

# *Site Waste Management Plan (Construction Phase)*

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Prepared by Arup

Submitted on behalf of Lab Selkirk House Ltd

Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41  
New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR

**June 2023**

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# 1. Introduction

## 1.1 Overview

This Site Waste Management Plan (SWMP), Construction Phase, report has been prepared by Ove Arup and Partners Ltd. ('Arup') in support of the detailed planning application being submitted by Lab Selkirk House Ltd ('the Applicant') to the London Borough of Camden ('the Council') for the redevelopment of the land at Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR ('the site').

The detailed planning application seeks planning permission for the following description of development ('the proposed development'):

*“Redevelopment of Selkirk House, 166 High Holborn and 1 Museum Street following the substantial demolition of the existing car park and former Travelodge Hotel to provide a mixed-use scheme, providing office, residential, and town centre uses at ground floor level. Works of part-demolition and refurbishment to 10-12 Museum Street, 35-41 New Oxford Street, and 16A-18 West Central Street to provide further town centre ground floor uses and residential floorspace, including affordable housing provision. Provision of new public realm including a new pedestrian route through the site to link West Central Street with High Holborn. Relocation of cycle hire docking stations on High Holborn (Phased Development).”*

This application is submitted alongside a Listed Building Consent for the following:

*“Alterations, including part-demolition, to 10-12 Museum Street and 35 and 37 New Oxford Street, to provide flats and townhouses. Demolition of modern rear extension to 11-12 Museum Street from first to third floors, rebuilding of rear wall. Removal of non-original staircase and internal walls to 11-12 Museum Street along with new layouts and thermal upgrades including internal wall insulation, to facilitate new flats. New bridge links to 12 Museum Street from 16a-18 West Central Street. Removal of non-original partition walls to 35 and 37 New Oxford Street, reinstatement of historic room layouts, thermal upgrades. Across listed buildings: New kitchens, bathrooms and sanitaryware; Introduction of slimline double-glazed retrofit vacuum glazing to existing window joinery, limited replacement frames; New internal and external doors; Façade refurbishment works; Conservation and restoration of historic joinery, plasterwork, fireplaces and other features of heritage importance. Courtyard garden linking buildings at first floor level above ground floor shared services, with new and amended openings to listed buildings to provide access. New and restored retail frontages to all buildings.”*

The Applicant is looking to achieve a high level of recycling and reuse of materials as well as repurposing materials to avoid land fill. The aim of the strategy below is to facilitate and maximise recovery of materials and components from demolition or renovation of buildings and infrastructures for beneficial reuse and recycling, without compromising the safety measures and practices as outlined in the European Demolition Protocol and UK Standards.

The proposals are intended to assist and enable third parties to clearly understand the nature of the works related to the Construction phase of the development.

The SWMP and its continual development will assist in creating a good working relationship with the Council, local communities, visitors and occupants of nearby residential and commercial properties to make sure they are kept fully informed of current progress and of contractor key activities. It will also allow third party feedback to allow activity dates or nature be honed to minimise the risks, and disturbances to the locality as far as is safe, reasonable, and practicable.

This report is a pre-emptive full audit of the existing structures to identify opportunities for reuse and recycling of the current building materials. This work has recently been commissioned by the applicant and initial studies undertaken by Heyne Tillett Steel is appended in Appendix A.

## 1.2 Personnel

This report has been undertaken by Jonathan Evans and Ryan Nolan.

Jonathan is a Senior Planner in Arup with 22 years' construction industry experience. Jonathan has significant management experience in the construction industry.

He has worked both onsite as client representative and as a principal contractor's site agent. He has extensive experience in the design and development of construction management plans and site waste management plans.

Ryan is a Construction Planner and lead logistics planner with experience of large infra structure works, such as HS2 and the Ebury Bridge re-development.

Ryan has co-ordinated site development documentation with both contractors and developers planning and environmental teams over the last 5 years predominantly within the Greater London Area.

Jonathan and Ryan have collaborated consistently over the last 5 years with an aim to better communicate construction intent through clear and thorough documentation.

## 2. Scheme Overview

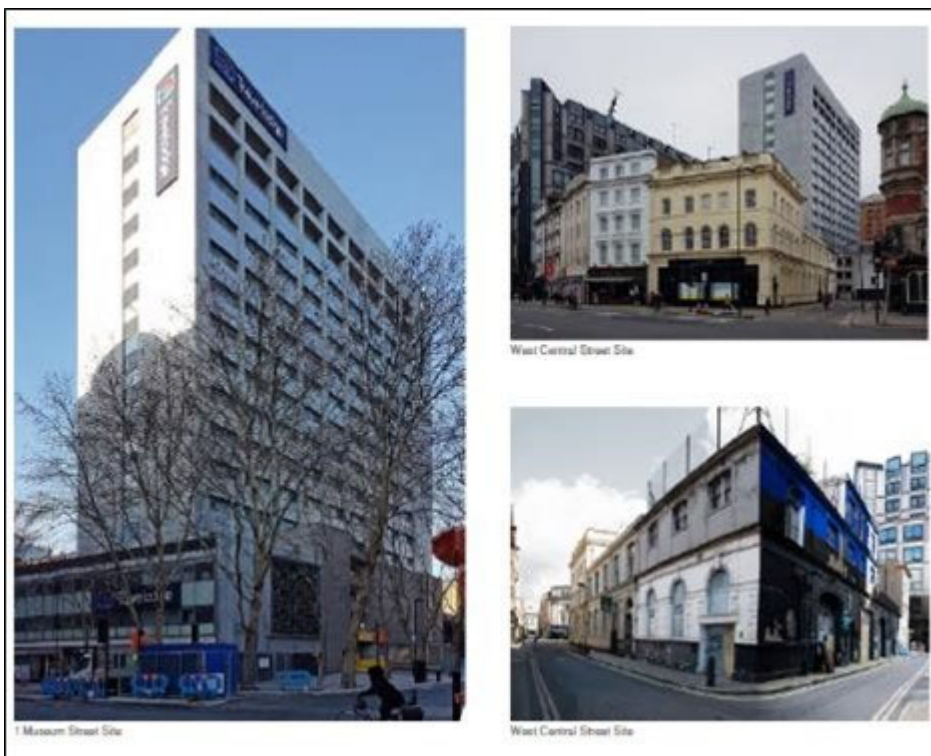
The site is located within the Holborn and Covent Garden Ward of the London Borough of Camden ('the Council'). The site comprises a number of individual different buildings within the red line area, which includes Selkirk House (1 Museum Street), 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street.

The site is bounded by High Holborn to the south, Museum Street to the east and New Oxford Street to the north, with the rear of the properties fronting Grape Street forming the western boundary. West Central Street dissects the site and separates out Selkirk House from the New Oxford Street and West Central Street block (known as the West Central Street component of the site).

Selkirk House comprises a 17-storey building, which includes two basement levels, and a further partial basement level. Selkirk House is occupied by the former Travelodge hotel building and car park. The former Travelodge building provided overspill accommodation from the primary Travelodge hotel building on the opposite side of High Holborn, however, the hotel uses at the site ceased all operation in June 2020. At lower levels there is a car park set across basement to second floor level.

The West Central Street buildings are predominantly in retail use at ground floor level fronting New Oxford Street. The basement, first and second floors of No. 39 – 41 are in office use with the upper floors of 35 – 37 being in residential use. No's 16a, 16b and 18 West Central Street were previously in use as a nightclub at basement level with offices above.

The West Central Street component of the site falls within the Bloomsbury Conservation Area. There two Grade II listed buildings within the application boundary: 10-12 Museum Street and 35-37 New Oxford Street. Additionally, Grade II listed buildings adjoin the site boundary at 43-45 New Oxford Street and 16 West Central Street. No. 33, 39 & 41 New Oxford Street and 16A-18 West Central Street are each identified as 'positive contributors' in the Conservation Area Appraisal. Selkirk House sits outside of the Conservation Area boundary which runs along West Central Street.



**Figure 1: Images of existing development**



**Figure 1: The site**

## **2.1 Proposed Development**

The Proposed Development has been carefully designed with a detailed understanding and analysis of the historic context being fundamental to the architectural response in order to respect and enhance its sensitive setting.

The proposed development falls within a one red line area and comprises of the following components:

**Museum Street** - a single new building rising to 19 storeys, providing office (Class E(g)(i)) accommodation on upper levels and a range of flexible town centre uses (Class E) at ground level.

**High Holborn** - a single new building rising to 6 storeys, providing residential (Class C3) accommodation on upper levels and a flexible town centre use (Class E) at ground level.

**Vine Lane** - a single new building rising to 5 storeys, providing market residential units with a flexible town centre use (Class E) at ground level.

**West Central Street** - a series of new and refurbished buildings rising to ground plus 5 storeys, providing residential accommodation (market, Low-cost rent and Intermediate rent) on upper levels (Class C3) and flexible town centre uses (Class E) at ground level.

In summary, the proposed development is seeking detailed planning permission for:

- **22,650 sqm (GIA) of office floorspace** falling within Class E(g)(i). This will be provided within the Museum Street building.
- **1,481 sqm (GIA) of flexible town centre floorspace** at ground floor level falling within Class E. This will be provided within the Museum Street, Vine Lane, High Holborn, and West Central Street buildings. The planning application specifies the range of uses within Class E that each of these units is seeking permission for.
- **3,992 sqm (GIA) of residential floorspace** will be provided. This represents an uplift of **2,078 sqm (GIA)** of residential floorspace falling within Class C3. This will be provided within the West Central Street, Vine Lane and High Holborn buildings.

- All of the affordable housing component (**1,693 sqm GIA**) is provided with the West Central Street buildings along with **294 sqm (GIA)** of market housing.
- **1,579 sqm (GIA)** of market housing is provided within the Vine Lane block with a **further 426 sqm (GIA)** of market housing being provided within the High Holborn block. Two new Extension of basement at 1 Museum Street which will be used for cycle parking, servicing areas, plant, storage, and other ancillary uses.
- A high proportion of open space across the site totalling **2,201 sqm** provided as public realm, pocket parks, communal areas, play space and private amenity for residents and office occupants.
- The creation of new public pedestrian route through the site known as ‘**Vine Lane**’, which will link High Holborn with West Central Street.
- 465 cycle parking spaces allocated as follows:
  - 345 long stay cycle parking spaces allocated to the office component.
  - 11 long stay cycle parking spaces allocated to the flexible town centre uses floorspace component.
  - 73 long stay cycle parking spaces allocated to the residential component.
  - 36 cycle parking spaces allocated to visitors to the site and located within the public realm areas.
- **0 vehicle parking spaces.**
- Extensive provision of open space across the site (**2,201sqm**) including:
  - **1,083 sqm** provided as public realm within the Applicant’s ownership across the site.
  - **509 sqm** provided as communal offices terraces within Museum Street building.
  - **186sqm** provided as play space within the West Central Street courtyard, which also provides communal open space for residents of those buildings.
  - **195 sqm** of communal open space within the Vine Lane block
    - **74 sqm** within the courtyard and **121 sqm** at level 4.
  - **87 sqm for WCS, 130 sqm for VL, 11 sqm for High Holborn** of private amenity space.
- In addition to the open space provision within the Applicant’s ownership, 729 sqm of public realm and streetscape improvements outside of the Applicant’s ownership is proposed.

An overview of the scheme is presented in Figure 3.

## **2.2 Planning History**

The north-east part of the site adjacent to West Central Street and Museum Street benefits from an existing planning consent for a full planning application submitted in February 2016 (LBC reference: 2016/0477/P). The 2016 application comprised:

“Refurbishment and extension of the site to provide a mixed use scheme which includes 19 self-contained units (6 x 1 bed and 11 x 2 bed and 2 x 3 bed), flexible A1/A2/A3 uses and/or B1 and/or D1 at basement and ground floor levels and associated works”



Planning permission was granted at Committee by the Council in August 2016 but has not been implemented.

