Oriel

Operational Recycling and Waste Management Strategy

October 2020

File: ORL-INF-XX-XX-RP-PL-370-Operational Recycling and Waste Management Strategy

Oriel
Creating the centre for advancing eye health

Moorfields Eye Hospital NHS Foundation Trust

NHS

Moorfields Eye Charity

UCL INSTITUTE OF OPHTHALMOLOGY

Oriel
Creating the centre for advancing eye health

CONTACTS

Applicant:
Moorfields Eye Hospital NHS Foundation Trust
62 City Road
London EC1V 2PD
T: +44 **(**0)20 7253 3411
W: www.moorfields.nhs.uk

UCL Institute of Ophthalmology
Bidborough House
38-50 Bidborough Street
London WC1H 9BT
T: +44 (0) 20 7679 2000
W: www.ucl.ac.uk/ioo/

Moorfields Eye Charity
Kemp House
152-160 City Road
London EC1V 2NX
T: +44 (0)20 7566 2565
W: www.moorfieldseyecharity.org.uk

Development Manager:
Moorfields Eye Hospital NHS Foundation Trust
62 City Road
London EC1V 2PD
T: +44 (0)20 7501 0688
W: www.moorfields.nhs.uk

Project Manager:
AECOM
Aldgate Tower,
2 Leman Street
London E1 8FA
T: +44 (0)20 7061 7000
W: www.aecom.com

Lead Designer & Multi-Disciplinary Design Team including Specialists:
AECOM
Aldgate Tower
2 Leman Street
London E1 8FA
T: +44 (0)20 7061 7000
W: www.aecom.com

Lead Architect:
Penoyre & Prasad
The White Chapel Building
10 Whitechapel High Street
London, E1 8QS
T: +44 (0)20 7250 3477
W: penoyreprasad.com

Interiors / Landscape Architect:
White Arkitekter
Östgötagatan 100
Box 4700
11692 Stockholm
T: +46 8 402 25 00
W: whitearkitekter.com

Environmental Consultant:
AECOM
Aldgate Tower,
2 Leman Street
London E1 8FA
T: +44 (0)20 7834 7267
W: www.aecom.com

Planning Consultant:
JLL
30 Warwick Street
London W1B 5NH
T: +44 (0) 207 493 4933
W: www.jll.co.uk

Heritage & Townscape:
KM Heritage
72 Pymer's Mead
London SE21 8NJ
T: +44(0) 20 8670 9057
W: www.kmheritage.com

Wind Microclimate:
BRE
Watford
Hertfordshire
WD25 9XX
T: +44(0) 333 321 8811
W: www.bregroup.com

Oriel
Creating the centre for advancing eye health

CONTACTS

Rights of Light:
GIA
The Whitehouse
Belvedere Road
LondonSE1 8GA
T: +44 (0)20 7202 1400
W: www.gia.uk.com

Public Affairs Consultant:
London Communication Agency
8th Floor
Berkshire House
168-173 High Holborn
London WC1V 7AA
T: +44 (0) 20 7612 8480
W: www.londoncommunications.co.uk

Client Accessibility Adviser:
Buro Happold
17 Newman Street
London W1T 1PD
T: +44 (0)2079 279 700
W: www.burohappold.com

Legal advisor:
CMS LLP
Cannon Place
78 Cannon Street
London EC4N 6A
T: +44 (0)20 7367 3000
W: cms.law/en/gbr

Cost Consultant:
Gardiner & Theobald LLP
10 South Crescent
London WC1E 7BD
T: +44 (0)20 3597 1000
W: www.gardiner.com


Oriel
Creating the centre for
advancing eye health


Moorfields
Eye Hospital
NHS Foundation Trust


JLL


UCL
INSTITUTE OF
OPHTHALMOLOGY


white


Moorfields
Eye Charity


KMHeritage


AECOM


bre


Penoyre
&Prasad


gia
CHARTERED SURVEYORS


BURO HAPPOLD


LCA


GT
GARDINER
&THEOBALD


CMS
Law . Tax

Oriel
Operational Recycling And Waste Management Strategy

Prepared for:

Moorfields Eye Hospital NHS Foundation Trust
UCL Institute of Ophthalmology
Moorfields Eye Charity

Prepared by:

AECOM Limited

Contents

Figures

Tables

Glossary

Term	Definition
Anatomical Waste	This waste includes blood preserves, organs and body parts. This waste must be incinerated.
Animal Bedding Waste	Miscellaneous animal waste materials from laboratories.
Applicant	Company making a formal planning application for the specified development. The Applicant for the Proposed Development is Moorfields Eye Hospital NHS Foundation Trust.
Baler	A machine used to tightly compress a certain type of material (i.e. cardboard) into a large bundle known as a bale.
Biodegradable waste	Any organic matter in waste, which can be broken down into carbon dioxide, water, methane or simple organic molecules by micro-organisms and other living things by composting, aerobic digestion, anaerobic digestion or similar processes.
Chemical Waste	Liquids and solvents, oils, paints and other labelled chemicals. This waste needs to be segregated safely, locked and suitably labelled as a substance which falls under the COSHH regulations.
Circular Economy	An economic system of closed loops in which products lose as little of their value as possible. In contrast to the take-make-dispose linear model, a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources.
Clinical Waste	Waste including gloves, dressings, bandages, aprons contaminated with bodily fluids. This waste must be incinerated.
Commercial and Industrial Waste	Waste generated by retail units, offices, and any other business use.
Construction and Demolition Waste	Waste produced by the construction or demolition activities. This includes building materials such as bricks, electrical wiring and insulation as well as waste originating from site clearance such as tree stumps and rubble.
COSHH Regulations	The law that requires employers to control substances that are hazardous to health.
COVID-19	A disease caused by a new strain of coronavirus.

Term	Definition
Cytotoxic Waste	Any material contaminated with residues or preparations that are toxic to cells. Cytotoxic agents are drugs that result in cell kill and eventual tumour shrinkage.
Cytostatic Waste	Any material contaminated with residues or preparations that are toxic to cells. Cytostatic agents inhibit tumour growth.
Deposit Return Scheme	In a deposit return scheme, a small deposit will be added to the price of a drink's container bought in a store. Once the container has been used, the consumer will dispose of it in a reverse vending machine and the deposit will be returned to the consumer.
Energy from Waste (EfW)	Any type of process which generates either heat or power from the combustion of waste.
Extended Producer Responsibility	A policy approach through which a producer's responsibility for a product is extended to the post-use stage. This incentivises producers to design their products to make it easier for them to be reused, dismantled and/or recycled at end of life.
Hazardous Waste	Batteries, light filaments, broken asbestos, poisons or, unlabelled or mixed chemicals. This waste needs to be segregated safely, locked and suitably labelled as a substance which falls under the COSHH Regulations.
Healthcare Waste	A by-product of health care that includes sharps, non-sharp blood contaminated items, blood, body parts and tissues, chemicals, pharmaceuticals and radioactive materials.
Household Waste	Waste from domestic properties including waste from residual refuse collections, material collected for recycling and composting, plus waste from educational establishments, nursing and residential homes and street cleansing waste.
Infectious Waste	Anything contaminated with human and/or animal i.e. blood or bodily fluids (e.g. saliva, mucous, or pus).
MITIE Group Plc	An outsourcing and energy company specialising in facilities management, property management, energy and healthcare.
Municipal Waste	Household waste and waste similar in nature and composition to household waste. Indicative treatment/disposal required is landfill or municipal incineration/energy from waste at a suitably permitted or licensed facility.

Term	Definition
Offensive Waste	Waste including sanitary protection (i.e. nappies), PPE not contaminated with bodily fluids.
Operational Waste	Waste and recyclate material generated by the development once it has been built and is operating.
Proposed Development	The development that the Applicant is submitting a planning application for.
Recycling on the Go facilities	Recycling on the Go facilities enable people to recycle “valuable” materials like newspapers, bottles and cans while away from home or the workplace.
Residual Waste	The remaining part of the waste stream excluding any source-segregated materials (also known as non-recyclable waste/general waste).
Sharps Waste	Defined as ‘anything that can pierce the skin’. For example, needles, scalpel blades, rigid point of giving sets, glass pipettes and tips, contaminated broken glass and disposable instruments. This waste must be incinerated.
Site	The area of ground, which the Proposed Development will be built on.
Solid Waste	Dry comingled recycling i.e. paper card, cans and tins, glass bottles, plastics, which needs to be segregated as per household waste.
WARPit scheme	WARPit is a resource redistribution scheme used by UCL.
Waste Apportionment Targets	The amount of waste that each London Borough needs to be prepared to manage in future years as set by the Mayor of London within the London Plan.
Waste Compactor	A machine that presses waste together in order to reduce the volume of waste. Compactors can be portable (i.e. the whole unit is taken away and emptied) or static (i.e. the compactor itself is permanent but the waste container attached to it can be removed and emptied).
Waste Hierarchy	The waste hierarchy ranks waste management practices according to what is best for the environment i.e. Prevention, Re-use, Recycling, Recovery, Disposal.
Zero-waste economy	An economy that does not send any waste to landfill by reducing the amount of waste produced and increasing the amount of materials recycled through promoting a circular economy.

Acronyms

Acronym	Description
A&E	Accident & Emergency
BREEAM	Building Research Establishment Environmental Assessment Method
BSI	British Standards Institute
BSU	Biological Services Unit
CO_2	Carbon Dioxide
COPA	Control of Pollution Act
COSHH	Control of Substances Hazardous to Health
CPG	Camden Planning Guidance
DCLG	Department for Communities and Local Government
DDA	Disability and Discrimination Act
Defra	Department for Environment, Food and Rural Affairs
DOH	Department of Health
DRS	Deposit Return Scheme
EfW	Energy from Waste
EPA	Environmental Protection Act 1990
EPR	Extended Producer Responsibility
EU	European Union
FB	Fire Brigade
GDA	Gross Development Area
GHG	Greenhouse Gas Emissions
GLA	Greater London Authority
HMSO	Her Majesty's Stationary Office
HTI	High Temperature Incineration
HTM	Health Technical Memorandum
IoO	Institute of Ophthalmology
L	Litres
LACW	Local Authority Collected Waste
LBC	London Borough of Camden
LWARB	London Waste and Recycling Board
MDR	Mixed Dry Recyclables
MEH	Moorfields Eye Hospital

Acronym	Description
MHCLG	Ministry of Housing, Communities and Local Government
NLJWS	North London Joint Waste Strategy
NLWA	North London Waste Authority
NLWP	North London Waste Plan
NPPF	National Planning Policy Framework
PPE	Personal Protection Equipment
PPG	Planning Practice Guidance
PVC	Polyvinyl Chloride
RIBA	Royal Institute of British Architects
RVM	Reverse Vending Machine
SO	Strategic Objective
UCL	University College London
UK	United Kingdom
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
WRAP	Waste and Resources Action Programme

Executive Summary

Moorfields Eye Hospital NHS Foundation Trust (hereafter referred to as the 'Applicant'), on behalf of Oriel[1], have commissioned AECOM to prepare an Operational Recycling and Waste Management Strategy (hereafter referred to as the 'Strategy') for a new facility that would allow the existing Moorfields Eye Hospital at City Road (Moorfields at City Road) and University College London (UCL) Institute of Ophthalmology (IoO) services on Bath Street to relocate into a single building at the existing St. Pancras Hospital site (hereafter referred to as the 'Proposed Development').

The location of the Proposed Development (referred to as the 'Site') is situated within the administrative boundary of the London Borough of Camden (LBC).

The principal aim of this Strategy is to demonstrate how sustainable methods for recycling and waste material management have been taken into account for the operational phase of the Proposed Development. Furthermore, with regards to recycling and waste material management within the Proposed Development, this Strategy has the following aims:

- To contribute towards achieving current and long-term national, Greater London Authority (GLA) and LBC targets for waste minimisation, recycling and re-use;
- To comply with all applicable legal requirements for handling recycling and waste material generated during the operation of the Proposed Development;
- To achieve high standards of waste management performance, through giving consideration to the recycling and waste material generated during the operation of the Proposed Development; and
- To provide a convenient, clean and efficient recycling and waste material management strategy that enhances the operation of the Proposed Development and promotes recycling.

Once operational, as described in Section 5, the Proposed Development is anticipated to produce approximately 233,882 litres (L) of recycling and waste material from the healthcare and laboratory uses per week, equating to approximately 1,438 tonnes of recycling and waste material per year (i.e. based on the following approximate densities: Food waste – 667 kg/m^3, residual waste – 81 kg/m^3, glass – 290 kg/m^3, plastic – 21 kg/m^3, metal – 40 kg/m^3, cardboard – 60 kg/m^3, paper – 294 kg/m^3, healthcare waste – 82 kg/m^3, and hazardous waste (animal bedding waste) – 395 kg/m^3 (Ref. 1)).

The Proposed Development will have one main bin store for wheeled bins and an auxiliary waste store adjacent to the loading bay for wheeled bins, a cardboard baler and cardboard bales, and separate bin store for the Biological Services Unit (BSU) waste will also be provided, and a residual waste compactor will be situated in the loading bay. The bin store design will enable the segregation of the following recycling streams: plastics, metal, cardboard, paper, glass, healthcare, hazardous waste, and food waste. With separate space provisions provided for ad-hoc recycling streams such as batteries, textiles and bulky waste as described in Section 5.

[1] Oriel is a joint venture between Moorfields Eye Hospital NHS Foundation Trust, University College London Institute of Ophthalmology and Moorfields Eye Charity

All waste stores and compactor volume have been designed to provide sufficient capacity to hold and manage the waste arisings for the Proposed Development, based on:

- Daily collections of plastics, metals, paper and healthcare waste (based on two-day storage capacity);
- Twice weekly collection of glass and food waste (with additional storage capacity);
- Once every four weeks collection of a residual waste compactor; and
- Weekly collection of cardboard bales and hazardous waste.

The above provisions will result in recycling and waste material produced during the operation of the Proposed Development being managed in accordance with the Waste (England and Wales) Regulations 2011 (Ref. 2). Additionally, all recycling and waste infrastructure introduced to the Proposed Development will comply with:

- Guidelines published by the Greater London Authority (GLA) and LBC;
- British Standard (BS) 5906:2005 Waste Management in Buildings - Code of Practice (Ref. 3);
- Part H6 of the Building Regulations (2010) (Ref. 4); and
- The Department for Health's (DfH) Environment and sustainability - Health Technical Memorandum 07-01: Safe management of healthcare waste (2013) (Ref. 5).

This Strategy acknowledges that anyone producing, handling and carrying waste on the Proposed Development, and to or from the Proposed Development will do so in accordance with the Duty of Care Code of Practice 2018 (Ref. 6). In relation to this Strategy, Waste is defined as per the Waste Framework Directive (2008/98/EC) (Ref. 7) as *"any substance or object which the holder discards or intends or is required to discard"*.

