

## Pre-Demolition Audit Report



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**The Fitzrovia**  
**247 Tottenham Court**  
**Road**

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**The Fitzrovia**

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Pat Pearson

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## Document History

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10/05/22	00	Initial issue of Pre-Demolition Audit Report
01/03/23	001	Report updated with final figures

Prepared By	Signed	Date
P.Pearson		01/03/23
Reviewed By	Signed	Date

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## 1. Pre-Refurbishment Audit

### Introduction and Objectives

This pre-refurbishment audit establishes what materials are currently present in the building and identifies opportunities for re-use and recycling of these materials, in order to minimise material going to landfill. The results should be used to guide the design, consideration of materials that can be re-used, and to set targets for waste management and ensure all contractors are engaged in the process of maximising high-grade re-use and recycling opportunities.

This audit covers:

- Identification and quantification of the key materials where present on the project;
- Potential applications and any related issues for the re-use and recycling of the key materials in accordance with the waste hierarchy;
- Identification of local re-processors or recyclers for recycling of materials;
- Identification of overall recycling rate for all key materials;
- Identification of re-use targets where appropriate; and
- Identification of overall landfill diversion rate for all key materials.

### Project Overview

This is a pre-demolition audit of 247 Tottenham Court Road/3 Bayley Street and 1 to 4 Morwell Street

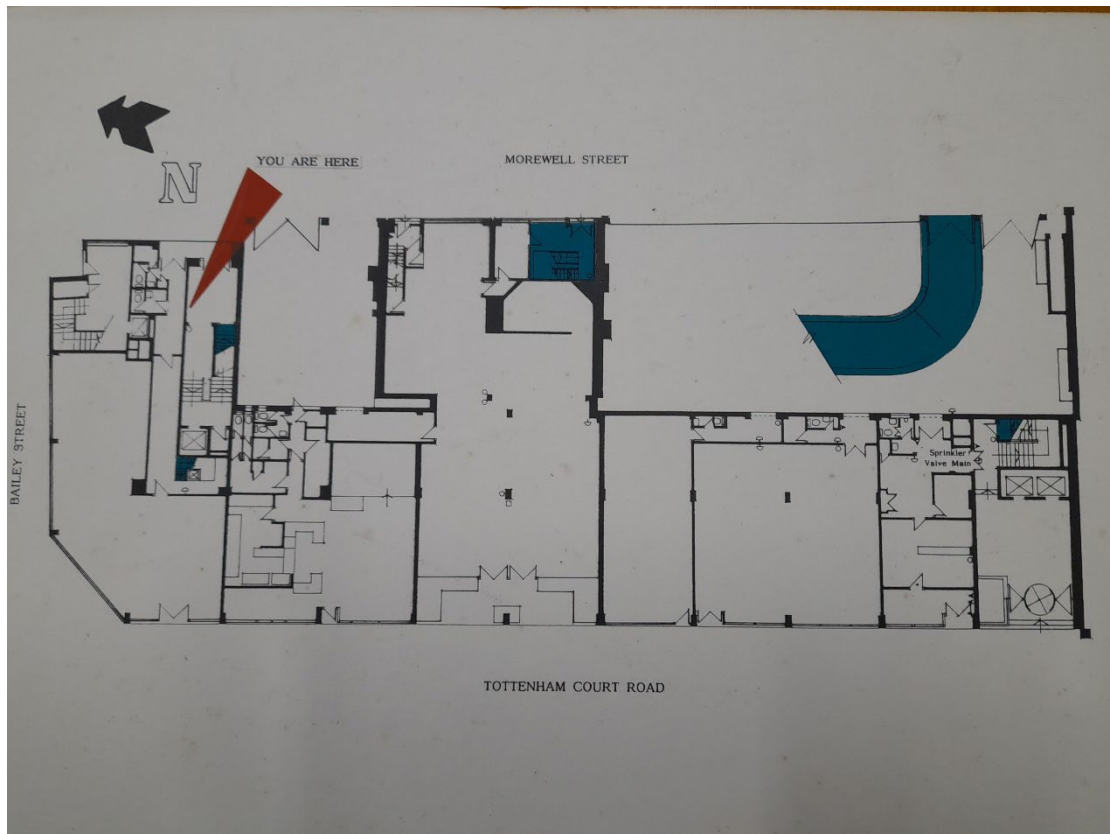
247 Tottenham Court Road/3 Bayley Street is a reinforced concrete framed and floored building on a reinforced concrete basement rising from basement up to 5<sup>th</sup> floor.