A subsequent application (ref. 2021/2954/P) was submitted for the site in 2021, for the comprehensive redevelopment of the Selkirk House tower and the wider site to provide commercial floorspace, housing, enhanced public realm and pedestrian connectivity improvements.



However, following the recent listing of 10-12 Museum Street and 35-37 New Oxford Street, a new planning application has been prepared. Whilst the 2021 application gave significant weight to the heritage interest of the now Grade II listed buildings, the applicant wanted the opportunity to properly consider the implications of the listings on the proposals in order to deliver a revised scheme which maximises the public benefits of the site while also preserving and enhancing these designated heritage assets.

The table below outlines the amendments that have been made to the West Central Street area of the previously submitted scheme:

Previously Submitted Scheme	Amended Scheme
	
<p>Design / Layout</p> <ul style="list-style-type: none"> <li>• 5 storey new-build block to West Central Street</li> <li>• Roof extension proposed to 10-12 Museum Street &amp; 35-41 New Oxford Street Blocks</li> <li>• Shared accessible garden amenity at podium level</li> <li>• Improved access provision to the existing buildings</li> <li>• Limited internal retention of historic fabric</li> </ul>	<p>Design / Layout</p> <ul style="list-style-type: none"> <li>• Remove 1990s extension to 11-12 Museum Street</li> <li>• Omit roof extension to 10-12 MS.</li> <li>• Omit mansard roof extensions to NOS.</li> <li>• Omit central top floor to 16-18 WCS &amp; retain the proposed 5th floor on West Central Street corner.</li> </ul>

## 3. Key Project Contacts

The Key Contacts are those known at the issue date of the CMP. On contracting of a suitably qualified Construction company, the CMP will be updated and reissued for Information and be maintained live until such time that the Construction Contractor has formed and agreed the final CMP with the LA.

### 3.1 Initial Key Contacts

Role	Company	Contact Name
Client	Lab Tech	TBC
Principal Designer	Cameron and Payne	TBC
Architect	DSDHA	TBC
Structural Engineers	Heyne Tillett Steel	TBC
Mechanical Engineers	Scotch	TBC
Electrical Engineers	Scotch	TBC
Public Health Engineers	TBA	TBC
Employers Agent (EA)	TBA	TBC
Local Authority (LA)	London Borough of Camden	TBC
Principal Contractor (CONTRACTOR)	TBA	TBC
CONTRACTOR Emergency Contact	TBA	TBC

Table 1: Key Contacts

### 3.2 Health & Safety (H&S)

The following table contains the address of the pertinent H&S bodies including the local hospital

Body	Address	Postcode	Telephone No.
HSE	151 Buckingham Palace Road London	SW1W 9SZ	0300 003 1747
Local Hospital	University College Hospital	NW1 2PQ	0845 155 5000

Table 2: H&S Contacts

## 4. Existing Buildings and Proposed Development

The following section sets out a description of the proposed buildings and demolition proposals.

### 4.1 Selkirk House

The existing building was originally built in 1962. The building consists of a car park located on the north part of the block, occupying three levels of basement and four levels above ground. The car park utilises a spiralling floor plate arrangement to provide car parking. Access to the car park is via Museum Street.

On the southern part of the site the basement is occupied with amenity space and plant rooms. Above ground, up to level 3, the building presents some retail and plant space at grade and office space above.

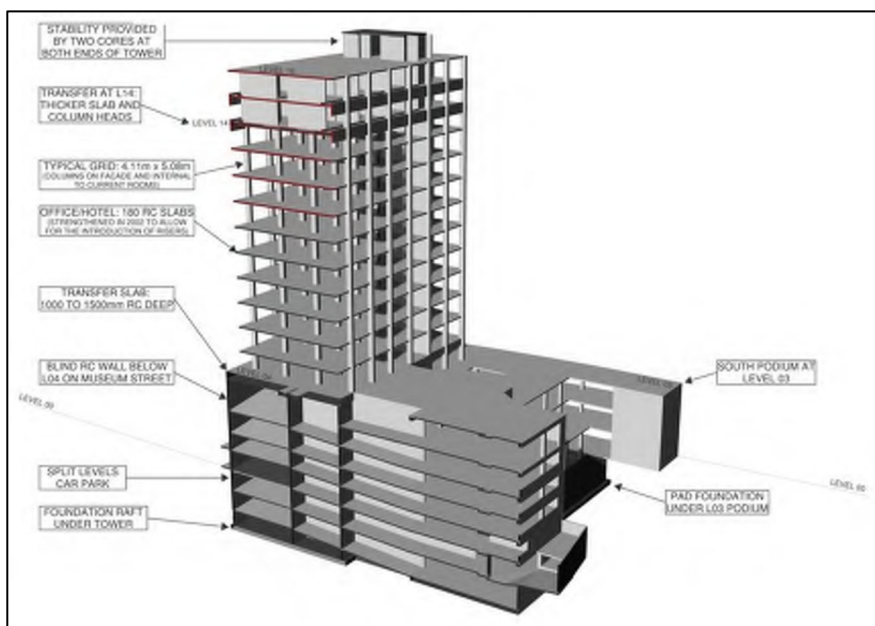
On the eastern part of the development, above the offices and the car park, there is a tower with 16 floors, designed for office occupation and two residential floors above the office. Originally there was a plant enclosure on the roof at level 16. Level 4 is a podium transferring the building columns from tower above to accommodate the car park arrangement.

The building was converted in 2002 to a Travelodge hotel in the office part of the development. The 2002 refurbishment did not require major structural works, maintaining the footprint of the floor plates as they were, with only localised structural adjustments. These included:

- Installation of a number of new risers through the slabs to service the hotel rooms. These have been strengthened using carbon fibre strips which will need to be taken into account for any further amendments required to the slabs.
- Over-cladding the original façade. The original concrete façade has been over-clad with a rainscreen system.

Strengthening works to columns and shear walls.

The building is reinforced concrete construction throughout utilising 180-200mm flat slabs with reinforced concrete columns in the tower area and column and beam arrangements in the low-rise block. An edge beam runs around the perimeter of the tower floor plates which supports to the original concrete cladding and the 2002 over-cladding. A sketch of the existing structure is shown in Figure 2.



## Figure 2: Sketch of Existing Building

The proposed works involve the demolition of the existing superstructure and re-use of the existing foundation raft to construct a new commercial development, 1 Museum Street.

## 4.2 West Central Street

The West Central Street block is located to the north of the existing Travelodge building and is bound by West Central Street to the south, Museum Street to the east. The proposal is to refurbish and convert several existing addresses into a residential block with retail space at ground floor.

The addresses included within the site are the following:

- 16a, 16b and 18 West Central Street
- 10, 11 and 12 Museum Street (Grade II listed)
- 35-37 New Oxford Street (Grade II listed) and 39 and 41 New Oxford Street

An overview of the West Central Street compound is shown in Figure 3.



Figure 3: West Central Street Overview

### 4.2.1 16a, 16b and 18 West Central Street

18 West Central Street is a two and three storey building, generally comprising loadbearing brickwork which support timber joist floors.

16b West Central Street is a single storey building with a traditional façade. The building has been used as a nightclub, and the internal structure has been modified to a relatively large span steel structure with cellular beams which support precast planks.

The proposals for this block involve the following:

- Demolition of the existing building to leave just the basement walls and slab (existing retaining walls to be temporary propped prior to demolishing the ground floor); and

- Provide a new build concrete framed residential block with commercial at ground floor and plant space within the existing basement.

An image of the existing buildings is shown in **Error! Reference source not found..**



**Figure 4: 16a, 16b and 18 West Central Street**

#### 4.2.2 10, 11 and 12 Museum Street

Number 10-12 Museum Street are Grade II listed buildings. Number 10 Museum Street is a three-storey residential building over retail space at ground floor. The construction appears to be of loadbearing brickwork supporting timber floors. Number 11 and 12 have previously undergone refurbishment appear to be constructed of loadbearing masonry with steel beams spanning between party walls.

A single storey basement extends across all three of the properties. There are also vaults that extend along the full extent of the Museum Street footpath.

An image of the existing buildings is shown in **Error! Reference source not found..**



**Figure 5: 10, 11 and 12 Museum Street**

### 4.2.3 35, 37, 39 and 41 New Oxford Street

Number 35 and 37 New Oxford Street are Grade II listed three-storey residential properties over retail at ground floor. The buildings appear to be of reinforced concrete frame construction, with traditional facades. There appears to be transfer structures at ground and first floors of Number 41. There is a single storey basement along the entire footprint, with vaults under the New Oxford Street footpath.

The development strategy for this block involves the following:

- Largely retaining the existing structure and façade;
- Remove non-load bearing partitions to leave just the party walls;

An image of the existing buildings is shown in Figure 6: 35, 37, 39 and 41 New Oxford Street.



**Figure 6: 35, 37, 39 and 41 New Oxford Street**

## 4.3 Key Facts

Key project information required for the SWMP is shown in Table 1 below.

<b>Matter/subject</b>	<b>Standardised term</b>
Project name	Museum Street and West Central Street
Address	Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR ('the site')
Site Area	0.53 Hectares
Applicant	Lab Tech Selkirk House Ltd.
Determining authority	London Borough of Camden
Phasing for construction	TBC at this stage
Nature of Area	Brown field / Bloomsbury Conservation Area

**Table 3: Key project information**

## **4.4 Purpose and Structure**

The SWMP was prepared to inform the sustainable management of materials and waste arising from the construction, demolition and excavation phases of the site. The SWMP is based on the following structure:

- **Section 5 - SWMP responsibilities:** Defines the roles and responsibilities for producing and implementing the SWMP.
- **Section 6 –** Provides an overview of the **Considerate Contractors Scheme**.
- **Section 7 - Legislation, policy and guidance:** National and local legislation, policy and guidance on solid waste management and circular economy relevant to the construction, demolition and excavation phases of the site.
- **Section 8 - Objectives and targets:** Sets out the guiding principles of the SWMP; sustainable waste management and circular economy, as well as the specific targets of the SWMP BREEAM Communities targets, waste generation, reuse recycling and landfill diversion targets.
- **Section 9 - Materials and waste forecast:** A high-level forecast for the quantity of materials and waste arising during the construction, demolition and excavation works of the site.
- **Section 10 - Waste minimisation:** Sets out waste minimisation measures associated with the engineering design based on designing out waste principles, as well as the procurement and logistics of construction materials.
- **Section 11 - Materials and waste management:** Sets out the appropriate segregation, storage, reuse, recycling and recovery measures of the materials and waste arising during the construction, demolition and excavation works of the site.

The SWMP is based on RIBA Stage 3 design of the site. Therefore, it will be updated in future iterations to reflect increased design detail and include any additional construction, demolition and excavation works that may be identified at later stages of the design and planning of the site.

‘Materials’ in this SWMP, refers to surplus materials generated at any point during the demolition, excavation and construction phases of the proposed site. This material will be suitable for reuse without any preparation or treatment.

## 5. SWMP Responsibilities

Responsibilities for implementation of this SWMP, prior to and during excavation, demolition and construction activities, are shown in Table 4 according to the current stage of the project.