This Strategy relates to the operational phase of the Proposed Development. Information relating to the management of waste and materials during the construction phase is provided in the Circular Economy Statement and the Outline Construction Management Plan which are submitted with the planning application.

1 Introduction

1.1 Overview

1.1.1 Moorfields Eye Hospital NHS Foundation Trust (hereafter referred to as the 'Applicant'), on behalf of Oriel[1], have commissioned AECOM to prepare an Operational Recycling and Waste Management Strategy (hereafter referred to as the 'Strategy') for a new facility that would allow the existing Moorfields Eye Hospital at City Road (Moorfields at City Road) and University College London (UCL) Institute of Ophthalmology (IoO) services on Bath Street to relocate into a single building at the existing St. Pancras Hospital site (hereafter referred to as the 'Proposed Development').

1.1.2 The site of the Proposed Development (referred to as the 'Site') is located within the administrative boundary of the London Borough of Camden (LBC).

1.2 Strategy Overview

1.2.1 Through the lens of the Circular Economy Model, this Strategy aims to promote a circular approach by exploring opportunities for sharing, maintaining, reusing, refurbishing and recycling during the operation of the Proposed Development in accordance with the Waste Hierarchy (see Section 6 of this Strategy).

1.2.2 Following on from the prevention and reduction of waste, this Strategy will encourage the segregation and sorting of recycling and waste in-line with the Waste Hierarchy. Measures will be implemented to maximise the amount of material arising from the Proposed Development that is recycled/composted and minimise the amount of waste that is sent to landfill.

1.2.3 This Strategy provides a review of the requirements placed upon the Proposed Development under legislation and implemented policy at all levels of government (i.e. national (England), regional (London) and local (LBC)). Consideration is also given to the requirements included in local standards, local planning policy and guidance documents i.e. LBC's Camden Planning Guidance - Design (Ref. 8) and the British Standards Institution (BSI), Waste Management in Buildings – Code of Practice (BS 5906:2005) (Ref. 3) so as to comply with relevant objectives and targets.

1.2.4 The methodology used to identify and estimate volumes of recycling and waste material generated during the operation of the Proposed Development is provided in Section 4 (Methodology) of this Strategy. Following this, the approach to be taken towards recycling and waste material management within the Proposed Development is discussed. This includes a breakdown of the recycling and waste material management process, including handling, storage area provision, and collection arrangements.

1.2.5 All recycling management and waste material reduction measures are compliant with BS 5906:2005, the Waste (England and Wales) Regulations 2011 (as amended) and Part H6 of the Building Regulations 2010 (incorporating all amendments (hereafter referred to as 'Part H6').

1.2.6 In keeping with measures to minimise the effects of climate change, the Strategy will consider the use of alternative transport for the recovery and treatment of recycling resources and waste material. To minimise the number and length of vehicle trips, the Strategy aims to maximise efficiencies of scale and work with local neighbours, with an aim to effectively consolidate recycling and waste material. This Strategy has been prepared using information provided by AECOM (hereafter referred to as the 'Lead Designer, 'Transport Consultants', and 'Laboratory Consultants'), and Penoyre & Prasad Architects (hereafter referred to as the 'Lead Architects').

2 Waste Legislation, Policy and Guidance

2.1 Overview

2.1.1 A summary list of the legislation relevant to inform the management of operational recycling and waste arising from the Proposed Development is provided in this section. Legislation of relevance to inform the development of the Strategy is as follows:

- The Animal By-Products (Enforcement) (England) Regulations 2011 (as amended) (Ref. 9);
- Clean Neighbourhoods and Environment Act 2005 (as amended) (Ref. 10);
- Control of Pollution Act (COPA) 1974 (as amended) (Ref. 11);
- The Controlled Waste (England and Wales) Regulations 2012 (Ref. 12);
- The Environment Act 1995 (Ref. 13);
- Environmental Protection Act 1990 (EPA) (Ref. 14);
- The Landfill Tax Regulations 1996 (as amended) (Ref. 15);
- The List of Wastes (England) Regulations 2005 (Ref. 16);
- The Packaging (Essential Requirements) Regulations 2015 (Ref. 17);
- The Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (as amended) (Ref. 19);
- The Hazardous Waste Regulations 2005 (as amended) (Ref. 20);
- The Waste (England and Wales) Regulations 2011 (as amended);
- The Waste Batteries and Accumulators Regulations 2009 (as amended) (Ref. 21); and
- The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (Ref. 22).

2.2 Waste and Planning Policy

2.2.1 The national, regional and local waste and planning policies in Table 2-1 contain information applicable to the Proposed Development. A description of each policy document and planning policies in relation to recycling and waste management can be found in Appendix A.

Table 2-1 National, Regional, and Local Waste and Planning Policy

Waste/Planning Policy Document	Date	Policy	Detail
A Green Future: Our 25 Year Plan to Improve the Environment (Ref. 23)	2018	Chapter 4: Increasing resource efficiency and reducing pollution and waste	• Make sure that resources are used more efficiently and kept in use for longer to minimise waste and reduce its environmental impacts by promoting reuse, remanufacturing and recycling. • Work towards eliminating all avoidable waste by 2050 and all avoidable plastic waste by end of 2025.
Our Waste, Our Resources: A Strategy for England (Ref. 24)	2018	1.1.1 2.3.1 3.1.1	• Extended Producer Responsibility - The Extended Producer Responsibility (EPR) is "a policy approach through which a producer's responsibility for a product is extended to the post-use stage. This incentivises producers to design their products to make it easier for them to be reused, dismantled and/or recycled at end of life". • Deposit Return Scheme - In a Deposit Return Scheme (DRS), a small deposit will be added to the price of a drink container brought to a store. Once the container has been used, the consumer will dispose of it in a reverse vending machine and the deposit will be returned to the consumer. • Consistent Collections - Subject to consultation, legislation enforcing the government to "specify a core set of materials to be collected by all local authorities and waste operators" will be introduced. It is envisioned that specifying a consistent set of dry recyclable materials to be collected from all households and businesses will improve England's recycling rate, (subject to consultation) it will include mandatory separate food waste collections. • At the current time these policy instruments are out for consultation and (subject to proposals) will be rolled out from 2023.
The London Plan, Spatial Development Strategy for Greater London (Ref. 25)	2016	Policy 5.3 Sustainable Design and Construction	• States that the highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime. This should be achieved through a number of sustainable design principles, including minimising the generation of waste and maximising re-use and recycling.

Waste/Planning Policy Document	Date	Policy	Detail
		Policy 5.16 Waste Net Self-sufficiency	• States that the Mayor will work with various stakeholders and authorities to manage as much of London's waste within London as practicable, working towards managing the equivalent of 100% of London's waste within London by 2026, whilst also working towards zero biodegradable or recyclable waste sent to landfill. • This should be achieved by a number of ways, including minimising waste, encouraging the reuse of materials, exceeding recycling/composting levels in local authority collected waste (LACW) and commercial and industrial waste, improving London's net self-sufficiency through reducing the proportion of waste exported from the capital over time, and working with neighbouring regional and district authorities to co-ordinate strategic waste management across the south east of England.
The [Intend to Publish] draft London Plan (Ref. 26)	2019	Policy SI 7 Reducing Waste and Supporting the Circular Economy	This policy states that waste reduction and reduction in the quantity of waste going for disposal from London can be achieved by promoting circular economy i.e.: • By encouraging the reuse of material and by using fewer resources in the production and distribution of products; • By ensuring that zero biodegradable or recyclable waste is sent to landfill by 2026; • By meeting the set recycling targets (i.e. 65% for municipal waste by 2030 and 95% for construction and demolition waste); and • By designing developments that would provide adequate, flexible and easily accessible storage space to support collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food.
		Policy T7 Deliveries, Servicing and Construction	• This policy states that development proposals must consider the use of rail/water for the transportation of material with increased levels of direct vision on waste. • Development plans and development proposals should facilitate sustainable freight movement by rail, waterways and road. • At large developments, facilities to enable micro-consolidation should be provided, with management arrangements set out in Delivery and Servicing Plans.
London Environment Strategy (Ref. 27)	2018	Policy 7.2.2	• Targets a 65% recycling rate for municipal waste (this is broken down into a 50% recycling target for household waste and a 75% target for business waste by 2030) and specifies that no biodegradable or recyclable waste will be sent to landfill by 2026.

Waste/Planning Policy Document	Date	Policy	Detail
North London Joint Waste Strategy (Ref. 28)	2009	Objectives	• To minimise the amount of municipal wastes arising • To maximise recycling and composting rates • To reduce greenhouse gases by disposing of less organic waste in landfill sites • To co-ordinate and continuously improve municipal wastes minimisation and management policies in North London • To manage municipal wastes in the most environmentally benign and economically efficient ways possible through the provision and co-ordination of appropriate wastes management facilities and services • To ensure that services and information are fully accessible to all members of the Community • To maximise all opportunities for local regeneration • To ensure an equitable distribution of costs, so that those who produce or manage the waste pay for it
Draft North London Waste Plan Proposed Submission (Ref. 29)	2019	Draft SO 1	• States "*to support the movement of North London's waste as far up the waste hierarchy as practicable, to ensure environmental and economic benefits are maximised by utilising waste as a resource*".
		Draft SO 7	• States "*to support the use of sustainable forms of transport and minimise the impacts of waste movements including on climate change*".
Camden Local Plan (Ref. 30)	2017	Policy CC5 Waste	• States that "*The Council will seek to make Camden a low waste borough. We will:* *a) aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;* *b) deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;* *c) safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and;* d) *Make sure that developments include facilities for the storage and collection of recycling and waste."*

Waste/Planning Policy Document	Date	Policy	Detail
		Policy CC1 Climate change mitigation	• States that: "*The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation.* *We will:* *a) promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;* *b) require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;* *c) ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;* *d) support and encourage sensitive energy efficiency improvements to existing buildings;* *e) require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and* f) *Expect all developments to optimise resource efficiency*".

2.3 How the Proposed Development accords with National, Regional and Local Waste and Planning policy

2.3.1 In following both the principles of the Waste Hierarchy and Circular Economy Model, the Proposed Development will promote resource efficiency to help reduce potential environmental impacts as a result. This Strategy has firstly looked to prevent wastage, reuse resources where possible and then recycle materials, to minimise the generation of waste. Section 5 of this Strategy describes addition waste reduction, reuse and recycling measures that will be undertaken, including but not limited to accommodating a reverse vending machine for a deposit return scheme, these initiatives will assist in a) reducing plastic and b) eliminating all avoidable waste by 2050.

2.3.2 The design of the Proposed Development includes sufficient space to enable best practice recycling methods and flexibility in the future, Section 4 describes how the Proposed Development has segregated and provided space for recycling streams (including plastics, metal, cardboard, paper, glass, healthcare, hazardous waste, and food waste) in order to futureproof for mandatory food collections and consistent collections.

2.3.3 In order to reduce vehicle movements and minimise climate change impact, the consolidation of materials has been made to maximise efficiencies of scale at the Proposed Development, this includes the baling of cardboard, and compacting of residual waste a described in Section 5 of this Strategy.

2.3.4 Table 2-1 shows that the adopted London Plan sets a target of exceeding recycling/composting levels in Local Authority collected waste of 50% by 2020 and an aspiration to achieve 60% by 2031; in keeping with this, the Camden Local Plan also commits to these recycling targets for household waste.

2.3.5 The Intend to Publish draft London Plan sets a target for 65% of municipal waste to be recycled by 2030.The municipal waste recycling target of 65% by 2030 is further broken down into commercial and household waste, with the recycling rate for households being 55% and 75% for commercial waste producers by 2030. In committing to best practice recycling via source segregation, it is the aspiration of the Applicant for the Proposed Development to exceed the commercial waste recycling target by 2030.

2.4 Local Planning Guidance

Camden Planning Guidance (CPG) – “Design” (2019)

2.4.1 The aim of Camden Planning Guidance (CPG) – Design (Ref. 31) is to promote appropriate storage and collection arrangements for all types of wastes (e.g. recyclables, food waste, general waste and bulky waste) within all new developments in Camden. It seeks to assist those involved in the design and management of buildings to best provide for the storage and transfer of segregated materials to maximise the type and amount of waste that can be sent for recycling in order to meet the Council’s ambitious waste recycling targets.

Waste storage and arrangements for residential and commercial units (Supporting document for planning guidance CPG Design - Storage and collection of recycling and waste)

2.4.2 The LBC waste storage and arrangements for recycling and waste material arising from the residential and commercial units (Ref. 32) supports guidance in CPG - Design. It includes further details of the design measures required for commercial developments in order to futureproof developments. The guidance advises that planning for all waste and storage should:

- Have adequate space is designed for the containment, storage and transfer of all materials e.g. recyclables, food waste, general waste and bulky waste;
- Allow for reasonable changes to collection services and transferor activities in the future;
- Promote safe storage locations and provide systems for waste transfer that are accessible for all users and collectors, and minimise nuisance to occupiers and neighbours and their amenity space, e.g. noise, obstruction, odours, pests, etc.;
- Include accessible waste transfer activities that are well designed;
- Allow for waste containers, which have designated indoor or external storage areas;
- Include facilities sensitively designed/located, especially in conservation areas/or listed buildings; and
- Allow for plans to be documented within a waste strategy and design and access statement to meet planning waste conditions for approval.

2.4.3 The guidance also advises the storage requirements for different types of waste as shown in Table 2-2. This guidance will be adhered to in designing recycling and waste management provisions for the Proposed Development.

Table 2-2 Types of Commercial Waste

Type of waste	Example materials	Storage	Collection
Chemical	Liquids and solvents, oils, paints and other labelled chemicals.	Needs to be segregated safely, locked and suitably labelled as a substance which falls under the COSHH Regulations.	Registered chemical waste carrier
Solid Waste	Dry comingled recycling i.e. paper card, cans and tins, glass bottles, plastics.	Needs to be segregated as per Household wastes. General waste, mixed recycling, food waste, garden waste, builders' wastes	Registered waste carrier

Type of waste	Example materials	Storage	Collection
Toxic or hazardous waste	Batteries, light filaments, broken asbestos, poisons or, unlabelled or mixed chemicals.	Needs to be reported if public, segregated safely, locked and suitably labelled as a substance which falls under the COSHH Regulations.	Registered Hazardous Waste Carrier

Camden Planning Guidance (CPG) – "Transport" (2019)

2.4.4 The aim of Camden Planning Guidance (CPG) – Transport (Ref. 33) is to make sure that all transport measures that need to be secured and /or provided before a development comes into use are put into place.

