Norman Disney & Young
A TETRA TECH COMPANY

105 JUDD STREET LIMITED

105 Judd Street

Circular Economy Statement

13 April 2022

Revision: 3.0 | Planning issue| **Issued**: 13 April 2022

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RECORD OF REVISIONS

Revision	Date	Amendment Details	Revision prepared by	Revision Approved by
1.0	03/03/2022	Draft	Andrew Vann	Alex Mitchell
2.0	15/03/2022	Updated to incorporate comments	Andrew Vann	Alex Mitchell
3.0	13/04/2022	Planning issue	Andrew Vann	Alex Mitchell

EXECUTIVE SUMMARY

Norman Disney & Young (NDY) has been appointed by 105 Judd Street Ltd ('the Applicant') to produce a Circular Economy Statement to of the planning submission for 105 Judd Street, a commercial office building in the Bloomsbury Conservation Area.

The application seeks planning permission for the partial and replacement of the existing ramp; roof terraces at levels three, four and five; provision of cycle parking, waste/recycling storage and other services; associated external alterations. demolition and erection of extension at part third floor, fourth floor, fifth floor and rooftop plant in connection with the ongoing use of the building for commercial, business and service uses (Class E); associated external alterations to the elevations, improvements to the public realm

This Circular Economy Statement should be read alongside the Design and Access Statement prepared by Stiff + Trevillion and the Whole Life Cycle Assessment report produced by NDY, which have been submitted as standalone documents.

Organisations involved in the design and delivery of the proposed Development

A multi-disciplinary team has been involved in the design of the proposed Development as outlined below:

- Architect: Stiff + Trevillion
- Structural Engineers: HTS
- MEP Engineers: Norman Disney & Young (NDY)
- Sustainability Consultants: Norman Disney & Young (NDY)

Circular Economy Strategic Approach

The strategic approach for the proposed Development is to prioritise adaptability and material use reduction across all design elements. The design team has been engaged through a workshop to outline the circular economy principles for the development. An RFI was then issued to formally document circular economy principles and establish actions for future stages. It is understood that the site and the use class comes with constraints, and the team has worked to push these constraints where possible to allow for a flexible building that is easily upgradeable and reusable. The project aims to strongly follow the guidelines of BREEAM, including but not limited to:

- Man 01 – Project brief and Design
- Wst 01 – Construction waste management
- Mat 01 – Life cycle impacts
- Mat 03 – Responsible sourcing of materials
- Mat 05 – Designing for durability and resilience

Table 1: Circular Economy strategic approach

	Phase/ Building Area	Steering Approach	Notes
Circular Economy Approach for the Development	Sub-structure	Retained	Substructure is retained
	Super-structure	Mostly retained – some new	Much of the design is retained except for a small extension. Spaces have been designed with adaptability for future use-class changes in mind.
	Skin	Mostly retained – some new	
	Space	Design for adaptability	
Circular Economy Approach for Municipal Waste during operation	All areas	Enable recycling and diversion of waste	Adequate space for storing and separation for waste streams has been integrated in the design, to include waste facilities at appropriate location and size to suit the needs of the Development during operation.

Summary of Circular Economy Commitments

Circular Economy considerations have been incorporated into the design and have informed the Whole Life Cycle Assessment (WLCA) which has been carried out for the Development and is provided as a standalone document.

To enable the effective implementation of Circular Economy principles, performance targets and key commitments have been defined for the primary metrics set by the GLA's draft Circular Economy Guidance document (October 2020). These targets and commitments will be reviewed and may be adjusted as appropriate during the detailed design to respond to the specific requirements of each element and ensure that current best practice is being followed and opportunities to innovate are maximised.

Table 2 summarises the key circular economy commitments, which are also discussed in sections 4.1 and 4.4 in more detail.