Responsibility	Name	Company	Company type	Contact details
Drafting the Preliminary SWMP Lead	Jonathan Evans	Arup	Planning Consultant	jonathan.evans@arup.com
Drafting the Preliminary SWMP	Ryan Nolan	Arup	Planning Consultant	ryan.nolan@arup.com
Drafting the Full SWMP	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
SWMP Implementation	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
Materials and Waste Champion	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
Project Manager	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
Design Co-ordinator	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations

**Table 4: Responsibilities for SWMP Implementation**

A ‘materials and waste champion’ will be identified during construction, who will be the primary point of contact for communication regarding materials and waste management, and who will be responsible for disseminating information within their own organisation and to sub-contractors.

All staff working at the construction site will be suitably trained on the appropriate use of the available waste management equipment.

Actual site examples and photographs will be used to demonstrate correct segregation.

Senior staff members will be recruited to act as ‘recycling champions’ to check containers for appropriate segregation and promote appropriate practices.



## 6. The Considerate Contractors Scheme

The contractor will be chosen based on their ability to undertake the works in a collaborative manner, both with the Client and their design team, and the Council.

The contractor will uphold all best practices and demonstrate this by enrolment within the Considerate Contractors Scheme. This will ensure that they are up held to a third party standards supervision to meet the goals set by the CCS:

- Care about *Appearance*
- Respect the *Community*
- Protect the *Environment*
- Secure Everyone's *Safety*
- Value the *Workforce*



## 7. Legislation, Policy and Guidance

### 7.1 Overview

A series of legislation, policy and guidance documents which set out a range of objectives and targets regarding construction, demolition and excavation waste (CDEW) management which are relevant to the site.

### 7.2 Duty of Care

Under the Environmental Protection (Duty of Care) (England) Regulations 1991 (as amended), any person who produces, imports, carries, keeps, treats or disposes of controlled waste (a 'waste holder'), or as a broker who has control of such waste, has a statutory duty of care to ensure that waste is managed properly and recovered or disposed of safely.

A duty of care will always be maintained onsite to ensure that waste generated during the construction period is handled in accordance with the relevant legislation and statutory guidance, including the Waste Duty of Care: Code of Practice<sup>1</sup>.

Where appropriate the Contractor will endeavour to complete a Waste Transfer Note and/or Hazardous Waste Consignment Note. A template for each can be referred to in Appendix B.

A summary of the main Duty of Care requirements that need to be followed by waste holders is provided in Figure 7.

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<sup>1</sup> Defra and Environment Agency (2018), *Waste duty of care: code of practice*, Available at: <https://www.gov.uk/government/publications/waste-duty-of-care-code-of-practice/waste-duty-of-care-code-of-practice> (Accessed 06 February 2020).

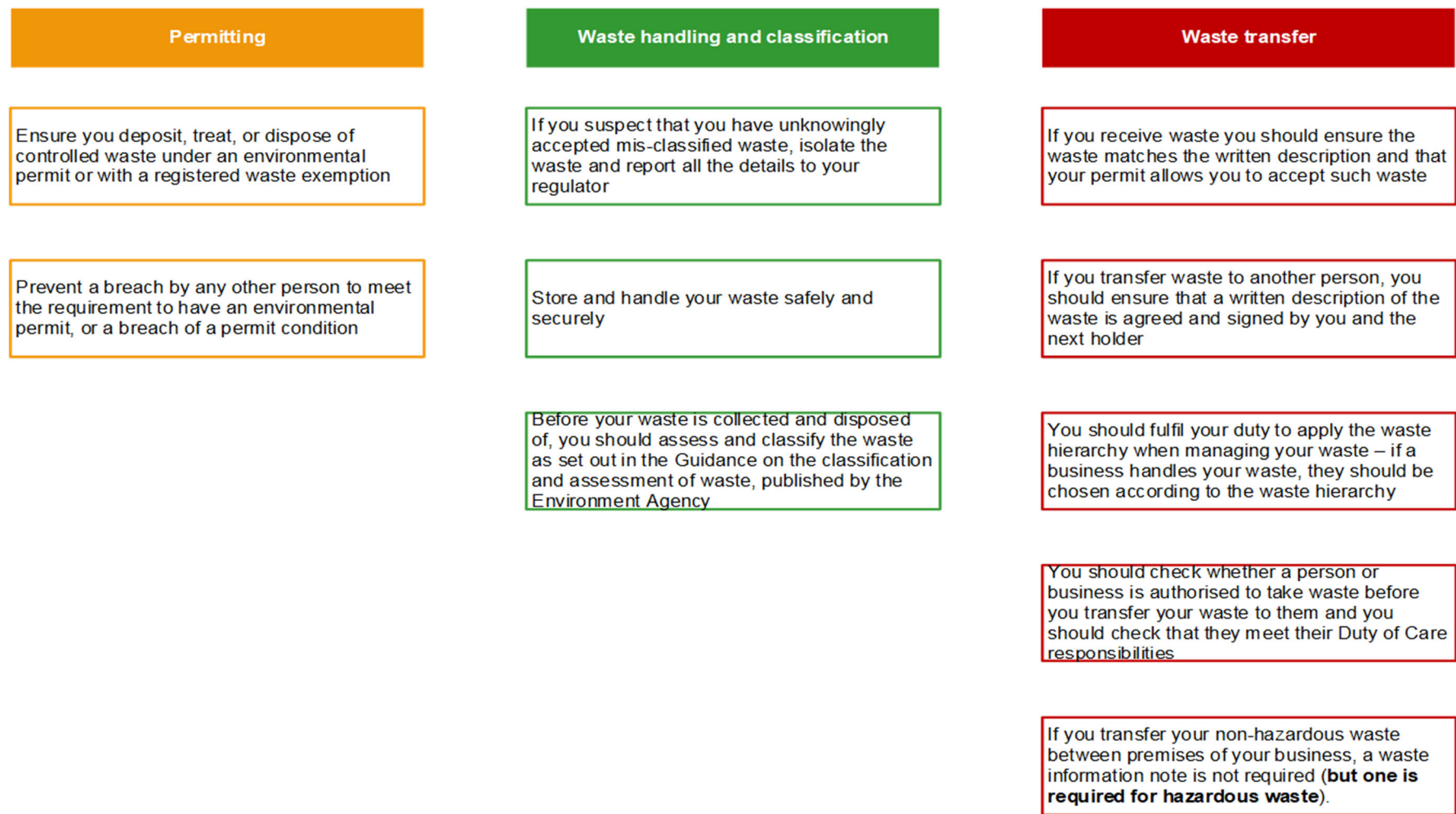


Figure 7: Duty of Care requirements for waste holders

## 7.3 Environmental Permitting

In line with the waste Duty of Care, any waste generated during construction, demolition and excavation works, which cannot be reused, should be sent to an appropriately permitted or exempt facility for reuse, recycling, recovery or disposal, operated by an entity registered with the appropriate environmental regulator (i.e. the Environment Agency in England and Wales).

Similarly, any waste recycling and/or recovery activity taking place onsite should receive an appropriate permit (e.g. storage of waste pending recovery by land treatment) or exemption (e.g. mobile plant for crushing demolition concrete) from the environmental regulator, prior to commencing the activity.

The above is in line with the Environmental Permitting Regulations 2016 (as amended)<sup>2</sup>.

### 7.3.1 London Plan

The resources and waste-related policies of the London Plan 2021 are outlined below.

### 7.3.2 Circular Economy Statement

Policy SI7 (Reducing waste and supporting the circular economy) promotes waste reduction, material reuse, recycling and improved landfill diversion. The main targets it sets are:

- Zero biodegradable or recyclable waste to landfill by 2026.
- Construction and demolition – 95% reuse/recycling/recovery.
- Excavation – 95% beneficial use.
- 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.
- Design developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables and food.

Policy SI7 also sets out the requirement of producing a Circular Economy Statement to demonstrate:

- How all materials arising from demolition and remediation works will be reused and/or recycled (see Section 11.3 and Section 11.40).
- How the design and construction will reduce material demands and enable building materials, components and products to be disassembled and reused at the end of their useful life (see Section 8.2.2).
- Opportunities for managing as much waste as possible on site (see Section 11.3 and Section 11.4).
- Adequate and easily accessible storage space and collection systems to support recycling and reuse (see Section 11.2).
- How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy (see Section 8.2.1).
- How performance will be monitored and reported (see Section 11.5).

### 7.3.3 Waste Management Targets

Policy SI10 (Aggregates) states that an adequate supply of aggregates to support construction in London will be achieved by:

- Encouraging the reuse and recycling of CDEW within London, including onsite.

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<sup>2</sup> UK Government (2016), *The Environmental Permitting (England and Wales) Regulations 2016*, Available at: <http://www.legislation.gov.uk/uksi/2016/1154/contents/made> (Accessed 14 February 2020).

- Importing aggregates to London by sustainable transport modes.

## **7.4 Camden Guide for Contractors Working in Camden Feb 2008**

The CCC Guide for Contractors Working in Camden<sup>3</sup> (CoCP) is followed in this SWMP along with the Council Sustainability Statements in Planning applications. The main points related to the SWMP, are as follows:

### **7.4.1 Waste reduction**

- All developments are to submit a statement stating how it will aim for at least 10 per cent of the total value of materials used to be derived from recycled and reused sources.
- Major developments are anticipated to be able to achieve 15-20 per cent of the total value of materials used to be derived from recycled and reused sources.
- The development will identify quick wins, such as:
  - utilisation of consolidation centres to reduce traffic flow;
  - reduction in packaging from suppliers;
  - utilisation of recyclable products where feasible;
  - good housekeeping to avoid additional waste and damage to goods etc.
  - The development will also look for major waste savings through:
    - Designing out waste;
    - Utilisation of existing materials for reuse;
    - Designing in recycled materials;
    - Designing using recyclable and re-useable materials;
    - Procuring from low waste suppliers etc.

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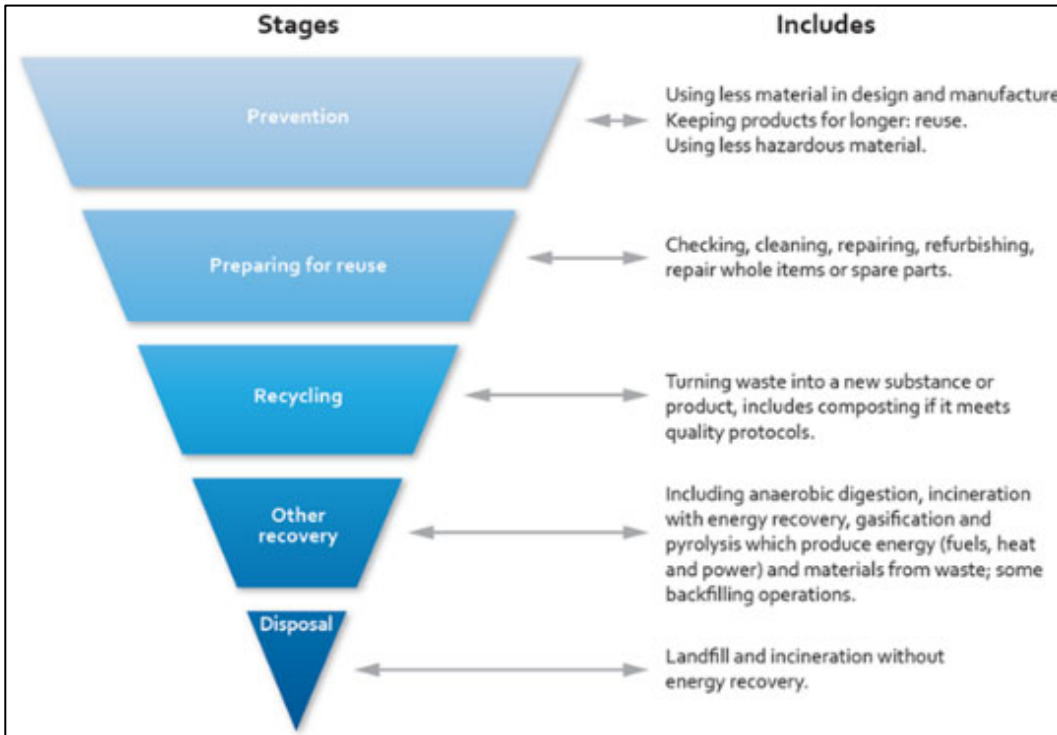
<sup>3</sup> Camden City Council (2016), Guide for Contractors Working in Camden, Available at: <https://www.camden.gov.uk/documents/20142/1269042/Guide+for+Contractors+in+Camden.pdf/18b7bb06-119e-9957-7037-fdb633f17ae6> (Accessed 22 September 2020).