2.4.5 Paragraph 4.51 of the guidance document refers to developments that have demonstrated a significant movement of goods or materials by road in the Transport Assessment. It states that these developments will be expected to accommodate goods and service vehicles on-site, this will also include waste collection vehicles should they require on-site access.

Camden Climate Emergency

2.4.6 In November 2019, LBC formally declared a Climate and Ecological Emergency. The LBC Climate Action Plan (Ref. 34) has been developed to provide a framework on how LBC will reach a target of net-zero carbon by 2030. It proposes a five-year programme of projects and activities around the themes of People, Buildings, Places and Organisations.

2.4.7 The borough has committed to publishing a Reduction and Recycling Plan in 2020, which will set out a strategy for driving down waste production, and to support the delivery of the 'Refill Station Camden' project. This project offers residents a refill resource to help tackle single-use packaging, and aims to have a locally run enterprise in place by the end of 2022. Camden is also committed to making 5 Pancras Square (which is situated less than half a mile from the Proposed Development) single-use plastic free by 2020 and all other sites by 2021, including all school and council events, and ensuring that both Camden's and Contractors' fleet vehicles comply with Camden's Green Vehicle Fleet Procurement Policy.

3 The Proposed Development

3.1.1 The Proposed Development comprises a single building, between seven and ten storeys in height including Ground Level and Lower Ground Level, as well as plant at Roof Level, as well as provision of public realm at ground level, blue badge parking, and vehicular drop off points along St Pancras Way. The building is arranged around a central atrium and connection space. There is also a roof terrace on the Sixth Floor Level on the south-western corners of the building.

3.1.2 The Proposed Development will be up to 69.15 metres (m) Above Ordnance Datum (AOD) in height and will have a gross external area of approximately 48,851 square metres (sq m) and a gross internal area of approximately 46,468 sq m.

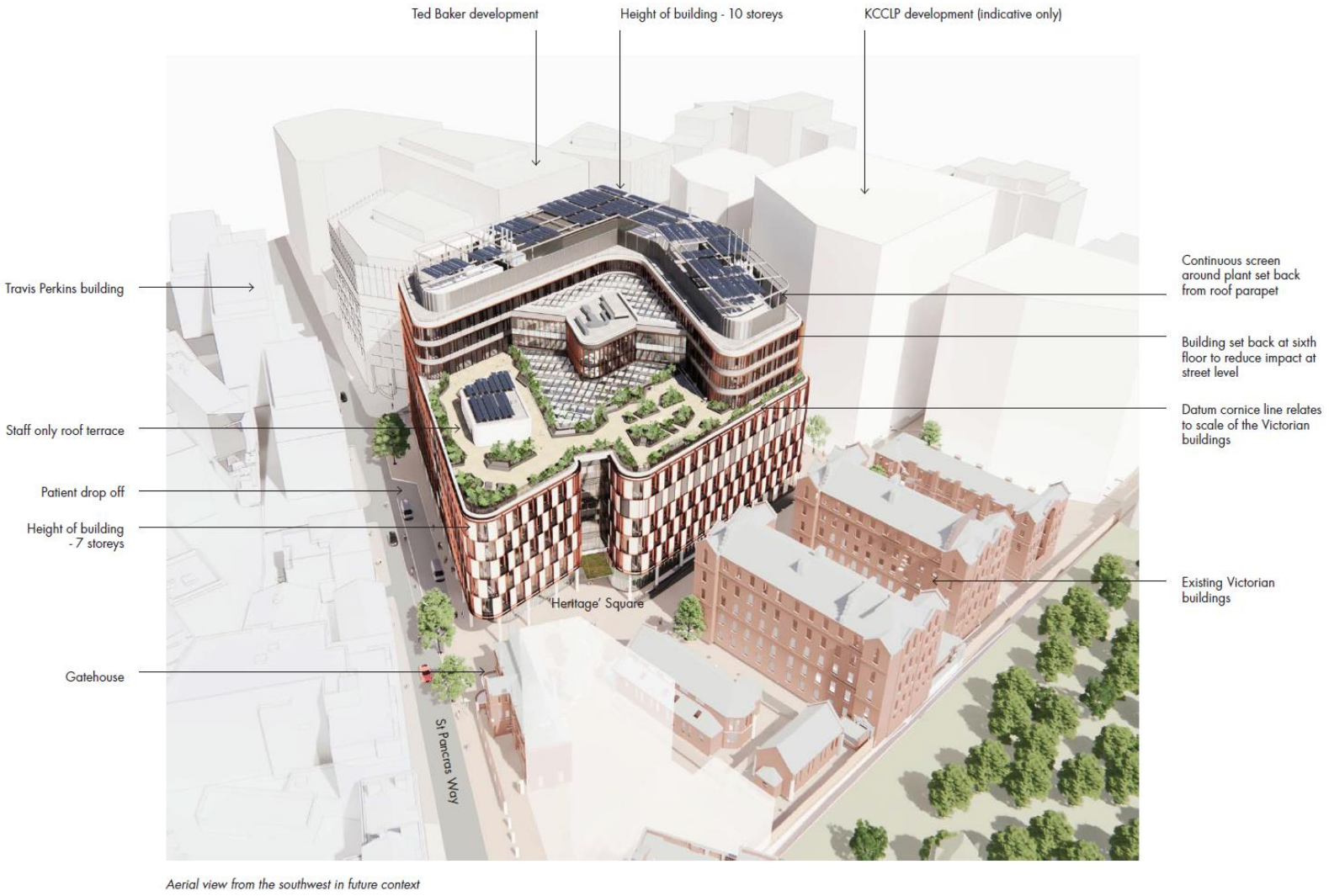
3.1.3 The Proposed Development will comprise a mix of uses including clinical, research and education purposes, including accident and emergency (A&E) department, outpatients, operating theatres, research areas, education space, café and retail areas, facilities management, office space and plant space.

3.1.4 The proposed mix of uses is summarised in Table 3-1, and an illustration of how the Proposed Development will look is shown in Figure 3-1.

Table 3-1 Proposed uses within the Proposed Development

Use	Gross Development Area (GDA) (sq m)
Health	19,820
Research	7,925
Education	1,939
Admin areas	
Commercial	303
Public areas	1,528
FM/ancillary	1,085
Cores/circulation/plant	13,868
Total	**46,468**

Figure 3-1 Visualisation of the Proposed Development [Extract]



Source: Design and Access Statement for the Proposed Development submitted with planning application.

4 Methodology

4.1 Consideration of future waste arisings

4.1.1 It is understood that Moorfields at City Road and UCL IoO will be relocating (or decanting) their staff from the existing buildings into the Proposed Development. Occupancy levels for the Proposed Development staff and visitors are expected to increase over the period from 2025 to 2031. However, the administration arm of the Hospital, which currently resides within the existing Moorfields at City Road, will be relocated outside of the Proposed Development.

4.1.2 Situated within Moorfields at City Road is a Costa Coffee ('Costa'). As shown in Table 3-1 the Proposed Development will include some commercial floorspace, which it is anticipated could be used as a café. The agreement at Moorfields at City Road is that currently Costa dispose of their recycling and waste via Moorfields' bin store. Whilst it is understood that the majority of commercial café chains are responsible for their own waste arrangements, the methodology applied in preparing this report takes account of waste from the café as a worst-case scenario.

4.1.3 Data published by the Department for Environment, Food and Rural Affairs (Defra), for the years from 2014 to 2018 shows that household waste arisings in England have remained relatively stable at around 22,000 – 23,000 kilotonnes per year, with periods of slight increase and decline (Ref. 35). The total waste collected decreased by 322 kilotonnes from 2014 to 2018, and waste generated per person decreased from 413 kg (Ref. 36) to 394 kg from 2014 to 2018 respectively. Whilst volumes of waste generation have fluctuated over recent years, the data supports longer-term trends and future projections of Defra figures, which suggest that waste growth has stabilised and may be declining at a rate of 0.5% per year (Ref. 37).

4.1.4 Whilst the long-term impacts of the Covid-19 pandemic are unknown, it may be that a reduction in paper usage has been further sped up via a prioritisation of reduced hand and personal contact. Improvements in data security and storage with increasing reliance on information technology is also likely to lead to a reduction in the long-term; conservative estimates based on household consumption behaviours suggest that this could equate to a 20% reduction in use of newspapers, magazines and other papers (Ref. 38).

4.1.5 Whilst the Proposed Development is a clinical, research and education development and its waste composition will therefore differ from that of a household, the GLA have suggested that predicted consumption patterns for household waste can be reflected in the arising of commercial and industrial waste (Ref. 38).

4.1.6 Prevention efforts in commerce and industry may also reduce rates of waste generation per employee. In particular, with increasing servitisation (the replacement of purchasing goods by hiring them instead, for example the rental of reusable coffee cups via 'CupClub' instead of purchasing single use coffee cups) goods may be leased by customers, and subsequently returned to producers for re-manufacturing, rather than entering the waste stream. Reductions from circular economy initiatives have indicated that a high uptake of urban analytic systems, leased assets, and exchange/sharing platforms could significantly reduce commercial and industrial waste production by up to 45% by 2031 (Ref. 39).

4.1.7 It is therefore likely that in the future there will be a decline in waste growth from the Proposed Development due to reduction and prevention measures. Combining this with the anticipated UK policy instruments of the deposit return scheme and extended producer responsibility due to be rolled out in 2023, in tandem with the bespoke waste prevention, reuse and recycling efforts of the Applicant, it is highly likely that there will be a long-term reduction in the production of waste from the Proposed Development.

4.1.8 The methodology adopted for the Proposed Development has therefore been to take both Moorfields at City Road's and UCL IoO's existing waste collection schedule (as provided via site survey and recycling reports) for 2019 and combine the datasets. Based on future waste arising patterns, it is likely that the current waste production and storage requirements represent a reasonable worst-case scenario and have, therefore, been used as the basis for the calculation of the long-term waste management and storage provisions for the Proposed Development.

4.2 Waste Composition

4.2.1 Both healthcare waste and commercial waste streams will be produced by the Proposed Development. Healthcare waste is segregated into separate waste streams depending on how it needs to be treated or disposed of. A communication from the Director of NHS Estate Services (see Appendix B) and HTM 07-01 requires that waste is segregated into a minimum of three primary streams depending on its handling and disposal requirements. The basic waste streams are:

- Waste destined for high temperature incineration [hazardous];
- Waste destined for alternative treatment (e.g. steam sterilisation) [infectious]; and
- Waste destined for low temperature domestic incineration [no-hazardous and non-infectious].

4.2.2 In order to further comply with legal requirements relating to the permitting and licensing of waste contractors, healthcare waste sent for incineration is further segregated. A description of each waste stream and their disposal route, including non-healthcare waste which will be produced by the Proposed Development, is shown in Table 4-1.

Table 4-1 Waste Streams produced by the Proposed Development

Waste Stream	Contains	Disposal route
Laboratory Waste		
Biological Services Waste	Hazardous waste (Animal bedding waste)	Incineration.
Chemical Waste	Liquid or solid chemicals in sealed, labelled containers.	Dependent on chemical type, collected by a registered chemical waste carrier.
Healthcare Waste		
Offensive	Sanitary protection (i.e. nappies), PPE not contaminated with bodily fluids	Indicative treatment/disposal required is landfill or municipal incineration/energy from waste at a suitably permitted or licensed facility.
Clinical	Gloves, dressings, bandages, aprons contaminated with bodily fluids	Waste requiring high temperature incineration (HTI) - this waste stream must be incinerated. For example, anatomical and recognisable human tissue, pharmaceuticals, fluid bags contaminated with pharmaceuticals, disposal instruments and oversized items.
Sharps	Defined as ‘anything that can pierce the skin’. For example, needles, scalpel blades, rigid point of giving sets, glass pipettes and tips, contaminated broken glass and disposable instruments.	Incineration, however, there are options to reuse the containers.
Anatomical waste	Blood preserves, organs, body parts.	Incineration.
Non-Healthcare Waste		
Plastic	Clean plastics e.g. plastic bottles.	Recycling.
Metal (cans)	Cans and other pieces of small metal produced in a commercial setting.	Recycling.
Cardboard	Cardboard.	Recycling.
Paper	Office paper, newspapers/magazines	Recycling.
Glass	Glass bottles	Recycling.

Waste Stream	Contains	Disposal route
Food	Food waste	Recycling.
Residual	Contaminated materials, unrecyclable materials.	Minimum treatment/disposal required is landfill, municipal incineration/energy from waste or other municipal waste treatment process at a suitably permitted or licensed facility. Recyclable components should be removed through segregation.

Sources: Less Waste, More Health (Ref. 40) Royal College of Physicians.

5 Operational Recycling and Waste Management Strategy

5.1 Commercial Recycling and Waste Arisings

5.1.1 The estimated recycling and waste arisings are based on Moorfields at City Road and UCL IoO's existing waste production output and the current and predicted occupancy numbers, which include the provision of commercial/café uses.

5.1.2 The existing waste output for Moorfields at City Road includes the administrative arm of the Hospital, which will not be relocating to the Proposed Development. When taking this into account combined with the expected waste trends described in Section 4.1 of this Strategy, it is the expectation that these arisings provide a reasonable comparison for the Proposed Development. The arisings for the weekly, twice weekly and daily collection of recycling and waste from the Proposed Development are shown in Table 5-1.

Table 5-1 Weekly, Twice weekly and Daily Estimated Waste Arisings

Material Type	Litres of waste per week	Litres / twice weekly (based on 7 days week)	Litres / daily (based on 7 days week)
Plastic	32,830	18,760	9,380
Metal (cans)	2,744	1,568	784
Cardboard	48,218	27,553	13,777
Paper	44,861	25,635	12,817
Glass	480	274	137
Food	2,370	1,354	677
Healthcare waste (clinical, offensive, sharps, infectious)	60,060	34,320	17,160
Hazardous waste (animal bedding waste)	2,200*	1,257	629
Residual waste	40,119	22,925	11,463
Total	**233,882**	**133,647**	**66,823**

**Animal bedding waste volumes provided by laboratory animal equipment specialists Techniplast.*

Please note that the waste arisings are based on a seven-day working week, and that additional capacity is included for the twice weekly and daily collection scenarios in the event of collection failure. Numbers may not add up due to rounding.

5.1.3 It should be noted that the healthcare waste (clinical, offensive, sharps, and infectious waste) has been grouped together; this is because all of these waste streams are stored in 770L yellow wheeled bins. It is important to highlight that healthcare waste collection provision allows for the distinction of each waste stream via a colour coded sack, which is then placed into a yellow bin designated for that particular colour coded sack. Each yellow bin is identifiable as healthcare waste stream via a visible tracking tag.

