable procurement strategy will be produced for the development prior to construction. Materials from suppliers who participate in responsible sourcing schemes such as the BRE BES 6001:2008 Responsible Sourcing Standard will be prioritised. All timber specified will be sourced from schemes supported by the Central Point of Expertise for Timber Procurement such as Forest Stewardship Council (FSC) accreditation – which ensures that the harvest of timber and non-timber products maintains the forest's ecology and its long-term viability. Where viable the design team will specify materials that are grown or made locally. Likewise, the appointed contractor will be asked to prioritise local sourcing of materials. Natural resource depletion will be minimised throughout the development, and materials such as peat and natural weathered limestone will not be used in the buildings or landscape features. Additionally, a WLC has been undertaken and it will be used to guide the material selection of product						To be considered with tenant as part of incoming fit- outs.	Sustainable Procurement Plan will be commissioned/ developed.
	SECTION B: DESIGN TO ELIMINATE WASTE (AND FOR EASE OF MAINTENANCE)							
Designing for reusability / recoverability / longevity / adaptability / flexibility			The following aspects have been considered: - Flexible floorplates layouts / structural grids - Avoidance of toxic treatments and finishes. - Floor to ceiling heights - Placement of the core. - Standardised components (Mat 05/Wst 06)*				To be considered with tenant as part of incoming fit- outs.	
Designing out construction, demolition, excavation, industrial and municipal waste arising	The following methods have been considered: ☐ Design for Manufacturing and Assembly (DfMA) ☐ Modular Construction ☐ Offsite construction ☐ Supplier take-back scheme ☐ Just-in-time delivery ☐ Larger pack sizes to reduce amount of package per unit. (e.g. Paints delivered in tanks than containers) ☐ Excavation waste arising from the development will be removed from site, treated where necessary, and re-used as fill on suitable projects. ☐ All concrete materials will be recovered from the demolition process, they will be crushed (onsite or offsite, depending on size of machinery) graded and stockpiled, where they can be used as concrete infill or pilling. Moreover, 100% of the rebar steel, structural steel, copper will be recovered and recycled. (Wst 01/06)*						To be considered with tenant as part of incoming fit- outs.	A Site Waste Management Plan will be prepared/commissioned
	SECTION C: MANAGE WASTE							
Demolition waste (how waste from demolition of the layers will be managed)	To meet the GLA requirement >95% demolition waste diverted from Landfill	N/A					Some ferrous and non ferrous metal, suitable for reuse can be sold and reused.	Pre-Demolition Audit SWMP to be submitted prior to above-ground works.
Excavation waste (how waste from excavation will be managed)	To meet the GLA requirement >95% demolition waste diverted from Landfill	N/A						
Construction waste (how waste arising from construction of the layers will be reused or recycled)	To meet the GLA requirement >95% diversion from landfill.							
Municipal and industrial waste (how the design will support operational waste management)	Refuse storage planned according to the local and GLA waste requirement (Wst 03)*	N/A			Space will be provided for segregation of recyclables and bulk items so that they can be collected for recycling.			N/A

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