## 8. Objectives and Targets

### 8.1 Objectives

The key objectives of this SWMP are to achieve efficient use of material resources and to reduce the amount of waste produced due to the construction activities of the site.

This SWMP is based on the guiding principles of sustainable resource and waste management: the waste hierarchy (see Figure 8 ) and the circular economy (see Figure 9). The waste hierarchy and the circular economy aim to reduce the quantity of waste generated while trying to maximise the efficient use of material resources.



**Figure 8: The waste hierarchy (adopted from the EU WFD )**

The circular economy puts materials and products back into the economy at the end of each service life at their highest value for as long as possible. This reduces the reliance on virgin materials and safeguards supply chains against material price volatility and scarcity. It aims to decouple resource consumption from economic growth, creating resilient economies.

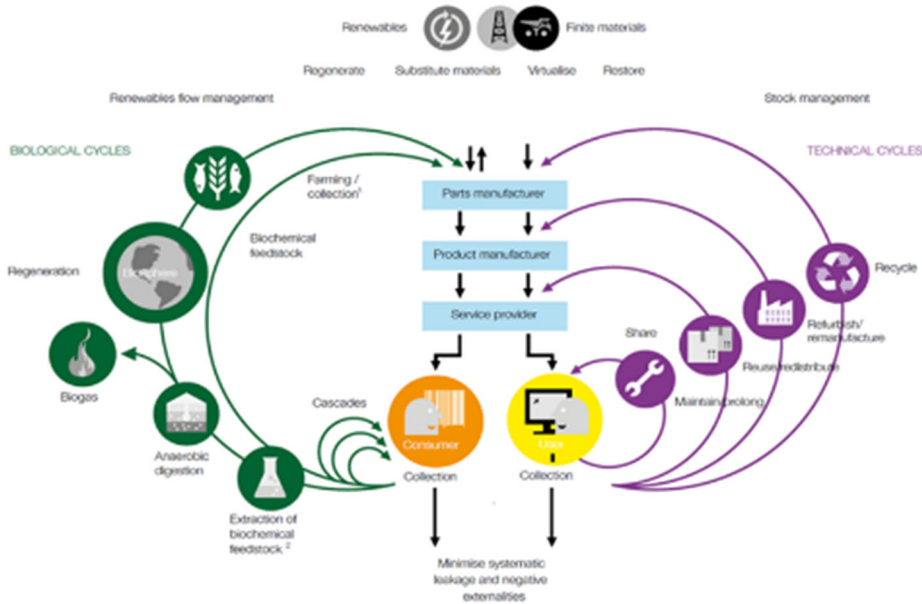


Figure 9: The circular economy (Source: Ellen MacArthur Foundation)

## 8.2 Targets

### 8.2.1 BREEAM Communities

There are specific credits in the BREEAM Communities<sup>4</sup> scheme that are targeted for the site. The targeted and potential requirements identified for the site under BREEAM Communities RE02 (Existing buildings and infrastructure), RE06 (Resource efficiency) and BREEAM 2018 NC Wst 01 – Construction Waste are given in Table 5.

<sup>4</sup> Building Research Establishment Environmental Assessment Method (BREEAM) (2012), BREEAM Communities technical manual SD202, Available at: [https://www.breeam.com/communitiesmanual/content/resources/otherformats/output/10\\_pdf/20\\_a4\\_pdf\\_screen/sd202\\_breeam\\_communities\\_1.2\\_screen.pdf](https://www.breeam.com/communitiesmanual/content/resources/otherformats/output/10_pdf/20_a4_pdf_screen/sd202_breeam_communities_1.2_screen.pdf) (Accessed 10 February 2020).

**Table 5: BREEAM Communities RE02 and RE06 targets**

Reference	Credits	Single credit weighting	Requirement	Target	Potential	Relevant planning/ Other documentation
RE02	Mandatory (Interim Assessment)	N/A	<p>1. An assessment of any existing buildings and infrastructure is carried out to determine what can be refurbished, reused, recycled or maintained. The assessment considers the following:</p> <ul style="list-style-type: none"> <li>Heritage and local identity</li> <li>The location and condition of buildings and infrastructure:</li> <li>The embodied carbon in existing materials</li> <li>Potential uses of buildings and infrastructure</li> <li>Possible use of materials (onsite or offsite)</li> <li>Community and local authority knowledge and opinion.</li> </ul> <p>2. A decision is made and justified with evidence regarding the use and/or demolition of all existing buildings and infrastructure onsite.</p>	Yes	Yes	<p>Development options appraisal report</p> <p>Letter of commitment from LBC</p>
RE02	1 credit	1.35%	<p>3. Criteria 1 and 2 are achieved.</p> <p>4. The developer commits to the reuse or recycling of building and/or infrastructure materials on the development site.</p>	0	1	Letter of commitment from CCC
RE06	1 credit	0.68%	<p>1. Where existing buildings onsite are identified in 'RE 02 for refurbishment, reuse or demolition, an audit of any existing buildings, structures or hard surfaces will be completed to maximise the recovery of material from demolition/refurbishment for subsequent high-grade applications. The audit is referenced in the SWMP and covers:</p> <ul style="list-style-type: none"> <li>Identification and quantification of the key refurbishment/demolition materials.</li> <li>Potential applications and related issues for the reuse and recycling of key refurbishment and demolition materials.</li> </ul> <p>2. Where the works are likely to produce excavation waste, the following is assessed and referenced within the SWMP:</p> <ul style="list-style-type: none"> <li>Estimate of the quantity of excavation waste generated.</li> <li>How to maximise reuse of excavation waste on site if feasible, and if not, how to maximise the recovery of material.</li> </ul> <p>3. The design team embedded resource efficiency within the overall scheme with specific reference to WRAP's Designing out Waste principles for any civil engineering works being undertaken onsite and at the building level.</p> <p>4. The present SWMP is produced to estimate the quantity and types of construction, demolition, and excavation waste generated onsite, including infrastructure development and landscaping.</p>	1	1	<p>Pre-demolition audit</p> <p>SWMP</p> <p>Landscape design specification (or equivalent)</p>



Reference	Credits	Single credit weighting	Requirement	Target	Potential	Relevant planning/ Other documentation
RE06	1 credit	0.68%	<p>5. Criteria 1 to 4 are achieved.</p> <p>6. Landscape designs were informed by and refer to the SWMP, with specific aims to retain construction, demolition and excavation materials and waste onsite.</p> <p>7. Where works already started at the building level, designs refer to WRAP's 'Designing out Waste principles' and are informed by the SWMP. Where plot/building level developer agreements are not yet in place this must be a requirement of the development project.</p> <p>8. Where individual plots are developed independent to the whole site, the developer provided a written commitment to reduce and recover waste during the construction phase and put in place contractual agreements with the main contractor or waste management contractor.</p>	1	1	<p>Landscape design specification (or equivalent)</p> <p>Design specification with reference to WRAP 'Designing out Waste'</p> <p>Letter of commitment from LBC</p>
RE06	Up to 2 credits	0.68%	<p>9. Criteria 1 to 8 are achieved.</p> <p>10. The developer has provided a written commitment that an agreement will be in place at the start of construction to divert non-hazardous construction and non-hazardous demolition waste from landfill (based on the estimate from criterion 2):</p> <p><b>One Credit</b></p> <p>Appendix A: Non-hazardous construction waste - either 70% by Volume or 80% by Tonnage diverted</p> <p>Appendix B: Non-hazardous demolition waste - either 80% by Volume or 90% by Tonnage diverted</p> <p><b>Two Credits</b></p> <p>Non-hazardous construction waste - either 85% by Volume or 90% by Tonnage diverted</p> <p>Non-hazardous demolition waste - either 85% by Volume or 95% by Tonnage diverted</p>	0	2	<p>Letter of commitment from LBC</p>
WST01	Up to 4 credits	2.72%	<p>A Resource Management Plan is developed for the project. An SWMP is a form of resource management plan. To achieve any of the construction waste management credits the assessed development must have a BREEAM compliant Resource Management Plan that should be written in line with best practice.</p> <p>The following credits have been targeted under this issue:</p> <ul style="list-style-type: none"> <li>• Pre-demolition audit – 1 credit</li> <li>• Construction resource efficiency - 2 credits</li> <li>• Amount of Waste generated not to exceed 7.5m<sup>3</sup> or 6.5 tonnes per 100m<sup>2</sup> gross internal floor area</li> </ul>	4	4	<p>Updated pre-demo audit and SWMP documentation with requisite data, agreed with LBC..</p>

Reference	Credits	Single credit weighting	Requirement	Target	Potential	Relevant planning/ Other documentation														
			<ul style="list-style-type: none"> <li>• Diversion of resources from landfill - 1 credit</li> <li>• Meet the diversion from landfill benchmarks in the table below for non-hazardous construction waste and demolition and excavation waste generated.</li> </ul> <table border="1"> <thead> <tr> <th>BREEAM Credits</th> <th>Type of Waste</th> <th>Volume</th> <th>Tonnage</th> </tr> </thead> <tbody> <tr> <td rowspan="3">One credit</td> <td>Non-demolition</td> <td>70%</td> <td>80%</td> </tr> <tr> <td>Demolition</td> <td>80%</td> <td>90%</td> </tr> <tr> <td>Excavation</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	BREEAM Credits	Type of Waste	Volume	Tonnage	One credit	Non-demolition	70%	80%	Demolition	80%	90%	Excavation	N/A	N/A			
BREEAM Credits	Type of Waste	Volume	Tonnage																	
One credit	Non-demolition	70%	80%																	
	Demolition	80%	90%																	
	Excavation	N/A	N/A																	

### 8.2.2 BREEAM 2014 Domestic refurbishment

The BREEAM 2014 Domestic refurbishment requirements set out the following targets and are noted for the West Central Street element of the scheme.

Waste generated on residential the benchmark is as follows:

Table - 28: Resource efficiency benchmarks

Amount of non-hazardous construction waste generated per £100,000 of project value	
m <sup>3</sup>	Tonnes
26.52	16.90

Waste generated on the residential aspects of the scheme must not exceed 26.52m<sup>3</sup> or 16.90 tonnes per £100,000 project value.

Diversion from landfill requirements are set out in Table 6.

Refurbishment and demolition waste diversion benchmarks	Volume	Tonnes
Non-hazardous construction waste		
70%	65%	
Non-hazardous demolition waste		
80%	90%	

**Table 6: Diversion from Landfill Targets**

Where diversion from landfill includes:

- Reusing the material on-site (in-situ or for new applications);
- Reusing the material on other sites;
- Salvaging or reclaiming material for reuse;
- Returning material to supplier via a 'take-back' scheme; and
- Recovery of material from site by an approved waste management contractor and recycled, composted or sent for energy recovery.