1 to 4 Morwell Street is a steel framed building with concrete/steel deck floors on a reinforced concrete box, rising from basement up to 2<sup>nd</sup> floor.

The works will include, hard demolition, secant piling works to the perimeter, installing supports to the secant piling and the excavation of basement levels.

The site is bounded on three sides by roads, Tottenham Court Road on the west side, Bayley Street to the north and Morwell Street on the east side. The Bayley Street section has recently been changed to a cycle and pedestrian lane only into Tottenham Court Road

A typical floor layout is shown below:



### Scope of Works

Demolish buildings down to top of ground floor, backfill basements with selected demolition arisings, remove full ground floor slab and basement slab/foundations around perimeter of building.

Install secant piling to perimeter of site. Install bracing supports to secant piling and excavate footprint down to underside of basement slab levels, removing the basement slab and foundations in the process.

Install blinding concrete to basement digs and demobilise from site.

## Methodology

A site audit was undertaken on 10/05/22. The audit consisted of a walk around and visual inspection of the key areas of the site.

Site audit photos are included in Appendix 1.

The primary items identified on the pre-refurbishment audit are:

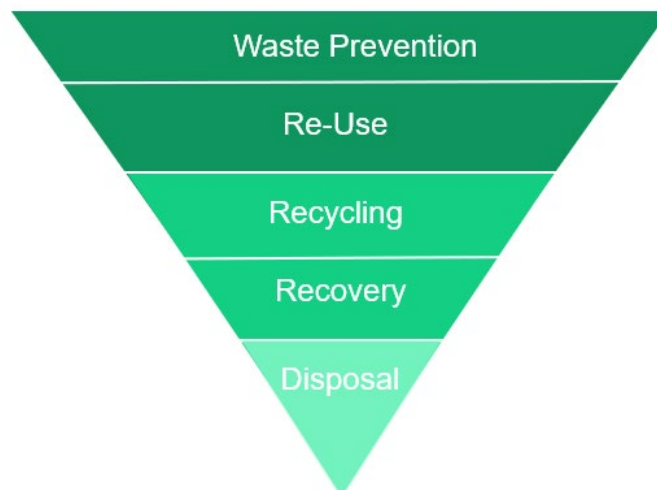
- Brick
- Metal
- Concrete
- Glass

Material quantities have been estimated based on information gathered on the site audit, information in the record drawings and standard assumptions.

## Waste Hierarchy

This audit aims to reduce impacts upon the environment by limiting waste sent to landfill. Diversion from landfill should be achieved by following the methods outlined in the Waste Hierarchy in order of importance, as shown below.

The following assessment addresses each stage of the hierarchy with respect to the demolition and strip out works proposed for the development.



## Waste Prevention

Preventing waste completely is a key aspect to the waste hierarchy. The new design should be assessed in order to minimise demolition. Any existing building elements that can be wholly or partially retained should be identified.

## Re-use

Direct re-use occurs when an item is re-used on site or at another site without being sent to a re-processor or recycler or is not removed from the site at all. Re-use is most relevant during the soft strip of the internal areas, and primarily applies to individual items that can be easily taken apart or separated from the building without causing damage.

Many items of value can be removed and sold to reclamation yards. In order to maximise opportunities for re-use, during strip out, building elements should be removed with care and separated. This can be a time-consuming process, so in order to maximise re-use, it is recommended that the demolition contractor is provided with sufficient lead time to recover and advertise any reusable items on material exchange websites.

The key items identified for possible re-use are:

## Bricks

Bricks can often be re-used or re-sold. A brick reclamation yard should be contacted to investigate the feasibility of reclaiming and reselling the bricks.