5.1.4 The offensive waste described in Table 5-1 under “Healthcare Waste” is shown as being un-compacted to allow for flexibility in the treatment of the waste (an example being the diversion of current recyclable waste for incineration due to COVID-19). However, should the Applicant explore it in the future, following discussion with a number of waste contractors in the local area, it has been identified that should the Applicant want to compact its offensive waste, there are opportunities to do this (subject to permit approval) via the following companies; WasteCare, Williams Environmental, and Novus Environmental.

Healthcare Waste Sack Type

5.1.5 In accordance with HTM 07-01, healthcare waste at the Proposed Development will be stored in specific sacks depending on the type of waste they contain. The sack types, which will be used by the Proposed Development are shown in Table 5-2.

5.1.6 It is understood that there will be no retail pharmacy at the Proposed Development. A bulk pharmacy in the lower ground floor will be for the storage of medicines, with medicines being dispensed within the clinics. In the event that any pharmaceutical waste is produced (e.g. due to medicines going out of date) this waste stream will be disposed of via the clinical waste stream.

Table 5-2 Sack required for specific Healthcare Waste Stream

Type of waste	Stored in	Image
Offensive waste	Yellow and Black Bag	
Clinical waste	Yellow Bag	
Sharps	Yellow tubs with coloured lid dependent on waste type.	

5.2 Storage Container Type

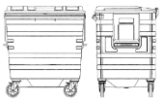
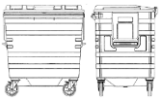
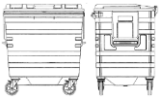
5.2.1 The current operation at Moorfields at City Road and UCL IoO is that healthcare waste is stored in 770L yellow waste bins as shown in Table 5-3. These bins are used for clinical, offensive, and sharps waste). Waste is identified and segregated via tracking tags for each bin, and no bins are removed from site without the related tracking tag. For example, tracking tags (which are listed under the categories of offensive, clinical, and sharps) include:

- Non-Hazardous waste;
- Infectious waste for incineration;
- Infectious sharps;
- Infectious waste for treatment;
- Cytotoxic/cytostatic waste; and
- Non-Hazardous medicines.

5.2.2 Due to its specialist and hazardous nature, the waste produced by laboratories will be stored separately in the Biological Services Unit (BSU) area, as shown in Figure 5-14.

5.2.3 The non-healthcare commercial waste produced within the Proposed Development will be segregated in line with best practice. The material streams produced and anticipated type of wheeled bin to be used are shown in Table 5-3.

Table 5-3 Container Type for each Recycling and Waste Stream

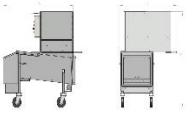
Material Type	Size of bin	Dimensions (height x width x depth)	Image
Plastic	1,100 L	1,370mm(H), 990mm (W), 1,260mm (D)	
Metal (cans)	1,100 L	1,370mm(H), 990mm (W), 1,260mm (D)	
Cardboard	300kg Bale	875mm (H), 1250mm (W), 830mm (D)	
Paper	1,100 L	1,370mm (H), 990mm (W), 1,260mm (D)	
Glass	240 L	1,085mm (H), 570mm (W), 730mm (D)	
Food	120 L	930mm (H), 480mm (W), 545mm (D)	
Healthcare waste (clinical, offensive, sharps, infectious)	770 L	1300mm x 1260mm x 765mm	
Hazardous waste (Animal Bedding Waste)	1,100 L	1,370mm(H), 990mm (W), 1,260mm (D)	

Note that dimensions provided are indicative and exact dimensions are dependent on the individual waste bin supplier.

5.2.4 In order to allow for efficiencies of space, the residual waste stream from the Proposed Development will be compacted on-site in small compactor, and cardboard will be baled via a baler (also on-site). This equipment and their indicative dimensions are shown in Table 5-4.

5.3 Equipment

Table 5-4 Equipment types for use in the Proposed Development

Equipment Type	Description	Dimensions (height x width x depth)	Image
Cardboard Baler	300kg baler	2050mm (H), 1955mm (W), 1075mm (D)	
Residual Compactor	Compactor unit	1803mm (H), 1598mm (W), 1261mm (D)	
Residual Compactor Container (Pod)	Pod 2 Tonne capacity	1335 mm (H) 2400mm (W) 1,410 mm (D)	

5.3.1 Within the loading bay there is a transfer beam which will have a maximum head height of 3.85m.

5.3.2 Several waste contractors were contacted in relation to the head height restriction to enable recycling and waste collections to take place.

5.3.3 Due to the restricted height and space within the loading bay, it is the expectation that the residual compactor pod shown in Table 5-4 will be collected by a FLL Babyhook vehicle as recommended by the waste contractor Bywaters (a diagram of this is shown in Appendix C).

5.3.4 In the event of waste contractor failure, it should be noted that there are other waste contractors in the N1 area which can provide alternative bespoke compactors to fit the restricted head height via a small skip vehicle, these companies include BPR Group Europe and Simply Waste Solutions.

5.4 Storage Container Requirements

5.4.1 Based on the waste arisings, container and equipment utilised by the Proposed Development, the number of bins required and their collection frequency for the Proposed Development are shown in Table 5-5.

5.4.2 Where possible, the collection frequency has sought to reduce the number of collections per week whilst in keeping with the available footprint and space within the Proposed Development.

Table 5-5 Number of bins required at Proposed Development and Collection Schedule

Material Type	Size of bin	Number of bins/units	Collections per week*
Hazardous waste (Animal Bedding Waste)	1100	2	Once a week
Plastic	1100	9	Daily
Metal (cans)	1100	1	Daily
Cardboard	Bale	3	Once a week
Paper	1100	12	Daily
Glass	240	2	Twice per week
Food	120	12	Twice per week
Healthcare waste (clinical, offensive, sharps, infectious)	770	23	Daily
Residual Compactor and Compactor Pod	Compactor "Pod" Two Tonne capacity	1	Once every 4 days

** Based on a seven-day working week, all collections allow for additional storage capacity provision in the event of a missed collection.*

5.5 The Internal Waste Journey

5.5.1 Recycling and waste sacks will be collected by the cleaning team from centralised bin hubs across the floorplates of the Proposed Development, an example of internal bins are shown in Table 5-6.

5.5.2 The recycling stream types for each area, would be tailored dependent on the area and based on waste composition patterns from the existing sites – for example, in café/retail and staff canteen areas, it would be anticipated that a higher amount of food waste may be produced, and therefore a bin for food waste required, whereas this is unlikely to be required in a patient waiting room.

Table 5-6 Example of Internal Bins for the Proposed Development

Area	Example
Public Facing • Such as main entrance areas, corridors or waiting rooms. • Separate bins for segregated recyclables and residual waste • Signage will be bespoke to the public e.g. show materials that are often disposed of on the go.	
Commercial Café/Retail • Separate bins for segregated recyclables and residual waste. • Signage will be bespoke to users – in café areas it is likely that food waste will make up a higher proportion of the composition as will packaging.	
Clinical and Laboratory • Castors for bins could be used to enable further flexibility within the clinical setting. • Lids of the bins are able to be colour coded, will include recycling as appropriate and be dependent on the waste stream.	
Office, Kitchen, and General Staff Use • Confidential paper bins. • Separate bins for segregated recyclables and residual waste.	 

5.5.3 As the waste journey from internal bin to bin store is likely to be over 30m in instance altogether, depending on the preference of the internal management team, it is the expectation that sacks will be placed into either a cleaning trolley or cage (as shown in Figure 5-1).

Figure 5-1 Examples of different trollies to transport internal waste

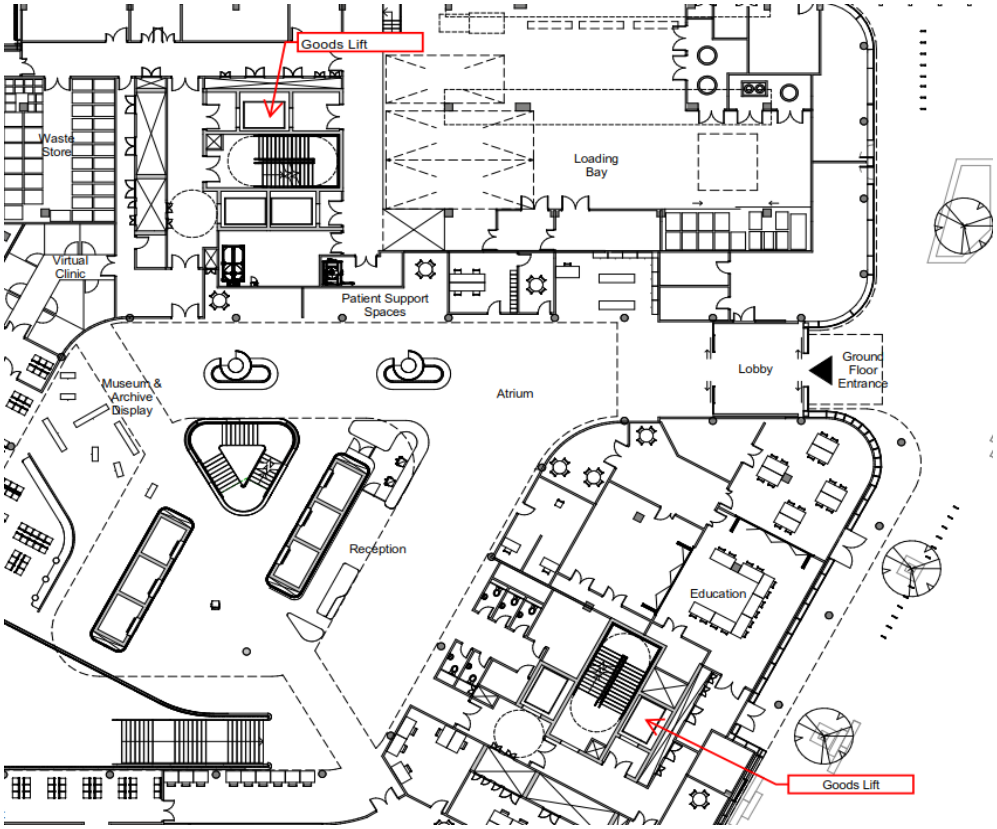
4-sided metal cage	
	Height (m): 1.690 Width (m): 0.735 Depth (m): 0.850 Capacity: 1,556 Litres
Heavy duty multi-purpose cart	
	Height (m): 0.91 Width (m): 0.66 Depth (m): 0.99 Capacity: 595 Litres

The cleaning operatives via one of two goods lifts (as shown in Figure 5-2) will then take their waste to the main bin store presented in Figure 5-3

5.5.4 There are two goods lift to allow for mitigation in the event of lift breakdown or maintenance.

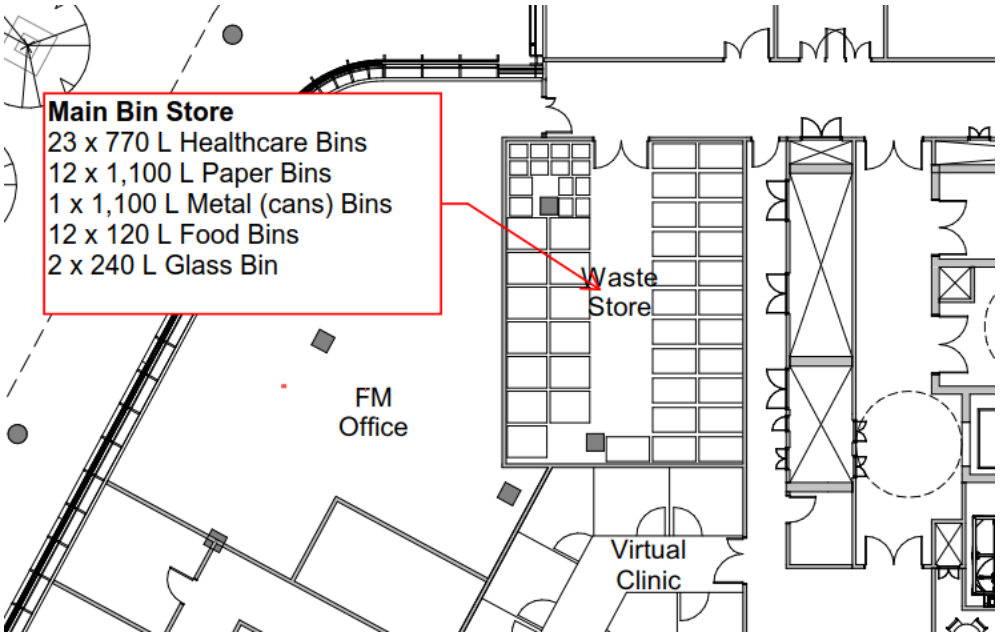
5.5.5 For residual waste, sacks will be taken directly to the compactor by the cleaning operatives, when they shall then be loaded into the compactor.

Figure 5-2 Image showing goods lifts



Please note this image is not to scale.

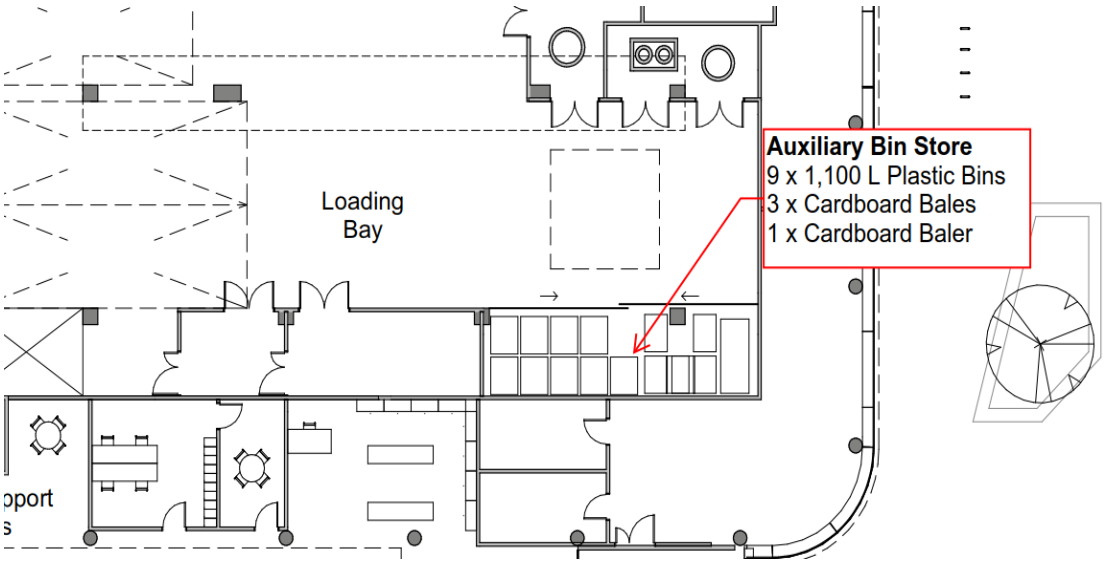
Figure 5-3 Image showing the Main Bin Store



Please note this image is not to scale.