Table 2: Summary of key Circular Economy Commitments

	Site	Substructure	Super-Structure	Shell / Skin	Services	Space	Non-fitted elements	Construction – Temporary elements
Minimising the quantities of materials used	Existing building on site has been reused	Reused. Three storey extension accomplished without need for further substructure	Mostly reused. Precast concrete planks and steel framing will be fabricated off site - minimising site waste	Mostly reused With lightweight new extension that has no impact on existing structure	Central plant and the services distribution has been optimised to reduce any transfers, or excessive lengths of pipe work, ductwork, containment and cables.	Mostly reused. Where possible standard building material dims will inform the design for efficiency. Exposed concrete where possible	Material minimisation will be explored in later stages.	N/A at current stage –Requirements to be included in the contractor's tender documentation
Minimising the quantities of other resources used (energy, water, land)	No new land or site space used due to reuse. Site is made more efficient due to extension	N/A	N/A	High performance building envelope to reduce energy demand	Designed for energy efficiency.	N/A	N/A	Monitor energy and water use during construction (BREEAM Man 03)
Specifying and sourcing materials responsibly and sustainably	Prioritise materials that are responsibly sourced (BREEAM Mat 03 – Responsible sourcing of materials). Prioritise materials with one of the following: EPDs, ISO14001, BES6001, FSC, PEFC. Prioritise materials with high recycled content. All timber and timber-based products used in this Development will be legally harvested and traded timber.							
Designing for reusability / recoverability / longevity / adaptability / flexibility	N/A	Not relevant due to retention	Proposed structure of the new extension can be disassembled and reused on a different site at the end of the building life Concrete decking is precast and does not have an in-situ topping. Steel beams are bolted to each other / columns to aid disassembly.	Materials are low maintenance, replaceable modules The extension façade will generally be formed from separate rather than composite elements, minimising waste in maintenance & disassembly.	Over provision of riser space for future expansion. Tenant plant space included in roof enclosure. Elements are modular to assist with plant replacement Most of the MEP systems are designed to be independent to ensure that these are accessible and can be maintained and replaced without resulting in waste production. Access will be designed for all systems that require it and therefore avoid the need for destructive access. The design of the building is primarily for office use but can also be	Flexible open plan office floor plate created to be easily adapted for alternate use Most of the elements and materials can be recycled - particularly where composite materials have been avoided..	Manufacturers and suppliers to be engaged at later stages	Sustainable Procurement Plan to be discussed with contractor at later stages.

					for lab use if required. The building has 'lab enabled' cores, plant areas, and utility connections to have flexibility to have both type of these tenants throughout its lifetime.			
Designing out construction, demolition, excavation, industrial and municipal waste arising	Demolition is minimal with mostly strip out undertaken due to significant reuse of the existing structure	Reclaimed structural components can be reused in the design Concrete slabs will be fabricated off site.	Reclaimed structural components can be reused in the design Concrete slabs will be fabricated off site.	Potential to reuse slate from existing mansards as mansard cladding - pending detailed condition survey. Potential for pre fabrication of brick pier cladding	None of the materials from demolition can be reused in the design. Most of the equipment has reached it's end of life and should be recycled instead - if possible. A large quantity of the stripped out equipment can be appropriately recycled All major central plant is to be manufactured off site, tested and then commissioned once installed. This may include pump sets, electrical switchboards, ductwork risers, fan assemblies and Air Handling Unit	Use of products from manufactures who offer take-back schemes to be explored in later stages	A standardised range of products and finishes over all floors to encourage the reuse of offcuts.	
Demolition waste (how waste from demolition of the layers will be managed)	Waste minimised through above actions and through retention of existing building. Limited to strip-out	Waste minimised through above actions and through retention of existing building. Limited to strip-out	Waste minimised through above actions and through retention of existing building. Limited to strip-out	Waste minimised through above actions and through retention of existing building. Limited to strip-out	Waste minimised through above actions and through retention of existing building. Limited to strip-out	Waste minimised through above actions and through retention of existing building. Limited to strip-out		Site Waste Management Plan (SWMP) to be discussed with contractor at later stage.
Excavation waste	Aim to limit excavation waste and divert from landfill. This will fall under the scope of the demolition contractor.							
Construction waste	The Development aims to limit construction waste to 11.3 $m^3/100m^2$ of floor area / 3.5 tonnes/$100m^2$ of floor area, for compliance with BREEAM.							
Municipal and industrial waste	N/A	N/A	N/A	N/A	N/A	Provide adequate space for general and recyclable waste.		

1 INTRODUCTION

London Plan's Policy SI 7 defines a Circular Economy design approach as one where materials are retained in use at their highest value for as long as possible and are then reused or recycled, leaving a minimum of residual waste.

Currently, the construction industry utilises a linear approach, following the 'take-make-use-dispose' model, where raw materials are extracted, then transformed into products, transported, installed, used and at their end-of-life stage they are disposed as waste. Circular economy moves away from this current linear model, to a model where resources are kept in use, their value is retained and materials can be reused, recycled or remanufactured.

1.1 Method Statement

This Circular Economy Statement has been developed in response to the planning policy requirements set by the London Plan, Policy SI7 and follows the methodology stipulated by the GLA's draft Guidance on Circular Economy Statements (see section 2.2).