It is noted that to demonstrate a compliant SWMP for refurbishments over £300,000 the following must be met:

- A target benchmark for resource efficiency, i.e. m<sup>3</sup> of waste per £100,000 of project value or tonnes of waste per £100,000 of project value (in line with the credit available);
- Procedures and commitments for minimising non-hazardous construction waste in line with the benchmark and best practice;
- Specify waste minimisation actions relating to at least three key waste groups;
- Procedures for minimising hazardous waste;

- Procedures for sorting, reusing and recycling construction and demolition waste (if generated) (according to the waste streams generated by the scope of the works) either off site or through a licensed external contractor;
- Procedures for measuring the amount of construction and demolition waste (if generated) diverted from landfill;
- Licence details for the waste carrier, and permit details for the site the waste is taken to, if waste is removed off site; and
- The name or job title of the individual responsible for implementing the above.

### 8.2.3 Materials and Waste Management Targets

The targets for material resources and waste management at the site are provided in Table 7. These are in line with the policy and guidance described in Section 7.

Management type	Target
Waste generation	Less than 13.3m <sup>3</sup> /100m <sup>2</sup> or 11.1 tonnes/100m <sup>2</sup> (gross internal area (GIA))
Reuse and recycling	95% by m <sup>3</sup> of any non-hazardous CDEW
Landfill diversion	100% of any biodegradable waste generated during construction, demolition and excavation works
	95% by m <sup>3</sup> of any non-hazardous CDEW

**Table 7: Waste Management Targets**

## 9. Materials and Waste Forecast Strategy

### 9.1 Overview

A high-level forecast will be carried out to quantify materials and waste arising during the construction, demolition and excavation works of the site.

The total CDEW generation will be estimated in tonnes across all construction phases (as developed).

A description of the sources of information, assumptions, estimations and calculations done to carry out the materials and waste forecast is given in Appendix A.

### 9.2 Demolition

A Site Waste Management Plan for demolition will be submitted under separate cover.

### 9.3 Excavation

Excavation activities will be carried out post deconstruction of the existing buildings and may be phased to better enable the Site works. Spoil generated will be estimated for the excavated material quantities in meters cubed e.g.:

- Phase 1 TBA m<sup>3</sup> (based on substructure and basement estimates);
- Phase 2 TBA m<sup>3</sup> (based on substructure and basement estimates);

Based on an assumed maximum density of 2 tonnes/m<sup>3</sup>. The metric tonnes will be estimated by a simple multiplication of the:

- Cubic Meters x Assumed Density.

Where spoil is known the correct density will be used and based on the below table or similar.

Material	Density - ρ -	
	(lb/ft <sup>3</sup> )	(kg/m <sup>3</sup> )
Dirt, loose dry	76	1220
Dirt, loose moist	78	1250
Clay, dry	100	1600
Clay, wet	110	1760
Gravel, dry	105	1680
Gravel, Wet	125	2000
Limestone	160	2560
Loam	80	1280
Mud, flowing	108	1730
Mud, steady	115	1840
Rock, well blasted	155	2480

Material	Density - ρ -	
	(lb/ft <sup>3</sup> )	(kg/m <sup>3</sup> )
Sand, dry	97	1555
Sand, wet	119	1905

**Table 8: Materials Density**

In the absence of detailed ground investigation data, little is known about the ground conditions on the site. It is currently anticipated that most of the excavated material will be inert in nature, and suitable for off-site reuse.

A summary of the forecast quantities of materials and waste to be generated during excavation is given in Table 8.

Six-digit EWC codes will be added for material and waste streams in future iterations of the SWMP, as more information becomes available, after carrying out a ground investigation and calculating the cut-and-fill balance.

The destination of the arisings will be updated and shown in more detail in future iterations of the SWMP. It will be ensured that the chosen destinations follow the waste hierarchy and circular economy principles, to help meet the targets set for the site.

EWC code (six digits)	Material type	Quantity (tonnes)	Destination (% by weight)			
			Reuse	Recycling	Recovery	Disposal
TBC in future iterations	Topsoil	TBC in future iterations	-	-	-	-
TBC in future iterations	Subsoil	TBC in future iterations	-	-	-	-
Total		TBC in future iterations	-			

**Table 8: Forecast excavation quantities**

## 9.4 Construction

An estimated total of tonnes of construction materials and waste will be generated, and an exemplar table is noted below (see Table 9).

The main types of materials and waste to be generated during the construction phase of the site and their estimated quantities will be reported by the Contractor. Six-digit European Waste Catalogue (EWC) codes were also added for material and waste streams, in accordance with The List of Wastes (England) Regulations 2005<sup>5</sup>.

The available information at this stage and the subsequent methodology used to carry out the forecast do not allow for the estimation of the materials and waste composition (see Appendix A for further details).

The destination of the waste arisings will be shown in future iterations of the SWMP. It will be ensured that the chosen destinations follow the waste hierarchy and circular economy principles, to help meet the targets set for the site.

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<sup>5</sup> UK Government (2005), *The List of Wastes (England) Regulations 2005*, Available at: [http://www.legislation.gov.uk/uksi/2005/895/pdfs/uksi\\_20050895\\_en.pdf](http://www.legislation.gov.uk/uksi/2005/895/pdfs/uksi_20050895_en.pdf) (Accessed 17 April 2019)



Building	Structure type	Gross internal area (GIA) (m <sup>2</sup> ) <sup>6</sup>	EWC code (six digits)	Material type	Quantity (tonnes)	Destination (% by weight)			
						Reuse	Recycling	Recovery	Disposal
Outline planning buildings	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
Areas to be defined	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
Areas to be defined	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations	TBC in future iterations
Total									

**Table 9: Forecast construction quantities**

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<sup>6</sup> Total GIA of residential, retail and community spaces.

## 10. Waste Minimisation

### 10.1 Design

Designing out waste will be maintained as a key principle throughout all stages of the site. WRAP's Designing out Waste principles were considered for the site, as shown in Table 10. These will be considered and developed further at the detailed design stages. Any changes will be reflected in future iterations of the SWMP.

Reuse purposing of materials is also being considered for temporary works, and specifically "fill" type activities.

It is the aim of the design team to have in excess of 95% of materials used within the construction of the development to be reusable, recyclable, or repurposed at the end life of the building.

<b>Principle</b>	<b>Description</b>	<b>Main benefits</b>	<b>Potential applications at site</b>
Design for Reuse and Recovery	Reuse and recycling of materials onsite; and Importing materials with high-recycled content.	Reduced earthwork operations and subsequently reducing risks of generating waste; By considering the existing topography at an early stage in the design process, potential areas of poor soils, can be avoided; Savings in cost and programme; and Significant reduction in the carbon footprint of the project.	
Design for Offsite Construction	Offsite factory production in the construction industry.	Improved health and safety onsite through avoidance of accidents; Improved workmanship quality and reducing onsite errors and re-work; and Reduced construction timescales and improved programmes.	Prefabricated façade Prefabricated external cladding Prefabricate concrete stairs Plinth uses for mounting electrical and mechanical plant
Design for Materials Optimisation	Use of various ground improvement techniques to avoid excavating soft foundation soils, which may be unable to support the proposed loading from embankments, or structures without excessive settlement or even failure; and Many ground improvement techniques require the use of a working platform. This provides opportunities for material optimisation, and reuse and recovery of materials.	The design approach focuses on materials resource efficiency so that less material is used in the design (i.e. lean design/ value engineering); and Less waste is produced in the construction process, without compromising the design concept, or the required performance.	
Design for Waste Efficient Procurement	During the detailed design stage, designers need to understand how their design choices lead to the generation of waste onsite. Methods can be applied	The advantages of integrated project teams, with early contractor involvement, will help in identifying the areas where waste is likely to be	

Principle	Description	Main benefits	Potential applications at site
	<p>that can reduce waste through some or a combination of the following:</p> <p>Design (e.g. designing structural elements which can be constructed efficiently);</p> <p>Specification (e.g. writing tighter specifications of work procedures to avoid waste and allow the use of recycled materials); and</p> <p>Contracts (e.g. encouraging early contractor involvement).</p>	<p>generated and the design decisions that can reduce this; and</p> <p>At the detailed design stage, this can extend to developing the work sequences and material logistics plans that will minimise waste.</p>	
Design for Deconstruction and Flexibility	Designers need to consider how materials can be recovered effectively during the life of the building when maintenance and refurbishment is undertaken or when the building comes to the end of its life.	Allowing components to be maintained, upgraded or replaced without creating excessive waste.	

**Table 10: Designing out waste principles**

## **10.2 Procurement**

Procurement-related actions to be carried out include:

- Incorporating waste reduction key performance indicators and targets in the procurement specifications, such as using contractual clauses to embed sustainable waste management and resource efficiency requirements into the procurement of materials and services.
- Procuring from suppliers that do not use excessive amounts of packaging.
- Avoiding single use packaging and storage containers where possible (e.g. reusable crates instead of cardboard boxes).
- Establishing take-back schemes with suppliers to accept surplus material not incorporated in the works package.
- Ordering the amount of materials required as accurately as possible.

## **10.3 Logistics**

Logistics-related actions to be carried out include:

- Aiming to have just-in-time deliveries.
- Ensuring that deliveries are inspected, and damaged products are returned.
- Ensuring that the works site remains tidy to minimise material losses and waste.
- Ensuring the correct handling and storage of materials to avoid damage and exposure.
- Avoiding errors and rework onsite (e.g. for offsite construction).

The reuse of materials and construction elements will be maximised where possible and all temporary materials will be returned, prepared for reuse, or recycled. If onsite reuse and recycling is not feasible, opportunities will be identified for recycling materials through an appropriate contractor.

# 11. Materials and waste management

## 11.1 Source segregation

Material and waste arisings will be sorted into separate key waste groups onsite. A minimum seven-stream segregation strategy will be carried out where possible, in line with guidance from the Institution of Civil Engineers (ICE):

- Inert waste – concrete, broken asphalt, bricks, blocks, soils etc.;
- Metals – ferrous and non-ferrous;
- Wood;
- Plasterboard (gypsum);
- Packaging materials (plastics and cardboard);
- Mixed municipal waste; and
- Hazardous waste.

The above segregation strategy will assist the site in achieving a minimum diversion of 95% CDEW from landfill.

However, under certain circumstances the types of materials and waste generated will not warrant the segregation of the above streams, and in some specific cases, it may be acceptable to rely on offsite segregation at an appropriate construction materials recovery facility (MRF).

## 11.2 Storage

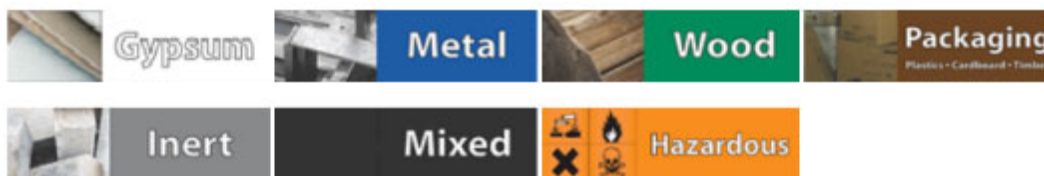
The movement of material will be kept to a minimum to avoid double handling.

All types of hazardous materials and waste will be kept separate from each other and will always be kept separate from non-hazardous materials and waste. They will be appropriately stockpiled or stored in appropriate containers (e.g. with the appropriate seals, drainage provisions and signage).

Any surplus excavated material will be stockpiled onsite without intermixing with other materials to avoid contamination. This will be achieved by using dividers and/ or setting the stockpiles sufficiently apart.

All skips and storage receptacles will be sheeted, or otherwise remain lidded or closed, during times when waste is not being deposited into them. They will also be covered to prevent the escape of material and waste whilst in transit and loaded for maximum payload efficiency.