## Recycling

As the materials being removed from the existing building are of different ages and include items that will require specific processes to recycle, such as carpet or insulation, it is important that all the key materials are separated during strip out to ensure that recycling is possible. During strip-out the waste will be sorted into separate key waste groups on site and sent to the relevant recyclers. Any residual waste should be sent to a recycler, material recovery facility or waste to energy facility.

Waste containers should be clearly labelled. Signage should be provided to indicate each separate waste group that can be placed in the bin. Waste management procedures should be disseminated to site operatives during induction and throughout the project as a focus of toolbox talks.

Concrete blockwork and concrete down stands are difficult to re-use and cannot be recycled on site, as there is no need for low grade aggregates. A common problem with recycling demolition waste is that crushed materials are down-cycled due to the mixed content. Segregation will help maximise efficient use of these bulk materials. In order to achieve higher grade recycled aggregates, efforts should be made to separate the concrete from other inert materials, such as the brick.

Due to the site's location, there are a large number of potential waste and recycling facilities available, some of which have been listed below. It is recommended that recyclers are selected that achieve at least 98% diversion of material from landfill, however a number of recyclers were identified that report zero waste to landfill.

## Identified Local Reprocesses or Recyclers

	Address	Website
Westminster Waste	Maybank Wharf, Herringham Road, Charlton, SE7 8NW	<a href="http://www.westminsterwaste.co.uk">www.westminsterwaste.co.uk</a>

RTS Waste Management	Plot 15 Manor Way Business Park, Manor Way, Kent, DA10 0PP	<a href="http://www.rtswaste.co.uk">www.rtswaste.co.uk</a>
Powerday	Brixton Waste Transfer Station, Belinda Road, London, SW9 7DT	<a href="http://www.powerday.co.uk">www.powerday.co.uk</a>



## **Recovery**

The majority of waste can be re-used or recycled. Certain waste streams, such as some forms of timber or insulation, can be unsuitable for recycling. When managed correctly, to minimise the release of any toxic fumes, waste incineration can minimise any environmental damage and recover the energy contained within products.

Research has shown high quantities of wood from demolition sites is landfilled. Where reuse and recycling are not feasible, the carbon benefit from recovering the energy from wood products can be significant.

Insulation products can also be used for energy recovery. The bulk of these products often mean it is unfeasible to transport them to the specialist recycling facilities required. Where recycling is not possible, polymer-based products can be used for energy recovery, as polymers have a high calorific value.

In these cases, using the materials for energy recovery can be the most effective way to avoid landfill. However, prevention, reuse and recycling should always be prioritised over energy recovery.

As with recycling these waste streams should be separated and sorted on site. They can then either be sent directly to a waste-energy plant or sent to a recycler/re-processor that uses energy recovery to minimise any waste being sent to landfill. A number of the recyclers identified report that certain waste streams, such as timber or residual waste, are used for energy recovery.

## **Disposal**

Hazardous materials will be safely disposed of in line with the Hazardous Waste Regulations 2016 and have been excluded from this report. Non-hazardous waste produced on site will always be assessed for handling following the waste hierarchy.

## **Quantification**

The items and materials present in the building have been estimated by volume and mass and categorised by European Waste Catalogue (EWC) category. Material volumes and mass have been estimated and are based on information gathered on the site audit, available drawings and standard assumptions.

The estimated makeup of waste: See below.

A review of potential recyclers or re-processors identified a number that report zero waste to landfill for all key materials identified. Potential opportunities for reuse have been identified, with remaining waste assigned for recycling, recovery and landfill diversion to calculate targets by mass for each key material.

A summary of results is shown in Table below. They show that this project may be able to achieve zero waste to landfill in the majority of waste groups. In reality achieving this may be unrealistic, as there are a number of smaller waste streams not accounted for within this report, and separation of materials in some construction projects can be problematic.

The full calculation table can be seen in Appendix 2.