1.1.1 Consultation

Throughout the design process the team has implemented best-practice principles into the design based on local standards. To capture this, a set of dedicated Request for Information (RFI) schedules were circulated to the design team members to gather information about feasible circular economy measures that can be incorporated into the design and commitments for further actions during the next design and construction phases of the Development The information collected has been incorporated into this report.

1.2 Circular Economy Aspirations

The strategic approach for the proposed Development is to prioritise adaptability and material use reduction across all design elements

The key pillars of the design development which demonstrate the Circular Economy aspirations of the Development are outlined below:

- Reuse of a majority of the existing building, directly keeping a large amount of material in circulation and significantly reducing waste and other impacts associated with demolition and new construction
- Potential prefabrication of the following building materials
  - Brick cladding
  - Concrete slabs
  - Building service components
- Emphasis on future flexibility and adaptability, with adaptability strategies identified for a variety of uses including offices, and labs.
- Design for durability and adaptability by protecting the structure from erosion
- Specify materials with recycled content and aim to specify materials from manufacturers who offer take-back schemes.
- Layers off the building will be designed to be independent, to allow for future replacement and maintenance to minimise waste in line with BREEAM Wst 01
- Reduce resources including energy, water and land.
- Design for durability, longevity and flexibility, to keep building elements and materials in use for longer and enable flexible fit-out arrangements without significant alterations and waste generation.
- Prioritise materials that are responsibly and sustainably sourced.

The Circular economy aspirations of the proposed Development are also aligned with the Whole Life Cycle Assessment produced for the proposed Development, which is submitted in support of this planning application as a standalone document.

2 PLANNING POLICY REQUIREMENTS

This Circular Economy Statement has been prepared in accordance with the planning policy requirements stipulated by the planning policy documents outlined below:

- London Plan, published in March 2021
- GLA Guidance on Circular Economy Statements, draft for consultation published in October 2020.

2.1 London plan, March 2021

The new London Plan aims to promote circular economy principles and sets policy requirements to enable a transition towards a circular approach in the built environment.

- **Policy SI 7 Reducing waste and supporting the circular economy, aims to:**
  - 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
  - encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products
  - ensure that there is zero biodegradable or recyclable waste to landfill by 2026
  - meet or exceed the municipal waste recycling target of 65 per cent by 2030
  - meet or exceed the targets for each of the following waste and material streams:
    - construction and demolition – 95% reuse/recycling/recovery
    - excavation – 95% beneficial use
  - 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.

Policy SI 7 requires referable applications to promote circular economy outcomes and aim to be net zero-waste.

A Circular Economy Statement should be submitted, to demonstrate:

- how materials arising from demolition and remediation works will be re-used and/or recycled
- 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
- opportunities for managing as much waste as possible on site
- adequate and easily accessible storage space and collection systems to support recycling and re-use
- how much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy
- how performance will be monitored and reported.

GLA Guidance on Circular Economy Statements, Draft for consultation

The draft for consultation Guidance on Circular economy Statements, which was published by GLA in October 2020, provides the structure and minimum content that a Circular Economy Statement should cover to fully address the requirements of the Policy SI 7 of the London Plan.

This document provides guidance for Circular Economy Statements to ensure that applicants seeking planning permission for major schemes:

- Consider strategies to facilitate the transition towards a circular built environment
- Report against numerical targetsthatwill facilitate monitoring of waste and recycling; and
- Recognise opportunities to benefit from greater efficiencies that can help to save resources, materials, and have economic benefits.

Post-Planning Updates to the Circular economy Statement should be provided at RIBA stages 5 and 7 to present the progress in meeting the targets and commitment during the construction phase. The need for updates will be determined during the application process.

Objective	Targets
Achieve performance targets set by Policy SI 7 of the London Plan	• Non-hazardous waste to be diverted from landfill targeting the following minimum rates: – Demolition = 95% by tonnage – Construction = 95% by tonnage • Municipal waste: meet or exceed the 65% recycling target by 2030. • Recycle content: Aim to specify materials with a 20% recycle content as a minimum, where feasible and available to the market.

3 CIRCULAR ECONOMY GOALS AND STRATEGIC APPROACH

The strategic approach for the proposed Development is to prioritise adaptability and material use reduction across all design elements. The Development's strategic approach to implement Circular Economy principles is illustrated in table 3 below.