5.5.6 For any cardboard, and wheeled bin waste the cleaning operative will take the materials to the smaller Auxiliary bin store where the cardboard baler will be situated, as shown in Figure 5-4.

Figure 5-4 Image showing Auxiliary Bin Store



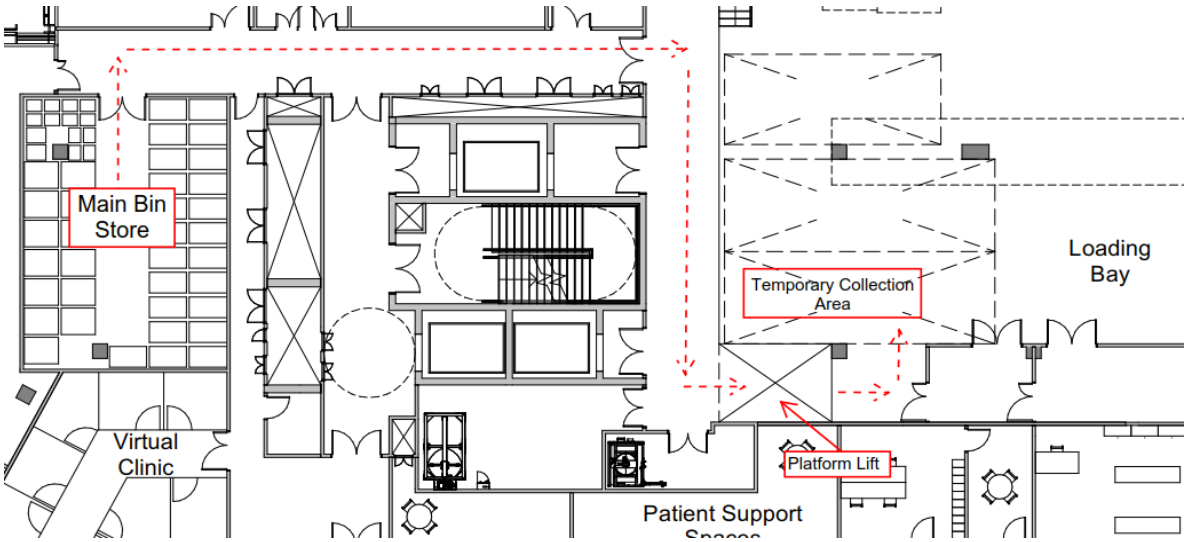
Please note this image is not to scale.

5.5.7 In advance of services commencing, a collection schedule and timeslot will be agreed with the waste contractor. Ahead of the collection timeslot for each material, the bins will be moved by the internal management team to the designated temporary bin area as shown in Figure 5-5. The movement of recyclable and waste materials shall only occur in line with the collection timeslot schedule. This procedure will be agreed with the facilities

management and internal management teams and outlined in a facilities management waste memo.

5.5.8 The movement of bins from the main waste store to the temporary collection area is roughly ~40m. Due to the distance and to enable safe working practice, the internal management team undertaking this task will utilise an electric pump truck (as shown in Figure 5-5).

Figure 5-5 Image showing the transfer of bins from bin store to temporary collection point



Please note this image is not to scale.

5.5.9 The bins will then be manoeuvred to the waste truck by the waste operatives and collected via either a waste vehicle or (in the case of a compactor) a smaller skip vehicle, as shown in Figures 5-6 and 5-7.

Figure 5-6 Swept Path Analysis 1

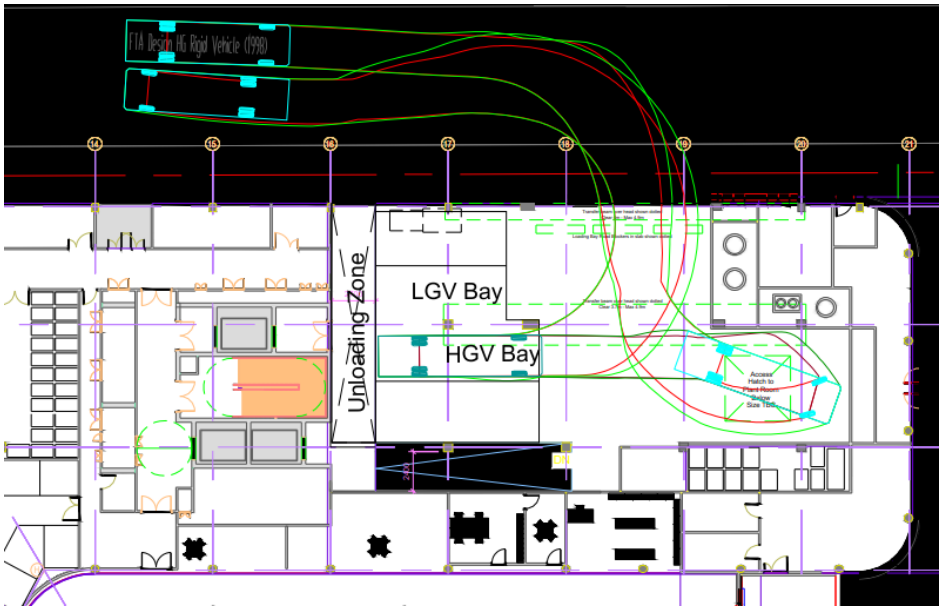
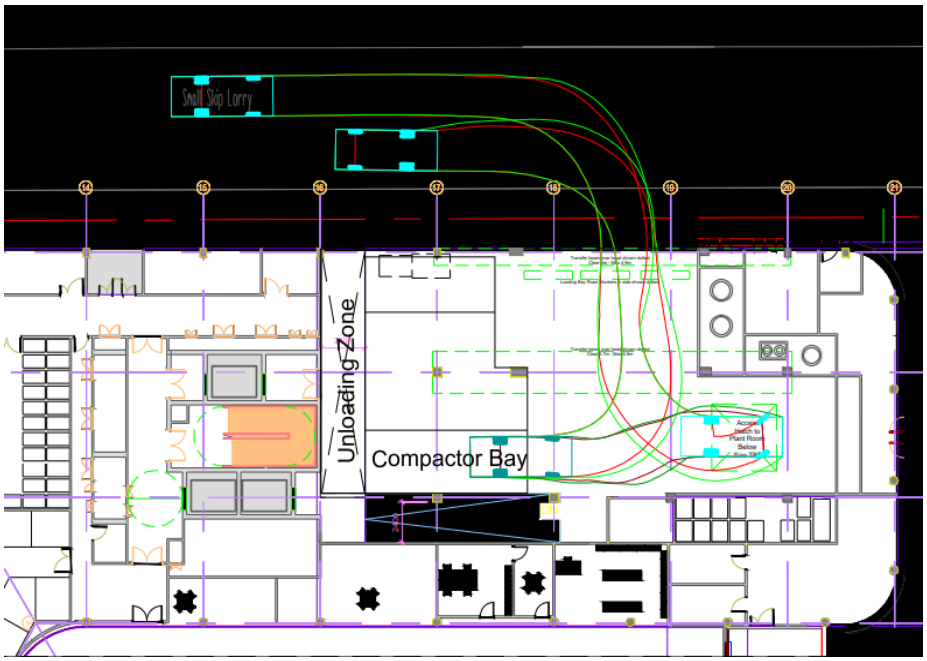


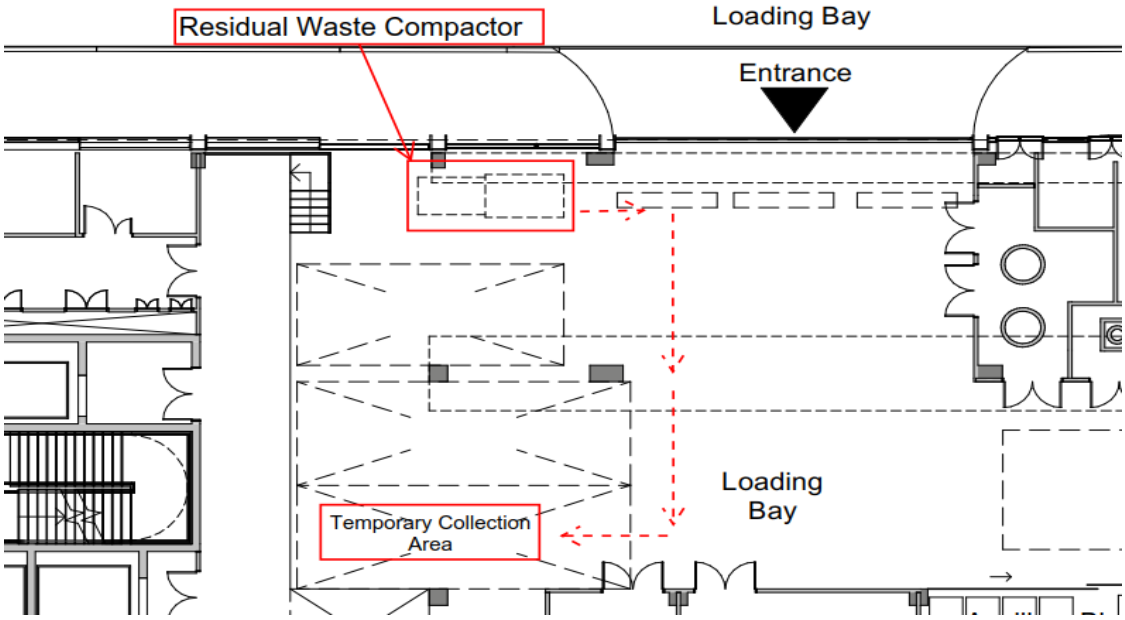
Figure 5-7 Swept Path Analysis 2



Please note this image is not to scale.

5.5.10 For residual waste, a compactor will be kept in the loading bay (Figure 5-8), at time of collection, the bespoke compactor will be manoeuvred via an electric pulling device to its collection point.

Figure 5-8 Location of Residual Waste 'Pod' Compactor



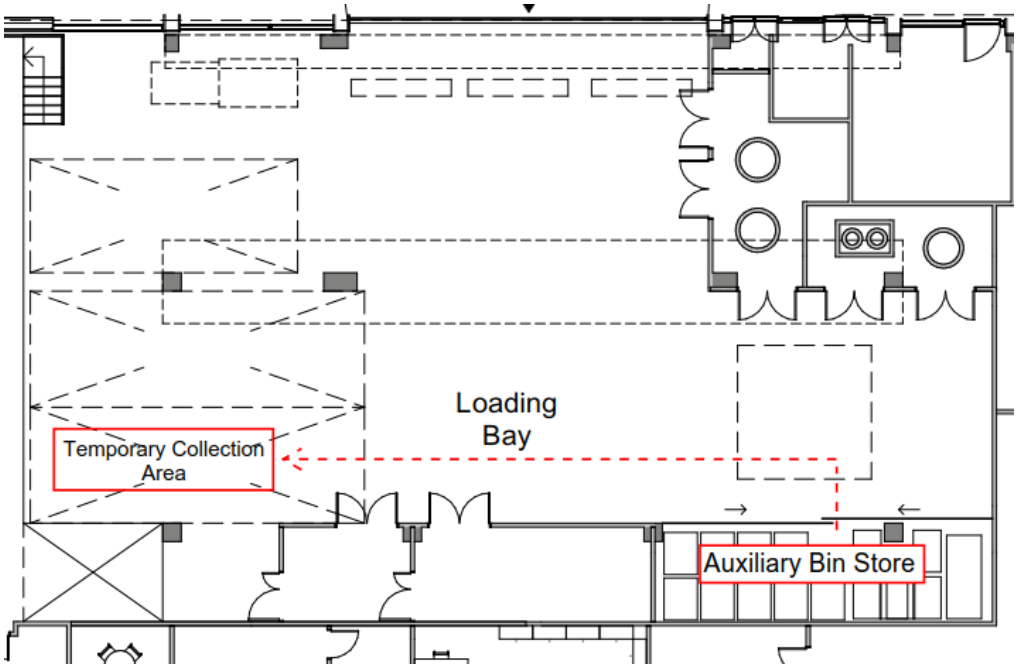
Please note this image is not to scale.

Figure 5-9 Pulling Device for 'Pod' Compactor

Image provided from waste contractor Bywaters Limited.

5.5.11 Cardboard bales will be transferred to the collection point shown in Figure 5-10 via an electric pump truck (Figure 5-11).

Figure 5-10 Collection point for cardboard bales



Please note this image is not to scale.