A range of dedicated materials and waste containers and equipment will be provided, including wheeled containers and bulk containers. Materials and waste containers will be colour-coded in line with the colour-coding scheme developed by ICE (see Figure ). This will facilitate the separation of waste for reuse and recycling and to ensure that inert, non-hazardous, and hazardous waste materials are kept separated.



**Figure 10: ICE waste stream colour-coding**

Plastic sheeting will be used to prevent leaching from waste soils and aggregates where these are not contained within skips or other storage receptacles.

All skips and storage receptacles will be inspected periodically to ensure they are fit for purpose. Skips and storage receptacles that are not fit for purpose will be taken out of use immediately with appropriate signage used to signify that they should not be used.

Surplus materials and waste storage plans (drawn to scale) will be provided in future iterations of this SWMP.

### 11.3 Reuse, Recycling and Recovery of Construction Materials

Unused, surplus construction materials will be returned, sold or donated to nearby construction projects or via online construction materials trading platforms (e.g. Build Trade<sup>7</sup>). In addition, opportunities to engage with local charities, social enterprises or schools will be investigated, to donate materials that can be used for landscaping works, or similar.

Onsite reuse and recycling options can be employed for construction waste arisings. Construction materials that cannot be reused onsite or offsite, or recycled onsite, will be sent to offsite construction Materials Recovery Facilities (MRFs), or sent directly to reprocessors.

Some reuse and recycling options for construction materials and waste are summarised in Table 11.

Methodology	Description
Construction waste MRF	<p>A process where mixed construction and demolition waste materials are sorted into individual materials (e.g. wood, metals, soils, stones and plastics) based on their size, shape, density, electromagnetic properties and other characteristics as they are carried along a series of conveyor belts using various mechanical sorting equipment such as trommel screens, ballistic separators, electromagnetic separators and air classifiers. The facilities can be configured to produce refuse derived fuel (RDF) from the combustible components.</p> <p>Some materials may be able to be directly reused while others may require further processing.</p>
Aggregate screening and crushing	<p>A process where mixed aggregates are screened and sometimes crushed into different particle sizes for appropriate reuse or incorporation in new materials by the construction industry.</p>

**Table 11: Material and waste recycling options**

<sup>7</sup> Build Trade, Available at: <https://www.buildtrade.co.uk/> (Accessed 22 March 2020).

## 11.4 Reuse, Recycling and Recovery of Excavation Materials

Soil arisings will be generated from the basement excavations. However, as the site is broadly consistent with the surrounding levels, there are very limited opportunities to reuse site-won soils. Therefore, soil arisings from the basement will likely be removed from the site; this is to be confirmed in future iterations of the SWMP, in line with updates to the excavated quantities forecast (see Section 9.3).

In line with the waste hierarchy, disposal will only be chosen when other waste management options are not practically feasible.

As a result, opportunities for offsite reuse, recycling and recovery of excavated materials will be sought. Even some soils with high levels of contaminants, including low level asbestos, may be recycled at appropriately permitted or exempt facilities.

Offsite reuse and recycling examples are given in Table 12.

Activity	Description
Reuse	Sent directly to nearby construction projects to be used for activities such as backfilling or landscaping
Recovery	Use of excavated material to replace a non-waste material in serving an engineering purpose in local projects. Example recovery applications may include restoring quarries, or flood defence schemes.
Soil Treatment Facilities (for contaminated materials)	
Soil washing	The washing of soil with water to remove contaminants and recover sand, gravel and soil forming materials. A large proportion of the output is clean aggregate or sand suitable for reuse.
Cement stabilisation	Mixing cement with waste that cannot be recovered to bind the contaminants by adding fly ash, cement, and water to certain waste materials. The resulting granular product is less likely to produce leachate and is suitable for disposal in landfill.
Bioremediation	Composting of soil to remove organic contaminants and recover the soil in a controlled environment.

**Table 12: Offsite excavated material reuse and recycling examples**

In the case that any excavated material will be treated onsite, an appropriate environmental permit or permit exemption will be obtained from the relevant regulator (i.e. the Environment Agency or the Council, depending on the activity).

## 11.5 Materials and Waste Measuring and Monitoring

Measuring actual materials and waste arisings will assist in monitoring progress against the objectives and targets and against the materials and waste forecast (see Section 8.2.1). This will ensure that the optimal routes, both in environmental and financial terms, will be chosen for the management of materials and waste.

Verifiable weight-based data provided by waste management contractors or brokers will be used.

## 11.6 Fly Tipping

Fly tipping of waste on or adjacent to the site can be a significant issue. To prevent fly tipping by others, the following steps will be taken by the Principal Contractor:

- Physical improvements such as the installation of gates and barriers and improved visibility (e.g. installing lighting);



- Better site management – keeping areas tidy and removing fly-tipped waste in a timely manner;
- Better site monitoring – such as installing CCTV and carrying out security patrols; and
- Add prosecution signage.

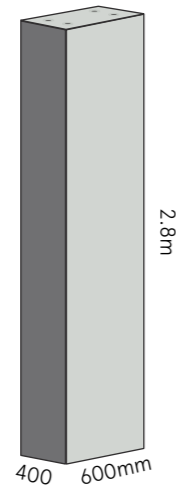
# Appendix A

## Materials and waste forecast

# Museum Street - Reuse of Concrete Summary

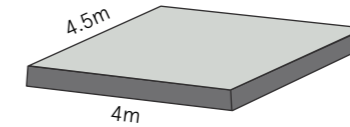
488 x concrete columns  
350m<sup>3</sup> concrete

250t  
CO<sub>2</sub>e



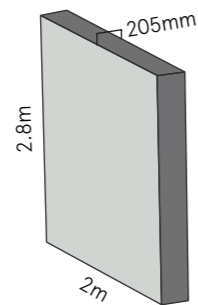
120 x Reinforced concrete slab panels  
360m<sup>3</sup> concrete

220t  
CO<sub>2</sub>e



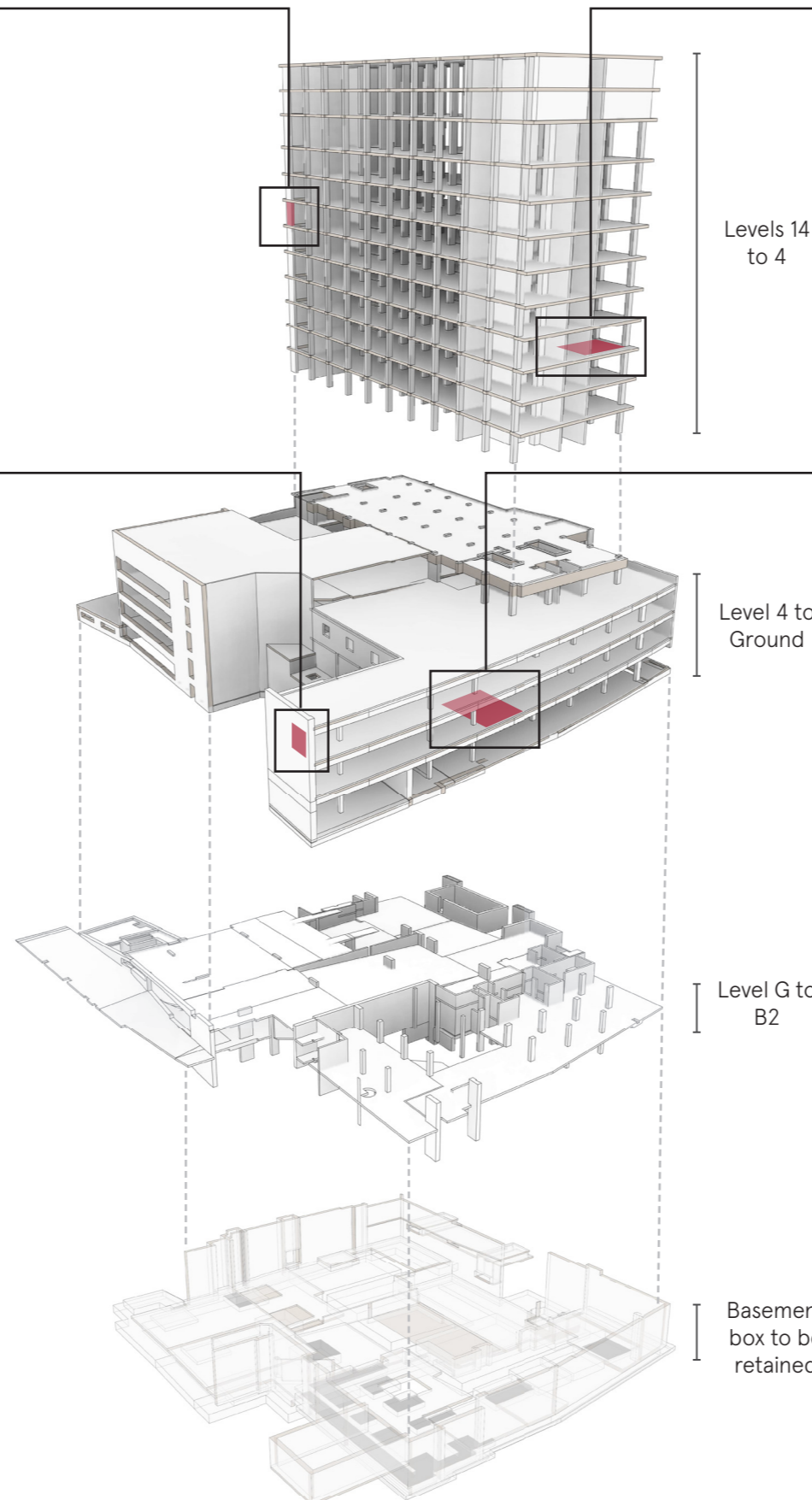
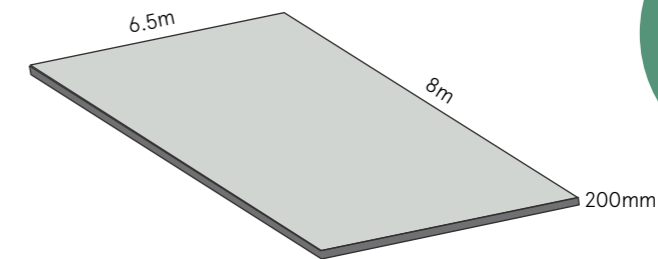
390 x concrete wall panels  
810m<sup>3</sup> concrete

380t  
CO<sub>2</sub>e

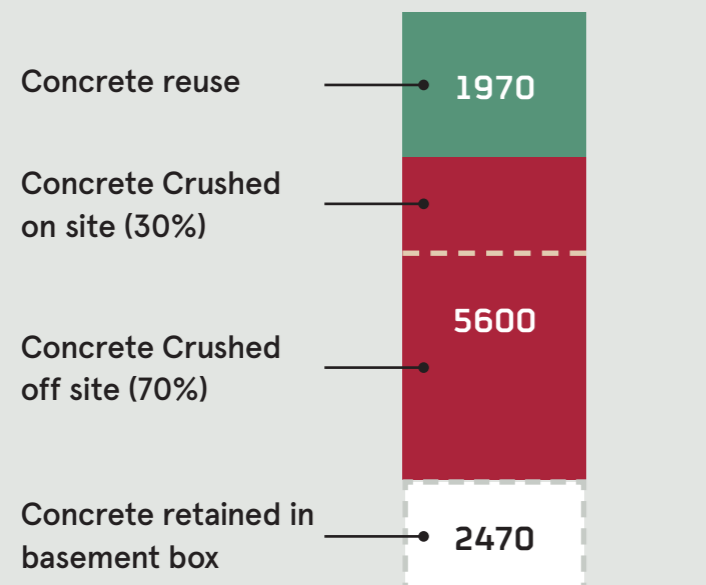


52 x Precast slabs  
440m<sup>3</sup> concrete

360t  
CO<sub>2</sub>e



## Summary: Volumes (m<sup>3</sup>)



Summary: embodied carbon  
Reusing 1970 m<sup>3</sup> concrete and site-crushing 1680 m<sup>3</sup> concrete