Table 3: Circular economy strategic approach

	Phase/ Building Area	Steering Approach	Notes
Circular Economy Approach for the Development	Sub-structure	Retained	Substructure is retained
	Super-structure	Mostly retained – some new	Much of the design is retained except for a small extension. Spaces have been designed with adaptability for future use-class changes in mind.
	Skin	Mostly retained – some new	
	Space	Design for adaptability	
Circular Economy Approach for Municipal Waste during operation	All areas	Enable recycling and diversion of waste	Adequate space for storing and separation for waste streams has been integrated in the design, to include waste facilities at appropriate location and size to suit the needs of the Development during operation.

4 CIRCULAR ECONOMY COMMITMENTS

4.1 Key Commitments

The design team explored several options to maximise opportunities for implementation of circular economy principles in the design proposals, considering each building layer.

Table 4 presents the Circular Economy Commitments Reporting template, which outlines the key circular economy principles and commitments that have been incorporated in the design of each building layer.

Table 4: Circular Economy Commitments Reporting template

	Site	Substructure	Super-Structure	Shell / Skin	Services	Space	Non-fitted elements	Construction – temporary structures	Summary	Challenges	Counter Actions + Who + When	Plan to Prove and Quantify
Section A: Conserve Resources												
Minimising the quantities of materials used	Existing building on site has been reused	Reused. Three storey extension accomplished without need for further substructure	Mostly reused. Precast concrete planks and steel framing will be fabricated off site - minimising site waste	Mostly reused With lightweight new extension that has no impact on existing structure	Central plant and the services distribution has been optimised to reduce any transfers, or excessive lengths of pipe work, ductwork, containment and cables.	Mostly reused. Where possible standard building material dims will inform the design for efficiency. Exposed concrete where possible	Material minimisation will be explored in later stages.	N/A at current stage – Requirements to be included in the contractor's tender documentation	**Most of the development is reused. New elements are designed with material efficiency in mind to reduce impact on existing structure**	Specify materials with high recycled content.	Design team to explore further options for materials with high recycled content in the next design stages.	Review in RIBA stages 3 and 4.
Minimising the quantities of other resources used (energy, water, land)	No new land or site space used due to reuse. Site is made more efficient due to extension	N/A	N/A	High performance building envelope to reduce energy demand	Designed for energy efficiency.	N/A	N/A	Monitor energy and water use during construction (BREEAM Man 03)	**Fabric first approach to operational energy has reduced impacts.**	Use class variation creates different energy scenarios	Ongoing assurance of quality fabric in retained structure	Review in RIBA stage 4
Specifying and sourcing materials responsibly and sustainably	The proposed Development will aim to prioritise materials that are responsibly sourced, in accordance with BREEAM, Mat 03 – Responsible sourcing of materials. This will be further explored in the next design stages, when materials specifications will be developed further. Prioritise materials with one of the following: EPDs, ISO14001, BES6001, FSC, PEFC. Prioritise materials with high recycled content (see Bill of Materials template). The requirement for responsible sourcing of materials in accordance with BREEAM Mat 03 – Responsible sourcing of materials will also be included in the main contractor's responsibilities at construction stage. The team will also develop a Sustainable Procurement Plan, in line with BREEAM, Mat 03 – Responsible sourcing of materials. All timber and timber-based products used in this Development will be legally harvested and traded timber.									Aiming for higher recycled content may limit supply chain.	The design team to engage with the supply chain in RIBA stages 3 and 4.	Review in RIBA stages 3 and 4. Early engagement with the supply chain.
Section B:DESIGN TO ELIMINATE WASTE (AND FOR EASE OF MAINTENANCE)												