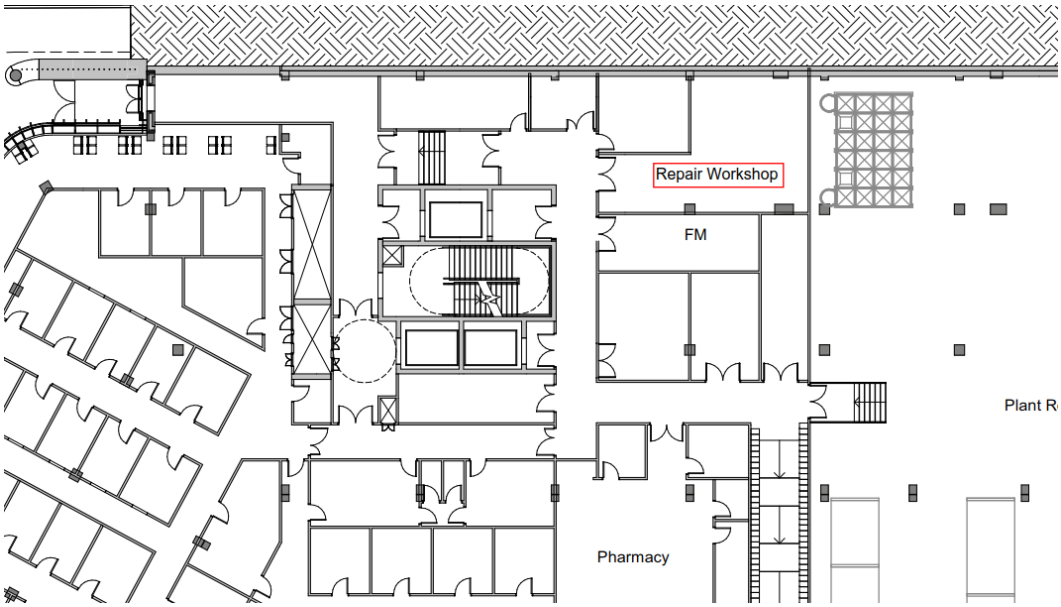
Figure 5-11 Example electronic pump truck

5.6 Bulky Waste

5.6.1 The intention of the Proposed Development is to avoid keeping large amounts of bulky waste on site, to accommodate this, the process for bulky items will be as followed:

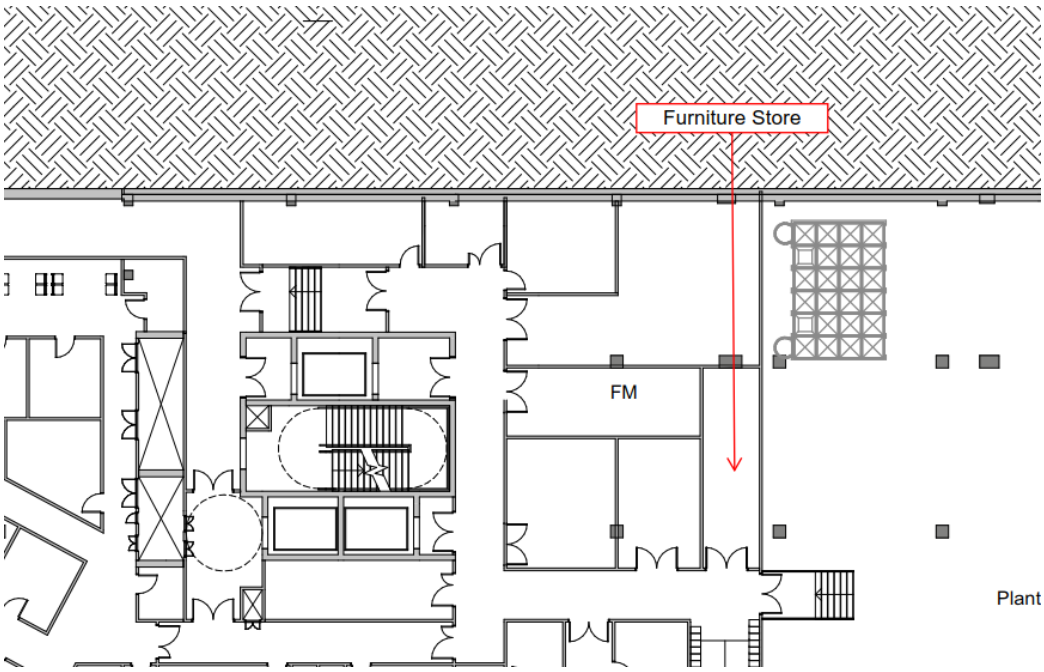
- Any bulky items will firstly aim to be repaired via the repair workshop located on the lower ground floor as shown in Figure 5-12.
- If a bulky item is no longer required by the occupier - (if clinical) it will be advertised to other hospitals. All other objects will be advertised via an online reuse scheme as described in Table 6-1.
- If a bulky item cannot be repaired or reused, it will temporarily be stored in the furniture cupboard highlighted in Figure 5-13 prior to collection by UCL Facilities and Workplace Services. Alternatively, the bulky waste will be kept in situ ahead of collection, at the point of collection the item will be moved to the loading bay for removal by UCL Facilities and Workplace Services.

Figure 5-12 Image showing the Repair Workshop, Lower Ground Floor



Please note this image is not to scale.

Figure 5-13 Image showing the Furniture Store



Please note this image is not to scale.

5.7 Café/Retail Uses

5.7.1 The estimated waste arisings and storage take into account the provision of café waste. For future café/retail tenant occupancy, it is the expectation that the agreed provisions for waste management will be written into the tenancy agreement. Should the café look to introduce a separate coffee cup recycling scheme in the future, this would be welcomed by the Applicant.

5.8 Cigarette Waste

5.8.1 In external public areas, it is the expectation that bins for cigarette butt waste will be positioned strategically (e.g. entrance and exit pathways and external seating areas) to capture this waste stream.

5.9 Fly Litter

5.9.1 Public bins will be located strategically in line with the results of the Wind Microclimate Assessment (which is submitted with the planning application) to mitigate against the potential for the travel of wind to create fly litter. All wheeled bins are stored internally and will have their lids closed with foot brakes activated to avoid any fly litter being created. At the point of collection, all wheeled bins for the Proposed Development will be kept inside a loading bay, which will be sealed via shutter.

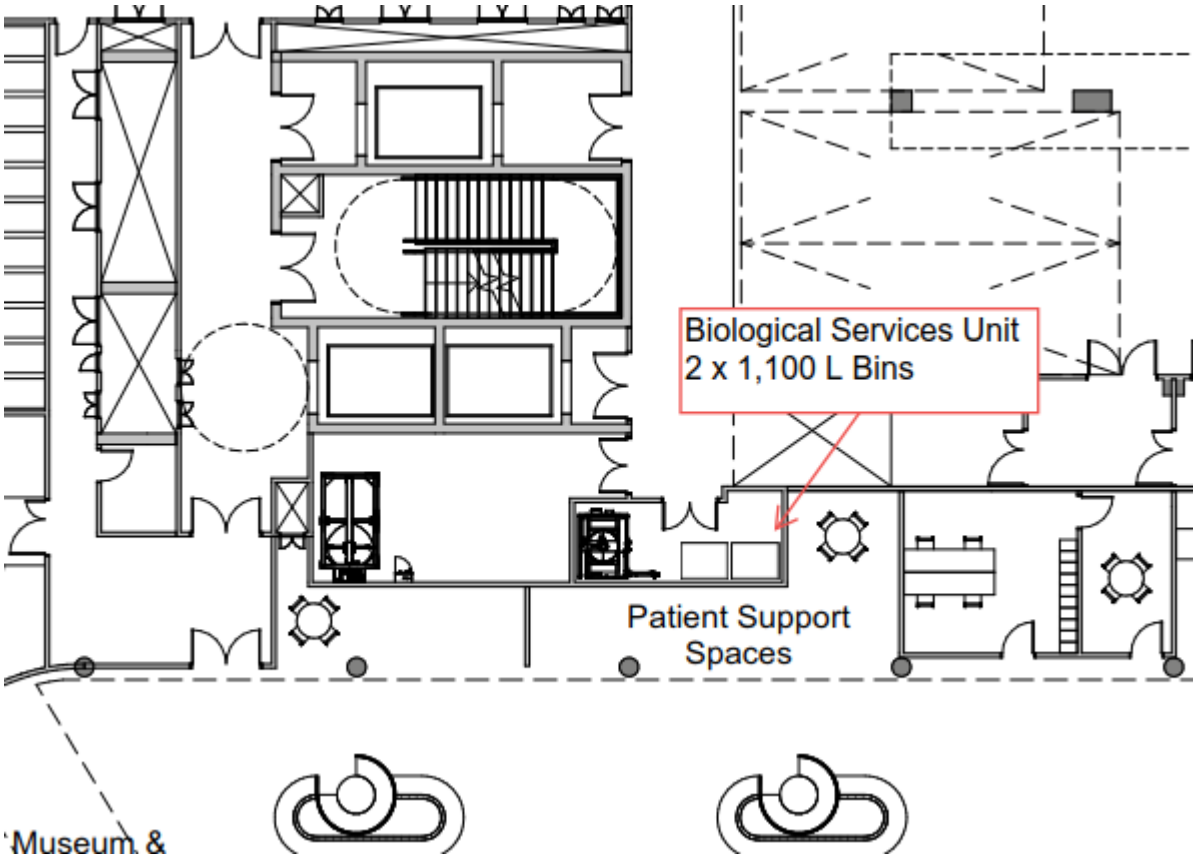
5.10 Hazardous Waste

5.10.1 Hazardous waste will be managed via special arrangement with a registered waste handler for the specific waste that is produced. Hazardous waste is required to be kept separate from general and bulky waste and will comply with the requirements highlighted in Table 7-1.

5.10.2 Separate arrangements will be made for the safe disposal of these waste streams from the Proposed Development, as covered by the Hazardous Waste Regulations 2005 and WEEE Regulations 2015. All waste management will comply with Environmental Protection Act 1990 and The Waste (England and Wales) Regulations 2011.

5.10.3 The hazardous waste from the Biological Services Unit (animal bedding waste) will be stored in a separate bin store at Ground Level, as shown in Figure 5-14.

Figure 5-14 Location of the Biological Services Unit Hazardous Waste Storage



Please note this image is not to scale, and for the purposes of this Strategy, bins have been inserted into this BSU waste store drawing (please note these bins are not shown in the architects drawings submitted with this application).

5.10.4 Collections of liquid chemicals from Moorfields at City Road are ad-hoc with very low volumes being produced (<30L or less) per year.

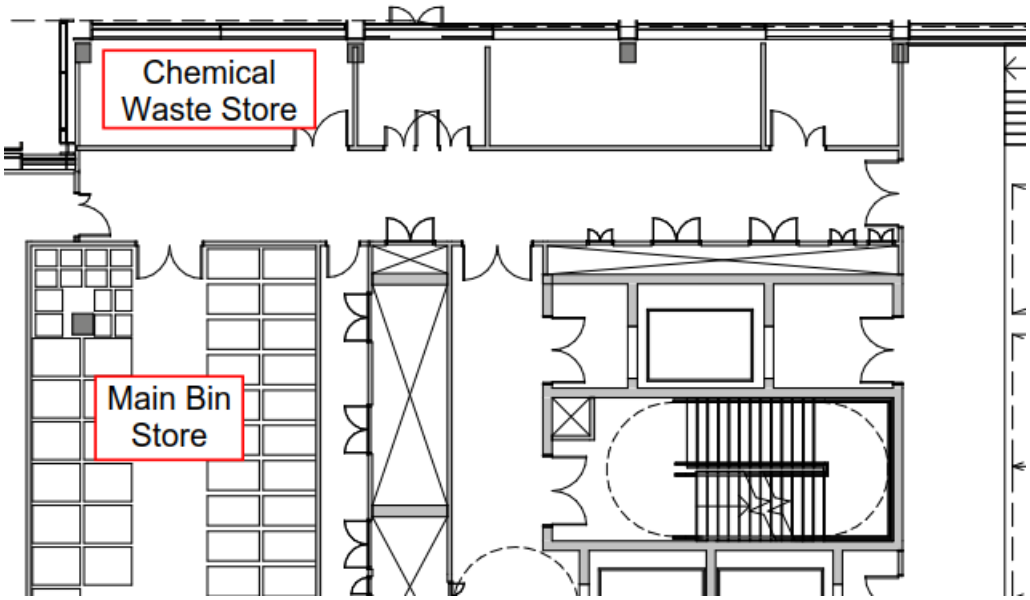
5.10.5 At UCL IoO, a chemical waste store is present to enable the separate storage of chemicals ahead of collection. UCL IoO averages roughly 10–12 collections per year. In 2019, 52 different types of chemical were produced by the Orbit, IoO, Genetics, and Cell Biology labs, which were collected in containers ranging from 1g in weight to 7 litres (with the most common size being a 1 litre container), and 96 containers were collected in total over the year. Chemical wastes xylene and ethanol were collected directly from the pathology labs by Genta Medical.

5.10.6 Based on Moorfields at City Road and UCL IoO's existing chemical waste storage requirements, a chemical waste store is shown in Figure 5-15.

5.10.7 Chemicals include liquids and solvents, oils, paints and other labelled chemicals and will be segregated and stored safely in a locked container and clearly labelled as a substance which falls under the COSHH Regulations. Collections of chemical waste will be undertaken by a registered chemical waste carrier. At Moorfields at City Road collections are currently undertaken via Williams Environmental Ltd, and at UCL IoO, chemicals stored in the Chemical Waste Store are currently managed through a hazardous waste contract with MITIE Group Plc.

5.10.8 It should be noted that future management of all wastes at the Proposed Development may be subject to a tender process and awarded to a registered waste carrier/carriers.

Figure 5-15 Chemical Waste Store



Please note this image is not to scale.

5.11 Maintenance and Fit Out

5.11.1 In the lifetime of the Proposed Development, if there are any maintenance or fit out activities required it is the expectation that a loading bay parking space will be made available for a skip. This would be organised by the facilities management team and planned in advance in order to fit in with pre-existing deliveries and servicing activities.

5.12 Public Bins

5.12.1 The Proposed Development will include appropriately sited and designed recycling provision for public use. This will include bins which enable recycling on the go behaviours with the public, and litter picking activities carried out by the internal management team around the Site to avoid fly litter.

5.13 Textiles

5.13.1 The EU Circular Economy Package (which was transposed into UK law in 2020), requires all member states to collect textiles as a separate waste stream by 2025, promoting discussions to introduce recycling and reuse targets by 2024 (Ref. 41). Textiles heavily contribute to global CO_2 emissions. In 2015 the textile and clothing industry was estimated to produce approximately 175 million tonnes of CO_2 into the atmosphere, alongside 92 million tonnes of waste (Ref. 42). These figures are expected to increase by at least 50% if a business as usual attitude towards the production and consumption of textiles and clothing is adopted.

5.13.2 Many London Boroughs in recent years have declared a climate emergency, aiming to reduce carbon emissions through their own actions, and by encouraging individuals to follow suit. Currently in London, residents contribute 12 tonnes of CO_2e emissions to the atmosphere per person, per year. In line with C40 targets (limiting the global temperature increase to <1.5 degrees Celsius) it is estimated London residents would need to halve their CO_2e emissions by the year 2030 (Ref. 43).

5.13.3 It has recently been reported that only half of used clothes are collected for reuse or for recycling, of those recycled only 1% are reproduced into new clothes (Ref. 44). Promoting the longevity of textiles and clothes through improved collections for re-use, repair and up-cycling will not only help alignment with the EU Circular Economy Package but will also help towards achieving the goal set for England of a 65% recycling rate for municipal waste (Ref. 45). In addition to this, just through doubling the number of times a garment is worn through reuse, repair and up-cycling initiatives could reduce the GHG emissions from clothing and textiles by 44%, thus helping reduce CO_2e emissions from London residents (Ref. 45).

5.13.4 In order to properly recycle or reuse textiles, they must be collected separately, to avoid them being contaminated, ending up in either landfill or energy from waste. For the clinical elements of the Proposed Development, all linen and scrubs will be rented from a healthcare laundry specialist to enable their reuse.

5.13.5 Should waste textiles be produced from the non-clinical areas of the Proposed Development, it is the expectation that the Proposed Development will have a separate bin in-situ for textiles, so that textiles can be segregated and successfully reused or recycled.

5.14 WEEE

5.14.1 There is likely to be a small component of the overall recycling and waste material arising from the Proposed Development that will comprise other material streams, such as waste electrical and electronic equipment (WEEE), printer and toner cartridges. It is the expectation that toner cartridges will be recycled in situ from printer areas and collected by the occupier’s printer support services, and IT will be recycled through a specialist IT recycling company to comply with the Proposed Development’s security requirements.