1290 tCO<sub>2</sub>e  
emissions avoided  
(A1-4 new development)

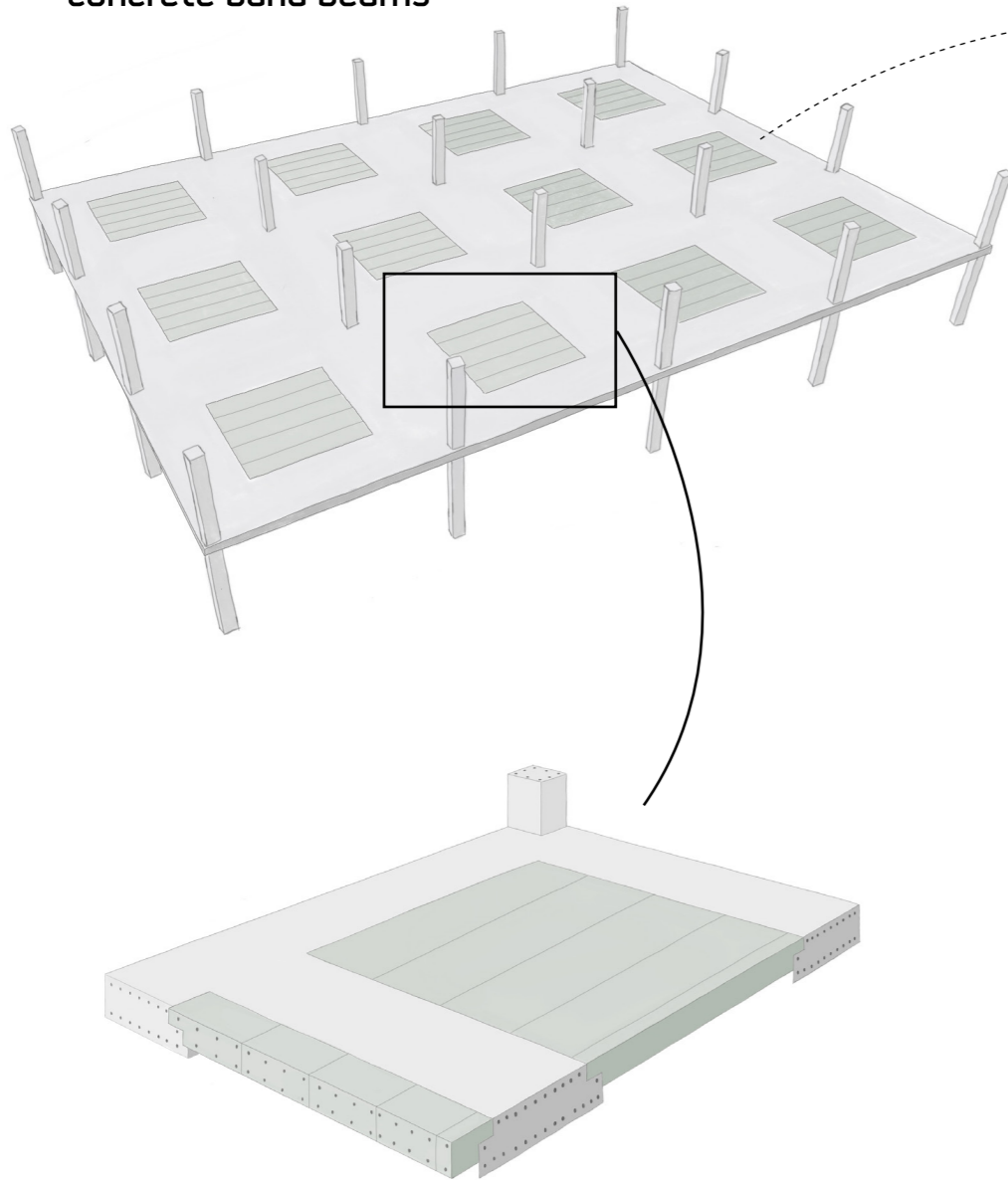
&

780 truck  
movements  
avoided

# Museum Street - proposed applications for reused concrete

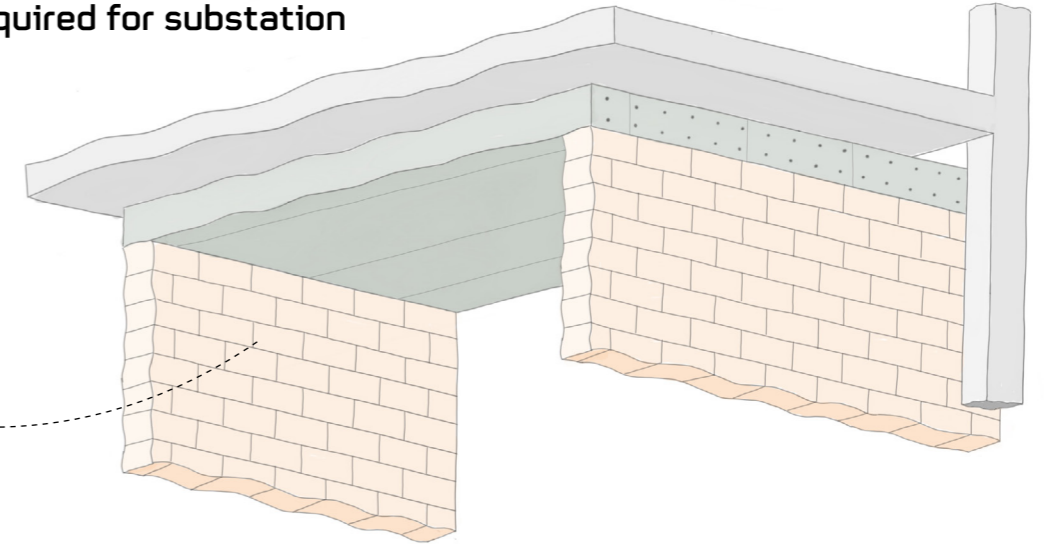
## Concrete infill panels

Slab panels used as infills supported by new concrete band beams



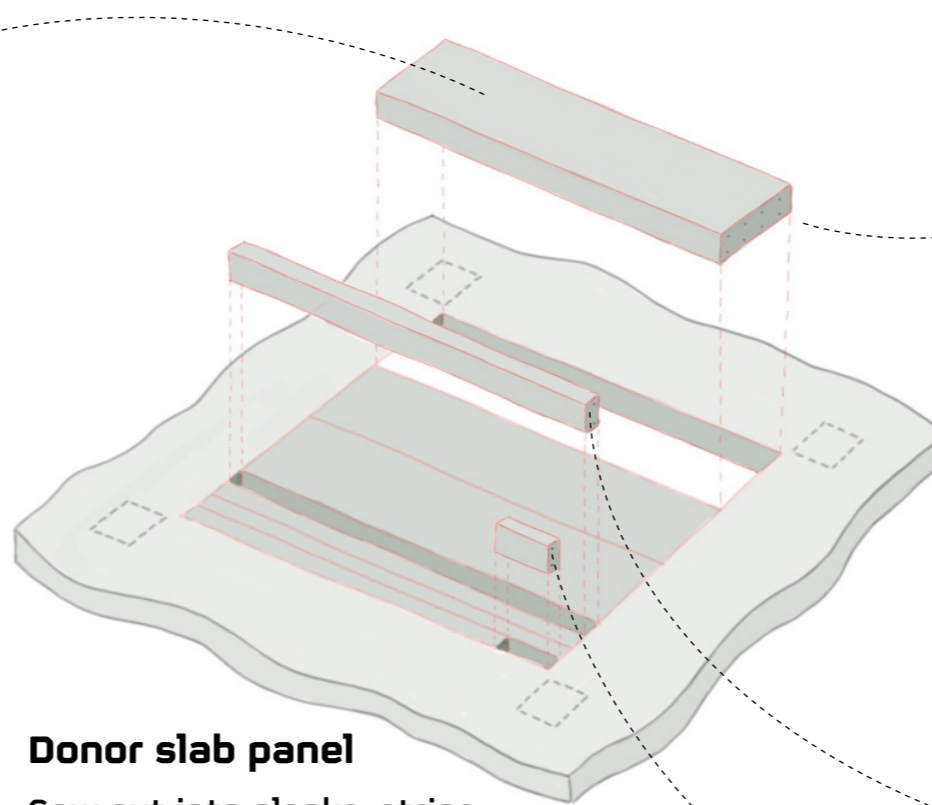
## Substation roof slab

Reused slab to form double roof required for substation



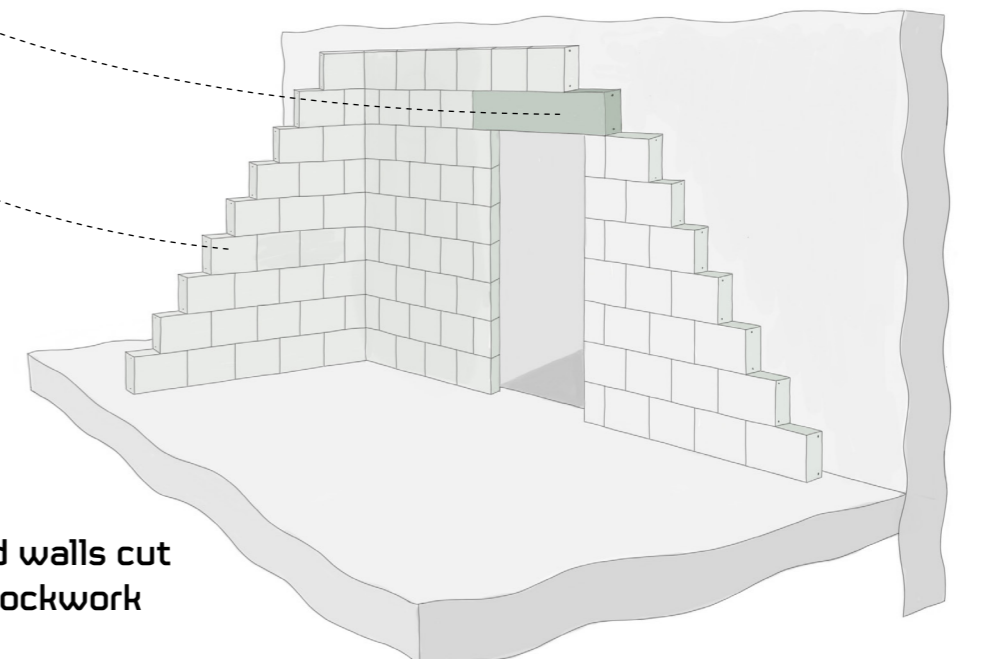
## Donor slab panel

Saw cut into planks, strips and blocks



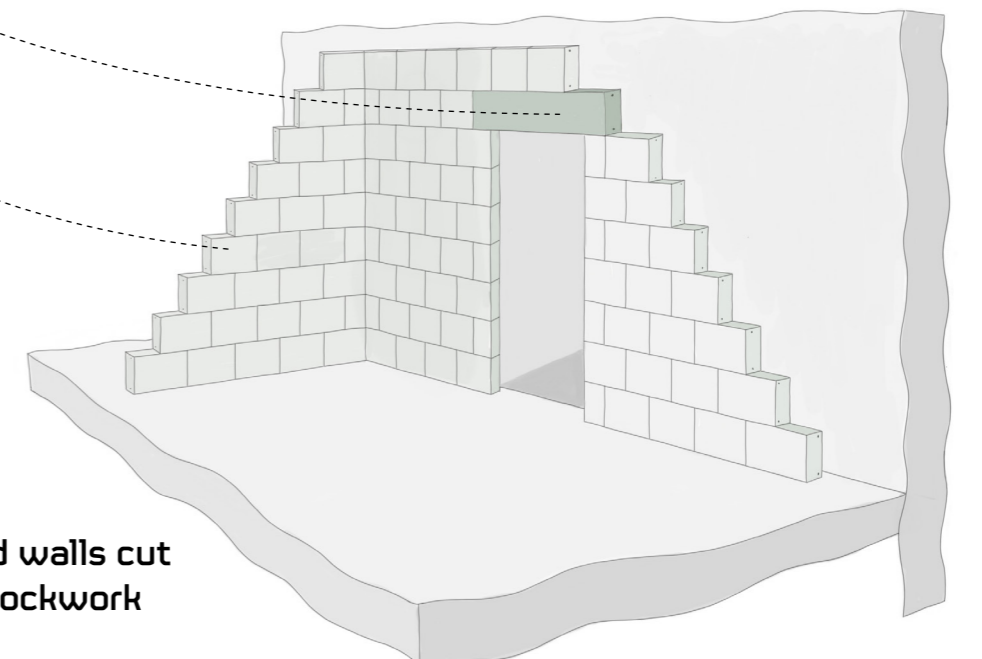
## Lintels

Reused concrete slabs, walls and columns to form lintels



## Blockwork partitions

Reused concrete slabs and walls cut to size and used to new blockwork partitions



# Museum Street – Notes and Next Steps

## Notes

- + This pre-reclamation audit identifies the structural elements with high reuse potential and proposes them for a new use. A full record for each element with reuse potential from 3 different categories (slabs, columns, and walls) has been created.
- + All information presented in this report is based on archive information and assumptions using engineering judgement and needs confirmation following site investigations.
- + The proposed reuse applications for concrete elements were chosen to suit the new building's proposed scheme and functionality, taking into account the expected capacity of reclaimed elements. These reuse applications are dependent on availability, quality, dimensional, technical, aesthetic and programme considerations.

## Next Steps

Structural element dimensions, quantities and condition to be confirmed on site.

Discussions with demolition contractors, ideally with experience in reclamation, to agree reclamation procedure, minimise expected damage and understand effect on cost and demolition programme:

- + Agreeing the deconstruction methodology, including tools used ensure integrity of the extracted elements (diamond saw, hydro blasting, etc) and lifting techniques (similar to ones used in prefabrication).
- + Assess the load capacity for lifting equipment, dimensions of openings on the extraction path, maximum transportable dimensions (considering the central location of the site)
- + Assessment of storage space within the site for elements proposed for reuse on site.
- + Assessment of transport and storage for reclaimed elements not used on site.

Establish and agree protocol to assess the quality, condition and structural capacity of the reclaimed elements.

- + Assessing concrete suitability - deterioration/degradation, mechanical damage, structural damage, contamination from toxic substances, etc.
- + Existing building quality assessment - verify concrete and reinforcing steel properties using destructive and non-destructive methods (rebound hammer, ground-penetrating radar, load testing, etc.)
- + Documenting all elements extracted from the building, including condition and damages occurred during demolition.
- + Undertake any testing needed to validate elements for their proposed reuse.

# A.1 Source of information and calculations

## A.1.1 Construction

The construction materials and waste forecast will be based on typical data as outlined below.

Note that the phases are typical and may change through the development of the project and this will be highlighted in the next iteration of the audit.

### A.1.1.1 Detailed Area

**Table 1 – 1 Museum Street Existing and Proposed Floorspace (GIA)**

Use Class	Existing Sqm (GIA)	Proposed Sqm (GIA)	Variance Sqm (GIA)
Office (Use Class E(g)(i))	-	22,650	+22,650
Residential*	1,322	-	-1322
Hotel (C1)	9,292	-	-9,292
Hot Food Take away (Sui Generis/Former A5)	190	-	-190
Car Park	8,037	-	-8,037
Flexible Ground Floor Uses (Use Class E excluding part E(g) use)	-	447	+447
Flexible Ground Floor Uses (unrestricted Use Class E)	-	186	+186
<b>Total</b>	<b>18,841</b>	<b>23,283</b>	<b>+ 4,442</b>

**Table 2 – Vine Lane – Existing and Proposed Floorspace (GIA)**

Use Class	Existing sqm (GIA)	Proposed sqm (GIA)	Variance sqm (GIA)
Market Residential (Use Class C3)	-	1,579	+1,579
Flexible Ground Floor Uses (Use Class E excluding part E(g) use/	-	319	+319
<b>Total</b>	<b>-</b>	<b>1,898</b>	<b>+1,898</b>

**Table 3 – High Holborn – Existing and Proposed Floorspace (GIA)**

Use Class	Existing sqm (GIA)	Proposed sqm (GIA)	Variance sqm (GIA)
Flexible Ground Floor Uses (Use Class E excluding part E(g) use)	-	23	+23
Residential (Private)	-	426	+426
<b>Total</b>	<b>0</b>	<b>449</b>	<b>+449</b>

**Table 4 - West Central Street - Existing and Proposed Floorspace (GIA)**

Use Class	Existing sqm (GIA)	Proposed sqm (GIA)	Variance sqm (GIA)
Office (Use Class E(g)(i))	624	-	- 624
Nightclub (Sui Generis)	994	-	- 994
HMO (C4)	97	-	- 97
Flexible Ground Floor Uses (Use Class E excluding part E(g) use)	502	692	+190
Residential (Market)	495	294	-190
Residential (LCR)		1,025	+1,025
Residential (Inter.)		668	+668
<b>Total</b>	<b>2,712</b>	<b>2,679</b>	<b>-33</b>

**Table 5 – Consolidated Floorspace Figures (GIA)**

Use Class	Existing Sqm (GIA)	Proposed Sqm (GIA)	Variance Sqm (GIA)
Office (Class E)	624	22,650	+22,026
Hotel (C1)	9,292	-	-9,292
Car Park	8,037		-8,037
Hot Food Take Away (Sui Generis/former A5)	190		-190
Flexible Ground Floor Uses (Use Class E excluding part E(g) use)	502	1,481	+ 1,165
Flexible Ground Floor Uses (unrestricted Use Class E)		186	
Nightclub (Sui Generis)	994	-	- 994
HMO (C4)	97	-	- 97
Residential (Market)	1,817*	2,299	+482
Residential (LCR)	-	1,025	+1,025

<b>Use Class</b>	<b>Existing Sqm (GIA)</b>	<b>Proposed Sqm (GIA)</b>	<b>Variance Sqm (GIA)</b>