## Estimated Material End Use Rates

EWC Group	Mass		Re-used Target	RecycledTarget	Recovered Target	Landfill Diversion Target
	(Tonnes)	(%)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
Bricks	363 tonnes	100%	30 tonnes	333 tonnes		363 tonnes
Concrete	5,366 tonnes	100%		5,366 tonnes		5,366 tonnes
Electrical						
Glass	78 tonnes	100%		78 tonnes		78 tonnes
Gypsum						
Insulating Materials						
Metals	233 tonnes	100%		233 tonnes		233 tonnes
Plastics						
Soil and Stones						
Tiles and ceramics						
Timber						
<b>Total Mass</b>	<b>6,040 tonnes</b>		<b>30 tonnes</b>	<b>6,010 tonnes</b>		<b>6,040 tonnes</b>
<b>Overall percentage</b>	100%	100%	<b>100%</b>	<b>100%</b>		<b>100%</b>

## Conclusion

100% of the main demolition wastes on this site can be re-used or recycled.

## 2. Appendix 1: Site Audit Photos











### 3. Appendix 2: Full Materials Calculations

Building Element	Item	Volume (m3)	Density (kg/m3)	Mass (Tonnes)	Mass (%)	European Waste Catalogue	Reused (kg)	Recycled(kg)	Recovered (kg)	Landfill (kg)
External Walls	Bricks	1183m3	1360kg/m3	1,608,795kg	87%	17-01-02	18,000kg	1,590,795kg	0kg	0kg
Internal Walls	Bricks	1231m3	1360kg/m3	1,673,880kg	87%	17-01-02	0kg	1,673,880kg	0kg	0kg
Concrete Floors	Concrete	6515m3	2300kg/m3	14,984,500kg	99%	17-04-05	0kg	14,985,000kg	0kg	0kg
Concrete Floors	Reinforcement	983m3	100kg/m3	98326kg	1%	17-04-05	0kg	98,326kg	0kg	0kg
Window Glass	Glass	31m3	2500kg/m3	77,500kg	100%	17-02-02	0kg	77,500kg	0kg	0kg

#### **4. Appendix 3: Extent of Survey and Limitations**

The aim of the audit is to identify and quantify key materials, identify local recycling contractors and set targets for overall recycling, reuse of materials and diversion from landfill. The audit has been designed to target key refurbishment products in a way that reduces the disposal cost of waste arising from the refurbishment / development, realises the financial benefits of recovering material and reduces the impact of waste on the environment by constructing in an efficient and responsible manner.

Data has been collected using non-invasive techniques such as from visual site inspections and architectural drawings. This has allowed the broad identification and quantification of materials that will be removed as part of the refurbishment. In addition, the condition of the different components has been visually assessed to determine potential for reuse and recycling, where it has been possible to see such elements. An estimate of the overall waste tonnage likely to be generated has been produced. Therefore, material quantities should only be taken as guidance to inform decisions regarding the reuse, recycling and recovery of waste.

The report will cover all parts of the site made available during the visual inspection of the property, which is normally and safely accessible without the use of ladders, and therefore exclude all ceiling, wall and floor voids unless stated within the report.

The structure and fabric will not be opened up for further investigation. Those parts of the building and engineering services that are concealed, inaccessible or covered will not be inspected. Where we feel further investigation is merited, reference will be made in the report. The survey is based on a visual inspection and comment on the condition and the quality of the installation relating to normal good standards. We have specifically exclude tests relating to the performance of any heating, air conditioning or ventilation systems, pipe pressure tests, electrical or drainage tests. The omission of such tests might give risks to the fact that certain problems could exist which are not reflected in our report. No inspection or comment is made on the below ground drainage installations or service conduits unless instructed otherwise.

Where buildings are occupied at the time of the inspection access to some areas may be restricted or denied although these areas will be noted in our report. Regardless of occupation, we will not lift fitted carpets, nor disturb any part of the fabric or fittings which are fixed or may cause damage. The report and survey excludes any investigation into the unsuitable use of deleterious or hazardous materials except in so far as such matters may come to our knowledge in the normal course of inspecting the property and state of repair.

Where comment is made to current waste legislation, no liability can be accepted for the effects of any future changes to such guidelines and legislation. In the event that guidance / legislation changes it may be necessary for Deconstruct to update or modify reports.