Designing for reusability / recoverability / longevity / adaptability / flexibility	N/A	Not relevant due to retention	Proposed structure of the new extension can be disassembled and reused on a different site at the end of the building life Concrete decking is precast and does not have an in-situ topping. Steel beams are bolted to each other / columns to aid disassembly.	Materials are low maintenance, replaceable modules The extension façade will generally be formed from separate rather than composite elements, minimising waste in maintenance & disassembly.	Over provision of riser space for future expansion. Tenant plant space included in roof enclosure. Elements are modular to assist with plant replacement Most of the MEP systems are designed to be independent to ensure that these are accessible and can be maintained and replaced without resulting in waste production. Access will be designed for all systems that require it and therefore avoid the need for destructive access. The design of the building is primarily for office use but can also be for lab use if required. The building has 'lab enabled' cores, plant areas, and utility connections to have flexibility to have both type of these tenants throughout its lifetime.	Flexible open plan office floor plate created to be easily adapted for alternate use Most of the elements and materials can be recycled - particularly where composite materials have been avoided.	Manufacturers and suppliers to be engaged at later stages	Sustainable Procurement Plan to be discussed with contractor at later stages.	**Spaces have been rationalised to allow for adaptability across a range of use classes. New building elements are easily replaceable with maintenance strategies considered from early stages. .**	Enable recoverability or recyclability of the specified materials.	Plant and façade replacement strategies to be developed. Development of a functional adaptability report to be explored in next stages	Review in RIBA stages 3 and 4. Early engagement with the supply chain.
Designing out construction, demolition, excavation, industrial and municipal waste arising	Demolition is minimal with mostly strip out undertaken due to significant reuse of the existing structure	Reclaimed structural components can be reused in the design Concrete slabs will be fabricated off site.	Reclaimed structural components can be reused in the design Concrete slabs will be fabricated off site.	Potential to reuse slate from existing mansards as mansard cladding - pending detailed condition survey. Potential for pre fabrication of	All major central plant is to be manufactured off site, tested and then commissioned once installed. This may include pump sets, electrical	Use of products from manufactures who offer take-back schemes to be explored in later stages	A standardised range of products and finishes over all floors to encourage the reuse of offcuts.	Demolition is minimal with mostly strip out undertaken due to significant reuse of the existing structure	**Waste associated with construction and demolition has been minimised through the retention of the existing site**	Ensure strip out activities are low impact	Further explore options for low impact construction and reduction of off-cuts for construction.	Review during RIBA stage 3 and 4. Early engagement with the supply chain.

				brick pier cladding	switchboards, ductwork risers, fan assemblies and Air Handling Unit							
SECTION C: MANAGE WASTE												
Demolition waste (how waste from demolition of the layers will be managed)	N/A	N/A	N/A	N/A	None of the materials from demolition can be reused in the design. Most of the equipment has reached it's end of life and should be recycled instead - if possible. A large quantity of the stripped out equipment can be appropriately recycled		Site Waste Management Plan (SWMP) to be discussed with contractor at later stage.		**Little demolition occurring due to retention. Internal elements like services will be subject to SWMP**	Incorporate a strategy for the strip out of internal elements and fittings in the current space	Demolition contractor to carry out works in accordance with the Pre-Demolition Audit.	The demolition contractor to record waste generation during this period and enable
Excavation waste (how waste from excavation will be managed)	Aim to limit excavation waste and divert from landfill. This will fall under the scope of the demolition contractor.									Identify opportunities for reuse of excavation waste.	The contractor to explore options to utilise excavation waste off-site.	The contractor to record waste generation during excavation works.
Construction waste (how waste arising from construction of the layers will be reused or recycled)	The Development aims to limit construction waste to 11.5 $m^3/100m^2$ of floor area /3.5 tonnes/$100m^2$ of floor area, for compliance with BREEAM.								**Limit the amount of construction waste to 11.5 $m^3/100m^2$ of floor area /3.5 tonnes/$100m^2$ of floor area.**	Achieve the targeted amount for construction waste generation.	The contractor to monitor construction waste generation throughout the construction phase.	The contractor to monitor construction waste generation throughout the construction phase. Alignment with BREEAM Wst 01.
Municipal and industrial waste (how the design will support operational waste management)	N/A	N/A	N/A	N/A	N/A	The design incorporates adequate space for general and recyclable waste and allow for segregation of the various waste streams and enable future tenants to recycle waste generated during the building's operation.			**Appropriately sized refuse storage to enable recycling and best practise waste management.**	Predict the waste streams which will be generated during the building's operation.	The architect to implement best practice guidelines for provision of recycling storage space to enable	Review during RIBA stage 3 and 4.

									future occupiers to recycle waste.	

4.2 Bill of Materials

Table 5 below presents the Bill of Materials template, which demonstrates the material intensity, recycled and reused content of each building layer.

Table 5: Bill of Materials template

Layer	Element	Material quantity (tonnes)	Material intensity (kg/m² Gross Internal Area	Recycled content (% by value)	Reused content (% by value)	Resource
Structure	Foundation	1,480	Material quantities will be estimated in the next design stages, when the design will be developed in further detail.	Concrete containing 50-70% recycled crushed aggregate (GGBS)	N/A	Concrete and reinforcement
	Floors	1,080		Concrete containing 50-70% recycled crushed aggregate (GGBS)	N/A	Concrete
	Roof	482		Aim for 20% recycled content.	N/A	Tile
	Structural frame	226		Aim for 20% recycled content.	N/A	Steel
	Structural frame (core)	To be split out at later stages		Aim for 20% recycled content.	N/A	Concrete
Shell/Skin	Cladding	86	The aim of the design will be to optimise material intensity to minimise the use of resources.	The architectural design will aim to specify materials with high recycled content (aiming to meet the 20% ambition target set by the London Plan 2021), where is technically, practically and economically feasible.	N/A	Aluminium, Glazing
	Windows	To be split out at later stages			N/A	
	Curtain walling	To be split out at later stages			N/A	
Space	Partitions	1,065		Aim to specify materials with high recycled content (aiming to meet the 20% ambition target set by the London Plan 2021), where is technically, practically and economically feasible.	N/A	
	Ceilings				N/A	
	Floor Finishes				N/A	

4.3 Recycling and Waste Metrics

Table 6 presents the Recycling and Waste Metrics template, which demonstrates the targets set for the proposed Development.