Residential (Inter.)	-	668	+668
<b>Total</b>	<b>21,553</b>	<b>28,309</b>	<b>+6,756</b>

**Table 6 – Consolidated Commercial and Residential Floorspace Figures (GIA)**

	<b>Commercial</b>	<b>HMO</b>	<b>Residential Uplift (Private and Affordable)</b>	<b>Total Increase</b>
Existing	20,961	97	1,817	
Proposed	24,197	-97	4,502	
<b>Total</b>	<b>+ 3,236</b>	<b>-97</b>	<b>+ 2,685</b>	<b>+ 5,824</b>

### 11.6.1 Smart Waste

To inform the Audit a SmartWaste data report (an Excel based document), produced by WRAP in 2012, will be used to estimate the waste generated from the construction phase. The calculations will be based on material and waste arisings (tonnes) per 100m<sup>2</sup>.

The following information will be used from the SmartWaste data report's 'Waste arisings tonnes' tab:

- Residential land use - 'New Build' and 'Residential' (31 tonnes/100m<sup>2</sup>).
- Non-residential land use – 'New Build' and 'Commercial retail' (28 tonnes/100m<sup>2</sup>).

The SmartWaste data report will not be used to forecast the composition of the materials and waste arising, as the waste composition figures are sums of the materials and waste generated during construction. Also, given the project information at this stage, it is difficult to forecast the materials and waste composition reliably.

### A.1.2 Excavation

The excavation for this SWMP will be based on information received from the design team, and quantity surveyors and cost-consultants in both hard and E.copy.

It will be assumed that the average density of the excavated material generated at each phase to be defined will be 2.000 tonnes/m<sup>3</sup> unless otherwise noted.



# Appendix B

## Duty of Care

# B.1 Waste Transfer Note template

## Duty of care: waste transfer note Keep this page and copy it for future use. Please write as clearly as possible.

### Section A – Description of waste

A1 Description of the waste being transferred

List of Waste Regulations code(s)

A2 How is the waste contained?

Loose  Sacks  Skip  Drum

Other

A3 How much waste? For example, number of sacks, weight

### Section B – Current holder of the waste – Transferor

By signing in Section D below I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011 Yes

B1 Full name

Company name and address

Postcode  SIC code (2007)

B2 Name of your unitary authority or council

B3 Are you:

The producer of the waste?

The importer of the waste?

The local authority?

The holder of an environmental permit?

Permit number

Issued by

Registered waste exemption?

Details, including registration number

A registered waste carrier, broker or dealer?

Registration number

Details (are you a carrier, broker or dealer?)

### Section C – Person collecting the waste – Transferee

C1 Full name

Company name and address

Postcode

C2 Are you:

The local authority?

C3 Are you:

The holder of an environmental permit?

Permit number

Issued by

Registered waste exemption?

Details, including registration number

A registered waste carrier, broker or dealer?

Registration number

Details (are you a carrier, broker or dealer?)

### Section D – The transfer

D1 Address of transfer or collection point

Postcode

Date of transfer (DD/MM/YYYY)

D2 Broker or dealer who arranged this transfer (if applicable)

Postcode

Registration number

Time(s)

Transferor's signature

Name

Representing

Transferee's signature

Name

Representing

## B.2 Hazardous Waste Consignment Note template

Form HWCN01v112

### The Hazardous Waste Regulations 2005: Consignment Note

Environment  
Agency

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

---

**PART A Notification details**

1 Consignment note code:

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):

3 The waste will be taken to (name, address and postcode):

4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):

---

**PART B Description of the waste** If continuation sheet used, tick here

1 The process giving rise to the waste(s) was: 2 SIC (2007) for the process giving rise to the waste:

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code)(6 digits)	Quantity (kg)	The chemical/biological components in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			

The information given below is to be completed for each EWC identified

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements

---

**PART C Carrier's certificate**

**(If more than one carrier is used, please attach schedule for subsequent carriers. If schedule of carriers is attached tick here. )**

I certify that I today collected the consignment and that the details in A2, A3 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name:  
On behalf of (name, address, postcode, telephone, e-mail, facsimile):

2 Carrier registration no./reason for exemption:

3 Vehicle registration no. (or mode of transport, if not road):

Signature

Date

**PART D Consignor's certificate**

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name:  
On behalf of (name, address, postcode, telephone, e-mail, facsimile):

Signature

Date

---

**PART E Consignee's certificate** (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)

1 I received this waste at the address given in A3 on: Date

2 Vehicle registration no. (or mode of transport if not road): Name:

3 Where waste is rejected please provide details: On behalf of (name, address, postcode, telephone, e-mail, facsimile):

I certify that waste permit/exempt waste operation number:

authorises the management of the waste described in B at the address given in A3.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the collection are:

Signature

Date