6 Waste Hierarchy and the Circular Economy

6.1.1 The Waste Hierarchy encourages the management and reduction of waste material. It is representative of a complex process influenced by the optimal management of any given product/waste material. A basic representation of the Waste Hierarchy and its key principles of how waste should be managed is provided in Figure 6-1.

6.1.2 The prevention of waste sits at the top of the Waste Hierarchy. Prevention involves trying to reduce the amount of waste generated in the first place, for example by redesigning a product to use less, and fewer materials during manufacture.

6.1.3 The generation of waste in the UK has historically been linked with economic growth, as demonstrated by a marked decline in waste generation timed with the onset of the recession in 2008 The Circular Economy Model (see Figure 6-2) aims to decouple economic growth from resource consumption, by keeping resources in use for as long as possible and trying to regenerate them at the end of their life. and A Circular Economy Statement for the construction, demolition, and excavation materials of the Proposed Development is submitted in support of the planning application.

6.1.4 It is likely that the future of waste prevention will look to adopt leasing/renting business models on a range of items (i.e. white goods, tools, phones and clothes) which in doing so will promote an economy of repair and refurbishment. Reduction of waste will also occur by reducing the amount of packaging per item through innovation. For commercial food outlets, food waste prevention can be promoted via the use of apps such as Too Good To Go (Ref. 46) or the Felix Project (Ref. 47).

6.1.5 Reuse is the next tier of the Waste Hierarchy; it can involve the cleaning or repairing of products so they can be reused and redistributed as the same product. This helps to prevent products being disposed of once they become broken or dirty. Innovative exchange platforms to enable the reuse of materials include Globechain (Ref. 48) and Loop (Ref. 49).

Figure 6-1 The Waste Hierarchy

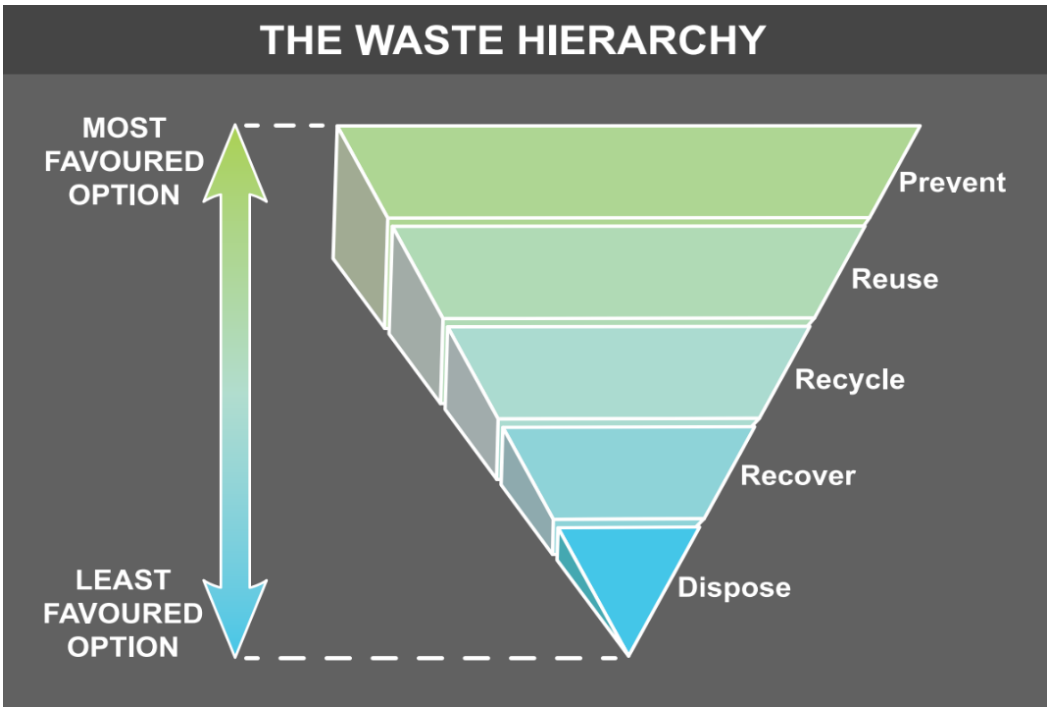
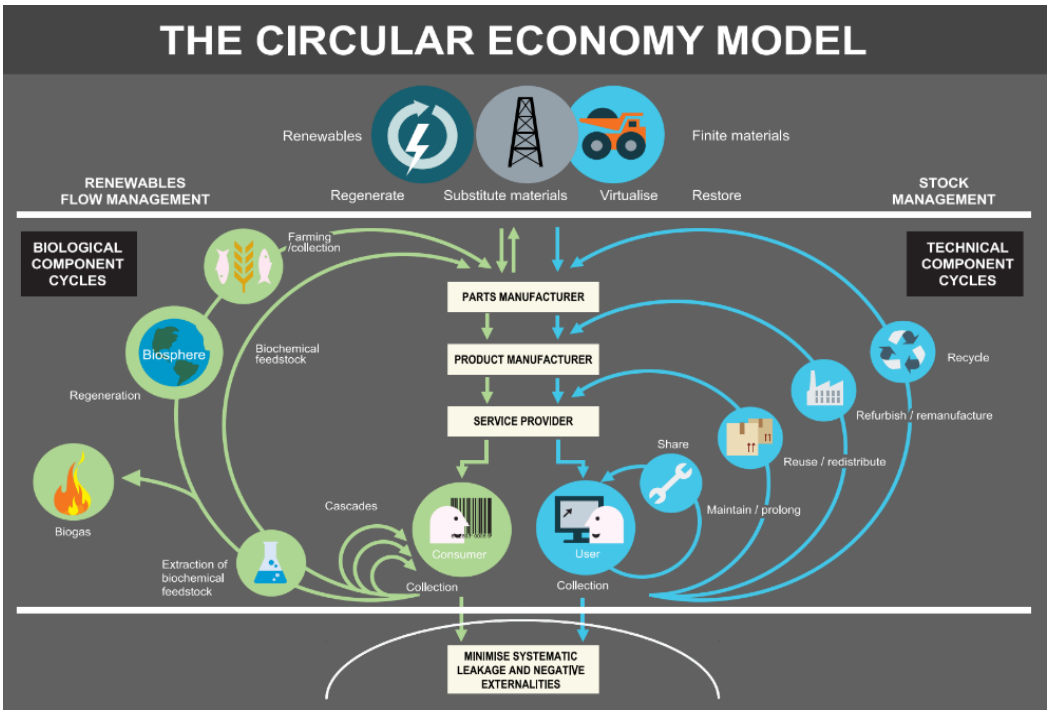


Figure 6-2 The Circular Economy Model



6.1.6 The third tier of the Waste Hierarchy and outermost loop of the Circular Economy Model is recycling – the act of turning waste materials into new products. Recycling benefits the environment as it reduces the consumption of raw materials and diverts waste materials from final disposal routes (i.e. landfill and incineration).

6.1.7 A number of initiatives for application during operation of the Proposed Development will be undertaken by the Applicant in line with circular economy principles. These are highlighted in Table 6-1.

Table 6-1 Circular economy initiatives to be undertaken at the Proposed Development

Image	Circular economy principle	Initiative	Description
	Reduction	Plastic free campus	In 2018, UCL signed the New Plastics Economy Global Commitment (Ref. 50). By 2023, UCL has committed to create a plastic-free campus, including introducing a coffee cup charge. UCL has also committed to reduce plastic use by introducing washing facilities in their laboratories at the Proposed Development, so that glass containers can be used and washed on site. This pledge will help to reduce the amount plastic lab materials going to waste such as Petri dishes, pipette tips and tissue culture plates. In the laboratories, glass Winchester containers will be reused via their return scheme.
	Reuse	Sharps boxes	The majority of healthcare facilities use disposable plastic boxes to store sharps waste; instead, the Proposed Development will use a reusable sharps system. A pre-assembled container could be delivered to the Site by a clinical waste contractor, used and sealed in a similar way to disposable sharps boxes. Once full and sealed, the boxes are collected and returned to the clinical waste facility where the containers are emptied, heat treated and returned for reuse (the container can be reused up to 500 times). The emptied sharps waste is destroyed at the clinical waste facility in accordance with the appropriate regulations. The benefits of using a reusable sharps container include financial savings, reduction of harmful gases produced during incineration of the container, and potentially reduced staff injuries as containers are less likely to be overfilled. It is understood that reusable sharps bins are bigger than the non-reusable type, and so for non-reusable bins may be used for areas where space is confined.
	Reuse	Furniture	Furniture will be reused via UCL IoO's WARPit (Ref. 51) university reuse scheme as appropriate.

Image	Circular economy principle	Initiative	Description
	Repair / Refurbish	Repair Workspace	Within the Proposed Development, an area has been located for a repair workspace. This is shown in Figure 5-12. This workshop will function as an area to repair furniture and electrical appliances to prevent them from becoming waste and could also be used as a contingency space in the future.
	Recycling	Batteries	A separate container for batteries will be located within the staff canteen area.
	Recycling	Healthcare recycling	It is estimated that hospitals in the UK produce 2,250 tonnes of non-hazardous PVC waste which could be recycled (i.e. anaesthetic/oxygen masks, tubing, etc.). RECOMED is a PVC take back scheme which works with healthcare facilities to identify where PVC products could be redirected to recycling at the point of disposal. Specific RECOMED containers are placed in high volume areas and taken to central bin stores to await collection by RECOMED. The collected plastic is shredded and supplied to a specialist plastic recycler who produce 100% recycled horticultural products (Ref. 52).

Image	Circular economy principle	Initiative	Description
	Recycling	Laboratory Plastics	UCL IoO's laboratory plastic containers are currently recycled via a specilaist collection services; Starlabs and Anachem.
	Recycling	Plastic bottle caps	UCL IoO currently separates plastic bottle caps and recycles them via Lush (Ref. 53), it is anticipated this service will continue to be used within the Proposed Development.
	Recycling	Crisp packets	Crisp packets are unable to be recycled when placed in the mixed recycling stream. UCL IoO separates crisp packets and sends them to the company Terracycle in order to recycle them. It is the expectation that this practice will be continued at the Proposed Development, with a dedicated bin for crisp packets provided within the Proposed Development.

Image	Circular economy principle	Initiative	Description
	Recycling	Reverse Vending	It is anticipated that the Applicant will look to introduce a deposit return scheme (DRS) within the Proposed Development in the form of reverse vending machines (RVMs). The machine works so that when a user returns a plastic bottle (or other material if calibrated), they receive a deposit in the form of a monetary voucher back in return. This acts as an incentive to recycle and also maximises high standards of recycling across the Proposed Development as the machine only accepts specific materials. It is anticipated that the RVMs would be located in a public area and would be designed to allow for accessibility by all persons including wheelchair users.
	Recycling	Communications	All posters will be clear, consistent, and colour coded dependent on their waste stream. It is the expectation that communications across the Proposed Development will be tailored dependent on the user and the area of the development in which they are located, colour coding of each waste stream will be consistent – from the colour of the poster, the internal bin lid to the wheeled bin in the bin store.

7 Storage and Collection Provision

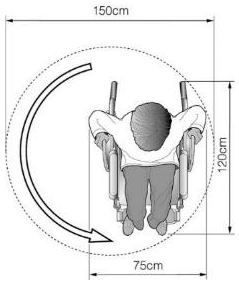
7.1.1 The Proposed Development will also comply with the guidance set out in:

- BS 5906:2005;
- Part H6 of the Building Regulations;
- LBC: Storage and collection of recycling and waste – CPG1 Design;
- DOH HTM07-01: Safe management of healthcare waste; and
- Best practice observations and experience.

7.1.2 Table 7-1 summarises the key guidance which will be adhered to during operation of the Proposed Development.

Table 7-1 Guidance Applicable to the Proposed Development

Topic	Guidance
Location	• In accordance with BS EN 840 (Ref. 54) all recycling and waste material containers within the Proposed Development will be stored under cover in specially designed recycling and waste material storage rooms. • Waste storage facilities will not block any utility service points. • Bins pose a hazard for pedestrians, especially for blind or partially sighted people and those who use wheelchairs or pushchairs. Bins will not be left unsecured or positioned on the public footway. • The doors of bin stores will not open over the public footway or road. Particular considerations apply to listed buildings or buildings in a conservation area. • Bin storage areas will not obstruct sight lines for pedestrians, drivers and cyclists. • Buildings will have an off-street waste collection area at ground level.
Convenience	• The occupier's staff responsible for transporting waste to the bin store (e.g. cleaners) will not have to carry recycling and waste material more than 30m from their individual units to the bin storage areas. Where this is not possible, trolleys/cages will be used for the transportation of waste within the Proposed Development. • Waste collection crews and caretakers will not have to: – Carry waste sacks more than 15m; – Carry bins or move wheeled bins (up to 360 L) more than 10m. – Manually navigate flights or steps or steep slopes or marked changes in level. – Move larger wheeled bins more than 10m; or – Be required to cross a main road, dual road or cycle route and footpath in order to deposit or transfer waste.
Screening and Covering	• Recycling and waste containers will be stored inside. • Internal built storage areas will conform to BS 5906:2005.
Signage	• Bin storage areas will include instructional signage detailing correct use of the facilities; • Storage areas will be suitably lit, clearly designated by a suitable door or wall sign and, where appropriate, with floor markings. • Colour coding will be used for bins of different streams.