Table 6: Recycling and Waste Metrics template

Category	Total Estimate	Of which:				Source of Information
	t/m² Gross Internal Area (GIA)	**% Reused or Recycled On-Site**	**% Reused or Recycled Off-Site**	**% Not reused or Recycled max**		
				% to Landfill	**% To other management (e.g. incineration)**	
Excavation waste	The amount of excavation waste will be determined in RIBA stage 3.	Aim for 95% diversion of waste from landfill as per Policy SI 7 of the London Plan.		5% target		
Demolition waste (strip-out)	To be determined through pre-demolition audit in future design stages	Potential for reuse to be determined	100%			Pre-Demolition Audit (to be completed)
Construction waste	To be determined in the next design stages.	Aim for 95% diversion of waste from landfill as per Policy SI 7 of the London Plan 2021. This will be defined further when the Site Waste Management Plan will be produced by the contractor.		5% target		Site Waste Management Plan will be produced by the contractor.
	Tonnes/Annum	**% Reused On or Off Site**	**% Recycled or Composted, On or Off Site**	**% Not reused or Recycled max**		
				% to Landfill	**% to Landfill**	
Municipal waste	To be determined in the next design stages.	To be determined in the next design stages.		Target: maximum 35% and **no** recyclable or compostable waste to landfill		

4.4 Circular Economy Narrative

Implementation of Circular economy principles into the proposed Development has been explored by the design team. The Development involves the partial extension and ongoing use of the development for commercial, business, and service uses (Class E). The development has been designed in with adaptation in mind and can be easily altered for other uses with minimum impact from a materiality perspective.

The Circular Economy strategy for the proposed Development is outlined below (also summarised in the Key Commitments template in section 4.1).

- **Minimising quantities of materials and resources**
  - The proposed development has reduced the quantity of materials used primarily through the retention of a majority of the existing development.
  - The proposed Development will aim to minimise waste generated during the construction process through the implementation of the waste hierarchy (reduce, reuse, recycle, recover).
  - The structural design will incorporate use of GGBS for cement replacement.
  - Durable materials, that require less maintenance and replacement to reduce materials used in later stages of the building's life cycle will be specified.
  - The design will aim to specify materials with recycled content. This will be explored at the next stages when the design and specification of materials will be developed in further detail.
  - Three storey extension accomplished without need for significant changes to the substructure.
  - Central plant and the services distribution has been optimised to reduce any transfers, or excessive lengths of pipe work, ductwork, containment and cables.
  - Where possible standard building material dimensions will inform the design for efficiency.

  Minimising other resources used

  The proposed Development will be designed and constructed to reduce the use of resources other than materials, including land, energy and water.
  - The proposed scheme retains the existing structure on site and increases the density, thus preventing urban sprawl and the use of greenfield land.
  - The energy strategy for the proposed Development has prioritised measures for energy demand reduction in line with the Mayor's energy hierarchy. The proposed energy strategy is described in detail in the Energy Statement, which is submitted in support of this planning application as a stand-alone document. The Energy Statement combines energy efficiency measures and low and zero carbon technologies to reduce the energy consumption of the Development.
  - The proposed Development will reduce potable water demand through the specification of efficient water fittings and water leakage detection systems.
  - The Development also aims to reduce unregulated water demand, incorporating efficient irrigation system and plants with low water demand.
- **Specify and source materials and other resources responsibly and sustainably**

  The proposed Development will aim to source materials responsibly and sustainably, following the relevant requirements of BREEAM as follows:
  - All timber and timber-based products used in the Development will be legally harvested and traded timber
  - New materials with responsible sourcing certificates will be prioritised, where available to the market
  - A sustainable procurement plan will be produced in future stages to ensure materials are sourced sustainably and responsibly
  - Procurement of local materials will be prioritised, where feasible
- **Design for longevity, adaptability or flexibility and reusability or recoverability**
  - Structure is designed with the flexibility to convert lab use with minimal intervention.
  - Proposed structure can be disassembled and reused on a different site at the end of the building life
  - Concrete decking is precast and does not have an in-situ topping.
  - Steel beams are bolted to each other / columns to aid disassembly.
  - The extension façade will generally be formed from separate rather than composite elements, minimising waste in maintenance & disassembly.
  - Over provision of riser space for future expansion of building services
  - Most of the MEP systems are designed to be independent to ensure that these are accessible and can be maintained and replaced without resulting in waste production. Access will be designed for all systems that require it and therefore avoid the need for destructive access.
  - The design of the building is primarily for office use but can also be for lab use if required. The building has 'lab enabled' cores, plant areas, and utility connections to have flexibility to have both type of these tenants throughout its lifetime. Flexible open plan office floor plate created to be easily adapted for alternate use
  - Sustainable Procurement Plan to be discussed with contractor at later stages.

4.4.1 Waste management

The proposed Development will maximise the use of existing resources and materials, where feasible and will minimise waste generated during the demolition and construction process through the implementation of the waste hierarchy (prevent, reuse, recycle, recover, dispose). The proposed design will also enable sustainable management of operational waste, providing dedicated, clearly labelled, accessible and of appropriate capacity storage spaces for non-recyclable and recyclable waste generated by the building's occupants.

The proposed design proposals have incorporated measures to address the principles of circular economy related to waste management as outlined below:

- **Design out construction, demolition, excavation and municipal waste arising**
  - Demolition minimised through retention of a majority of the existing building.
  - Demolition waste will be sustainably managed in line with a pre-demolition audit to be produced for the Development, to ensure opportunities for reuse or recycling of existing materials are maximised.
  - The super structure will consist of recyclable materials (i.e. steel), designing out waste to landfill at the end of life stage.
  - Façade, concrete slabs, and building services have potential to be manufactured off-site, reducing waste generation. Further opportunities for incorporation of pre-fabricated elements will be explored in the next design stages.
  - The proposed design provides dedicated space is for the segregation and storage of operational general and recyclable waste volumes generated by the building occupants' and activities during operation.
  - Potential to reuse slate from existing mansards as mansard cladding - pending detailed condition survey.
- **Manage demolition waste**
  - A pre-demolition audit of the existing buildings on-site will be carried out. This will aim to audit identify existing materials that can be reused or recycled of-site and will determine percentage of demolition materials which will be diverted from landfill, aiming for diversion rates of 90% by volume or 95% by tonnage, as a minimum
- **Manage construction waste**
  - The construction waste will be sorted into separate key waste groups either on-site or through a licensed contractor for recovery.
  - A Resource Management Plan (RMP) will be developed and implemented according to best practice with the aim to reduce and manage the construction site waste effectively. The development will achieve a maximum amount of construction waste benchmark of ≤11.5 $m^3/100m^2$ or 3.5 tonnes/$100m^2$ of gross internal floor area.
  - Construction waste will be reduced and diverted from landfill where technically and economically feasible, to meet the targets set by Policy SI 7 of the London Plan 2021 and the draft Circular Economy Guidance (October 2020). Non-hazardous construction waste will be diverted from landfill. The diversion from landfill rates should be as a minimum:
    - Construction waste = 85% by tonnage
- **Manage municipal waste**
  - The proposed Development will also adhere to an operational waste management plan which will include estimates of volumes and types of waste that will be generated during operation. The operational waste management plan will include proposed means for waste separation, recycling, movement within the development and their storage, locations and sizes of storage areas, access for waste and recycling collections, measures to keep all waste off-street, any arrangements for collection and disposal of special waste, use of compactors and baler (if applicable) and any on-site equipment to process waste. Adequate, dedicated, clearly labelled, accessible and of appropriate capacity

storage spaces for non-recyclable and recyclable waste generated by the building's occupants will be provided at the ground floor level of the development to enable adequate management of operational waste.

4.5 Plans for Implementation

This section outlines the plans for implementing the proposed Circular Economy strategy for the proposed Development.

4.5.1 Specific plans for short- and medium-term targets

The short-term and medium-term targets of implementing the proposed Circular Economy strategy relate to actions to be undertaken during the current stage (RIBA stage 2) and next design stages (RIBA stages 3 and 4), including the following:

Table 7: Implementation plan for short-term and medium-term targets

Action	Responsible party	Timeframe	Monitoring/verification mechanism
Complete pre demolition audit	Project Manager	RIBA Stage 2	Requires completion in stage 2 for planning
Develop a Sustainable Procurement Plan.	Project manager / Contractor	Prior to the commencement of RIBA Stage 4	Report progress prior to the commencement of RIBA stage 3.
Liaise with specialist contractors to sustainably manage excavation waste, if on-site reuse is not possible.	Project manager	RIBA Stages 3	Report progress at the end of RIBA stage 3.
Engage with the supply chain to identify materials with responsible sourcing certificates and recyclable content.	Architects Structural Engineers	RIBA Stages 3 and 4	Compliance with the targets of the BREEAM Assessment – Mat 03 Report progress at the end of RIBA stage 3 and stage 4
Explore options for maximising the deployment of off-site manufacturing and prefabrication.	Architects Structural Engineers MEP engineers	RIBA Stages 3 and 4	Report progress at the end of RIBA stage 3 and stage 4.
Engage with the supply chain to identify manufacturers who offer take-back schemes.	Architects MEP engineers	RIBA Stages 3 and 4	Report progress at the end of RIBA stage 3 and stage 4.
Produce tender documentation for the main contractor that include detailed requirements for the circular economy performance metrics.	Architects Structural Engineers MEP engineers	RIBA stage 4	Report progress at the end stage 4.

4.5.2 Programme / method for longer-term targets

The long-term targets of implementing the proposed Circular Economy strategy relate to actions to be undertaken during the during the construction and operational phase of the Development, including the following:

Table 8: Implementation plan for long-term targets

Action	Responsible party	Timeframe	Monitoring/verification mechanism
Develop a Site Waste Management Plan.	Contractor	Before commencement of works on-site	Compliance with BREEAM Wst 01.
Achieve the targets set for waste generation during demolition in line with the Pre-Demolition Audit.	Preliminary works contractor	Demolition phase	Monthly reporting of performance against metrics targets.
Achieve the targets set for waste generation during construction and diversion of waste from landfill.	Main contractor	Construction phase	Monthly reporting of performance against metrics targets. Compliance with BREEAM Wst 01.
Produce documentation for the building users to explain the design strategy related to Circular Economy to enable them to operate the building effectively and reduce waste during operation.	Main contractor	Handover period	Include this requirement in the tender documentation.

4.6 End-of-life strategy

In line with Circular Economy principles, the proposed design intends to extend the lifetime of the Proposed Development through careful design and specification and enable flexibility, adaptability and recyclability, based on the measures listed in the previous sections.

The end-of-life strategy scenarios for the proposed Development, which are outlined, have also been captured in the Whole Life Cycle Assessment (WLCA), which has been produced for the Development by NDY and has been submitted in support of this planning application as a standalone document.

- The structure has been rationalised and enables flexibility across multiple use-classes
- Building elements are designed with reusability and recyclability in mind, with prefabrication explored in all possible areas to allow for easy disassembly.
- Sourcing products (building materials and building services components) from manufacturers who offer take-back schemes will be explored further in the next design stages and will be also included in the tender documentation for the mail contractor.

5 CONCLUSIONS

Norman Disney & Young (NDY) has been appointed by 105 Judd Street Ltd ('the Applicant') to produce a Circular Economy Statement to of the planning submission for 105 Judd Street, a commercial office building in the Bloomsbury Conservation Area.

The application seeks planning permission for the partial demolition and erection of extension at part third floor, fourth floor, fifth floor and rooftop plant in connection with the ongoing use of the building for commercial, business and service uses (Class E); associated external alterations to the elevations, improvements to the public realm and replacement of the existing ramp; roof terraces at levels three, four and five; provision of cycle parking, waste/recycling storage and other services; associated external alterations.

The key circular economy aspirations of the proposed Development are summarised below:

- Reuse of a majority of the existing building, directly keeping a large amount of material in circulation and significantly reducing waste and other impacts associated with demolition and new construction
- Potential prefabrication of the following building materials
  - Brick cladding
  - Concrete slabs
  - Building service components
- Emphasis on future flexibility and adaptability, with adaptability strategies identified for a variety of uses including offices and labs.
- Design for durability and adaptability by protecting the structure from erosion
- Specify materials with recycled content and aim to specify materials from manufacturers who offer take-back schemes.
- Layers off the building will be designed to be independent, to allow for future replacement and maintenance to minimise waste in line with BREEAM Wst 01
- Reduce resources including energy, water and land.
- Design for durability, longevity and flexibility, to keep building elements and materials in use for longer and enable flexible fit-out arrangements without significant alterations and waste generation.

The Circular economy aspirations of the proposed Development are also aligned with the Whole Life Cycle Assessment produced for the proposed Development, which is submitted in support of this planning application as a standalone document.

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NDY QA SYSTEM

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