Topic	Guidance
Accessibility	• Storage will be designed to be accessible for disabled and other members of the public as set out by the Disability and Discrimination Act (DDA), as specified in BS 8300:2009 – The design of buildings and their approached to meet the full range of needs of all people (Ref. 55). An example wheelchair turning circle has been provided in Figure 7-1 of this Strategy. • The entrance of the bin storage area will be free from steps and projections. • Storage areas will be large enough to allow gangway access to all containers without needing to rearrange other bins within the space. **Figure 7-1 Example Wheelchair Turning Circle** 
Access Paths	• For BS EN 840 Euro Bins or similar sized wheeled bins, the path between the storage area and vehicle access areas will: – Be free of steps or kerbs (a dropped kerb may be required); – Have a solid foundation; – Be rendered with a smooth continuous finish (i.e. no cobbled surfaces); – Be flat, or slope down from the storage area with a maximum gradient of 1:20; and – Have a minimum width of 2m.
Vehicle Access	• Vehicles will enter and exit the Proposed Development (to leave or re-join the highway) in a forward direction; and • The roadway that the vehicles park on will be able to accommodate the weight and size of a 26 tonne vehicle.
Materials and Finishing	• The floor and walls of bin stores will be constructed and finished in materials that are impervious and easy to clean. • Where appropriate, a trapped gully and water supply will be provided to make cleaning easier. • To allow Euro Bins or similar wheeled bins to pass easily through the doors of the bin store without damaging the doors, the doors will have door retainers on them.
Safety and Anti-Social Behaviour	• Poor location and poor design can lead to communal waste/recycling storage areas attracting anti-social behaviour or being perceived as unsafe. • Layout, land use, parking, landscaping, streetscape, boundary treatments, CCTV, lighting, enforcement and public activity has been considered. • ‘Recycling on the go’ facilities and options for strategically placed recycling and litter bins have been considered. • The entrance of the bin storage area will be free from steps and projections.
Locks	• Bin storage areas will be secure and only accessible via keypad/digital lock, electronic fobs or standard Fire Brigade (FB) 1, FB 2, or FB 4 mortice locks. • Internal unlocking mechanisms will be installed in all bin stores and chambers where doors self-lock.
Fire Safety	• Fire safety guidance states that all wheeled bins will be 6m or further from a building, unless the bins are in a purpose-built brick bin store which has a roof and fore doors. BS 9999:2008 – Code of practice for fire safety in the design,

Topic	Guidance
	management and use of buildings including DDA compliance has been considered (Ref. 56); • The walls and roofs of all bin stores will be formed of non-combustible, robust, secure and impervious material, and have a fire resistance of one hour when tested in accordance with BS 476-21 (Ref. 57) whilst the door of the stores will be made of steel or have a fire resistance of 60 minutes when tested in accordance with BS 476-22 (Ref. 58); • Caged or screened bins will be locked if in a public accessed area and have a lid and wheel locking mechanism; • Consideration will be taken to align with a development of fire strategy and plans and review emergency access and egress routes; • Fire plan routes will be checked periodically so that there is no conflict between waste and public safety; • Storage containers and sacks will not be left in entrances, atriums, gangways, shared communal areas or balconies; and • Any internal storage areas adjacent to a fire escape route will be fitted with fire doors, automatic fire detection and a sprinkler system and comply with the Regulatory Reform (Fire Safety) Order 2005 (Ref. 59).
Ventilation and Lighting	• The internal bin stores will have lighting and good ventilation to reduce complaints of smells and odours; • The bin areas are to be enclosed in a roofed building and adequate ventilation will be provided. Permanent ventilators will be provided giving a total ventilation area of not less than 0.2 sq m; • The ventilation will be fly- and vermin-proofed and near to either the roof or floor; • Electrical lighting will consist of sealed bulkhead fittings with housings rated to IP65 in BS EN 60529:1992 (Ref. 60); and • Luminaires will be low energy light fitting or low energy lamp bulbs, controlled by proximity detection or a time delay button to prevent lights being left on.
Maintenance	• Gullies for wash down facilities will be positioned so as not to be in the track of container trolley wheels. The gullies will incorporate a trap, which maintains a seal, even during prolonged periods of disuse.

8 Further Considerations

8.1 Building Research Establishment Environmental Assessment Method

8.1.1 Building Research Establishment Environmental Assessment Method (BREEAM) provides assessment criteria for newly constructed and refurbished developments, such as the Proposed Development, for a range of environmental factors, including waste. These assessment criteria are described within the BREEAM New Construction Non-Domestic Buildings Technical Manual (Ref. 61).

8.1.2 A full BREEAM 2018 New Construction assessment will be undertaken during the post planning stage, with a target to achieve BREEAM ‘Excellent’ for the Healthcare Teaching or specialist hospitals assessment. Further details are provided in the Sustainability Statement, submitted with the planning application.

8.1.3 With regards to waste arisings generated during the operational phase of the Proposed Development, one BREEAM credit is available for meeting requirements of Wst 03 Operational.

8.1.4 In order to meet Wst 03 Operational, the following criteria must be complied with:

- Provision of dedicated storage space to cater for the segregation and storage of operational MDR waste volumes generated by the Proposed Development, its occupants and activities; The dedicated space must be:
  - Clearly labelled, to assist with segregation, storage and collection of MDR waste stream (in this case MDR will be further segregated into individual material streams in line with best practice);
  - Accessible to occupants/facilities operators (i.e. management teams) for the deposit of materials and collections by waste management contractors; and
  - Of a capacity appropriate to the building type, size and number of units (if relevant) and predicted volume of waste that will arise from daily/weekly operational activities and occupancy rates.

8.1.5 Providing the waste storage requirements specified within this Strategy are adhered to, it is considered that the Proposed Development will meet the Wst 03 Operational criteria.

9 Conclusion

9.1.1 In keeping with national, regional, and local policy this Strategy demonstrates how the Proposed Development will promote sustainable waste management to minimise waste production. The Strategy identifies the prospective space requirements for recycling and waste management and demonstrates best practice segregation of dry recyclables (plastics, metals, cardboard, paper, and glass), healthcare waste, food waste, textiles and residual waste.

9.1.2 This Strategy has catalogued the best practices from the current Moorfields at City Road and UCL IoO sites and provided additional reduction and reuse initiatives from case studies, which will be explored further by the applicant.

9.1.3 Having a successful waste management strategy for the Proposed Development is key to the future vision for both Moorfields at City Road and UCL IoO. This Strategy describes how this vision will be achieved; through the correct segregation, storage and transportation of waste and recyclate materials within the Proposed Development.

9.1.4 This Strategy has taken the approach of aiming to design out waste from Proposed Development from the start, whilst limiting climate change impact by reducing vehicle movements where possible. It is anticipated that the Proposed Development will proactively demonstrate circular economy principles in accordance with the Waste Hierarchy over the duration of its operational life, and it is envisioned that this Strategy will futureproof waste management for the Proposed Development by contributing to the demands of a circular economy world.

10 References

Ref. 1. Waste and Resources Action Programme (WRAP) Business Waste Weights Calculator [online] http://www.wrap.org.uk/sites/files/wrap/Business%20waste%20weights%20calculator_businesses%20v1_0.xlsx

Note that the density for the healthcare waste stream has assumed the residual waste bulk density, whereas the animal bedding waste stream has assumed the same bulk density as the food waste stream.

Ref. 2. Her Majesty's Stationery Office (HMSO), (2011); The Waste (England and Wales) Regulations.

Ref. 3. British Standards Institute (BSI), (2005); BS 5906:2005, Waste Management in Buildings – Code of Practice.

Ref. 4. Department for Communities and Local Government (DCLG), (2013); Building Regulations – Approved Document H: Drainage and Waste Disposal.

Ref. 5. Department for Health (2013) Environment and sustainability - Health Technical Memorandum 07-01: Safe management of healthcare waste

Ref. 6. Department for Environment and Rural Affairs (Defra) Duty of Care Code of Practice, Section 34 of the Environmental Protection Act (1990)

Ref. 7. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and repealing certain Directives (Waste Framework Directive).

Ref. 8. London Borough of Camden (LBC), (2019); Camden Planning Guidance – Design.

Ref. 9. HMSO, (2011); The Animal By-Products (Enforcement) Regulations 2011.

Ref. 10. HMSO, (2015); Clean Neighbourhoods and Environment Act 2015.

Ref. 11. HMSO, (1989); Control of Pollution Act 1989.

Ref. 12. HMSO, (2012); The Controlled Waste (England and Wales) Regulations 2012.

Ref. 13. HMSO, (1995); Environment Act 1995.

Ref. 14. HMSO, (1990); Environmental Protection Act 1990.

Ref. 15. HMSO, (1996); The Landfill Tax Regulations 1996.

Ref. 16. HMSO, (2005); The List of Wastes (England) Regulations 2005.

Ref. 17. HMSO, (2015); The Packaging (Essential Requirements) Regulations 2015.

Ref. 18. HMSO, (2017); The Pollution Prevention and Control (Fees) (Miscellaneous Amendments) Regulations.

Ref. 19. HMSO, (2007); The Producer Responsibility Obligations (Packaging Waste) Regulations 2007.

Ref. 20. HMSO, (2005); The Hazardous Waste Regulations 2005.

Ref. 21. HMSO, (2009); The Waste Batteries and Accumulators Regulations 2009.

Ref. 22. HMSO, (2013); The Waste Electrical and Electronic Equipment (WEEE) 2013

Ref. 23. HMSO, (2018); A Green Future: Our 25 Year Plan to Improve the Environment.

Ref. 24. HMSO, (2018); Our Waste, Our Resources: A Strategy for England.

Ref. 25. Greater London Authority (GLA) (2016); The London Plan. The Spatial Development Strategy for London Consolidated with Alterations since 2011.

Ref. 26. GLA (2019); Intend to Publish London Plan, Spatial Development Strategy for Greater London.

Ref. 27. GLA, (2018); London Environment Strategy.

Ref. 28. North London Waste Authority, (2009); North London Joint Waste Strategy.

Ref. 29. North London Waste Authority, (2019); North London Waste Plan Proposed Submission (Regulation 19).

Ref. 30. LBC, (2017); Local Plan.

Ref. 31. LBC, (2019); Planning Guidance Document – Design.

Ref. 32. LBC (2019) Waste storage and arrangements for residential and commercial units - Supporting document for planning guidance CPG Design - Storage and collection of recycling and waste

Ref. 33. LBC, (2019); Planning Guidance Document – Transport.

Ref. 34. LBC, (2020); Camden Climate Action Plan 2020-2025.

Ref. 35. Defra, (2019); Local authority collected waste management for England for 2018/19 [accessed online 30/03/2020] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/849167/201819_LA_collected_waste_mgt_annual_Stats_Notice_FINAL_Accessible_v4.pdf

Ref. 36. Defra, (2015); Statistics on waste managed by local authorities in England in 2014 to 2015 [accessed online 30/03/2020] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/481771/Stats_Notice_Nov_2015.pdf

Ref. 37. Resource Futures, (2009); WRO121 – Understanding Waste Growth at a Local Authority Level – Final Report to DEFRA.

Ref. 38. GLA, (2017); SLR - London Plan Waste Forecasts and Apportionments.

Ref. 39. London Recycling and Waste Board (LWARB), (2017); Circular Economy Effects on Waste Production in London.

Ref. 40. Royal College of Physicians, (2018); Less Waste, More Health: A Health Professional's Guide to Reducing Waste.

Ref. 41. European Parliamentary Research Service, (2019); Environmental Impact of the textile and clothing industry: What consumers need to know.

Ref. 42. Global Fashion Agenda, The Boston Consulting Group, (2017); Pulse of the fashion industry.

Ref. 43. LWARB, (2020); Business Plan 2020-2025.

Ref. 44. Ellen MacArthur Foundation, (2017); A new textiles economy: redesigning fashion's future.

Ref. 45. HM Government, (2018); Our waste our resources: A strategy for England.

Ref. 46. Too Good to Go App [accessed online 04/08/2020] https://toogoodtogo.org/en

Ref. 47. The Felix Project [accessed online 08/08/2020] https://thefelixproject.org/

Ref. 48. Globechain [accessed online 15/09/2020] https://globechain.com/about-us

Ref. 49. LOOP [accessed online 24/09/2020] https://loopstore.co.uk/

Ref. 50. University College London (UCL), (2019); Change Possible: The Strategy for a Sustainable UCL 2019-2024.

Ref. 51. WARPit Furniture reuse scheme [accessed 26/11/2019] https://www.warp-it.co.uk/university-college-london.aspx

Ref. 52. RECOMED Medical PVC recycling scheme [accessed 16/07/2020] https://axiongroup.co.uk/services/specialist-collection-schemes/recomed/

Ref. 53. Lush bottle top recycling scheme [accessed 26/11/2019] https://uk.lush.com/article/what-do-plastic-bottle-tops

Ref. 54. BSI, (2004); BS EN 840 Mobile Waste Containers.

Ref. 55. BSI, (2009); BS 8300:2009 Design of buildings and their approaches to meet the needs of disabled people.

Ref. 56. BSI, (2008); BS 9999:2008 Code of practices for fire safety in the design, management and use of buildings.

Ref. 57. BSI, (1987); BS 476-21 Fire tests on building materials and structures: Part 21.

Ref. 58. BSI, (1987); BS 476-22 Fire tests on building materials and structures: Part 22.

Ref. 59. HMSO, (2005); The Regulatory Reform (Fire Safety) Order 2005.

Ref. 60. BSI, (1992); BS EN 60529:1992 Specification for degrees of protection provided by enclosures (IP code).

Ref. 61. Building Research Establishment Environmental Assessment Method (BREEAM), (2011); BREEAM New Construction Non-Domestic Buildings Technical Manual.

Ref. 62. Ministry of Housing, Communities and Local Government (MHCLG), (2019); National Planning Policy Framework (NPPF).

Ref. 63. Department for Communities and Local Government (DCLG), (2014); National Planning Policy for Waste.

Ref. 64. Department for Environment, Food and Rural Affairs (Defra), (2013); Waste Management Plan for England 2013.

Ref. 65. DCLG, (2018); National Planning Guidance.

Ref. 66. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and repealing certain Directives (Waste Framework Directive).

Ref. 67. DCLG, (2019); National Planning Practice Guidance: Waste [accessed online 06/12/2019] http://planningguidance.planningportal.gov.uk/blog/guidance/waste/

Ref. 68. GLA, (2011); The Mayor's Business Waste Management Strategy.

Ref. 69. GLA, (2011); The Mayor's Municipal Waste Management Strategy.

Appendix A Relevant Waste Policy and Planning Policy

National Waste Planning Policy

National Planning Policy Framework (2019)

An update to the revised National Planning Policy Framework (NPPF) (Ref. 62) was published in February 2019.The revised NPPF sets out the government planning policies for England and how these are expected to be applied. This NPPF supersedes the previous NPPF published in July 2018 and March 2012.

The revised NPPF maintains the presumption in favour of sustainable development which should be delivered in accordance with three main objective areas: economic, social and environmental (Paragraph 8 of the NPPF). The revised NPPF aims to enable local people and their local authorities to produce their own distinctive local and neighbourhood plans, which should be interpreted and applied to meet the needs and priorities of their communities.

The environmental objective refers to the importance of waste management and resource efficiency. The NPPF should be read in conjunction with the National Planning Policy for Waste (2014) (Ref. 63), including the Waste Management Plan for England (2013) (Ref. 64) and Planning Practice Guidance (Ref. 65) which are discussed in the following sections of this Strategy.

National Planning Policy for Waste (2014)

The National Planning Policy for Waste provides the planning framework to enable Local Authorities to put forward, through local waste management plans, strategies that identify sites and areas that are suitable for new or enhanced facilities to meet the waste management needs of their areas.

Waste Management Plan for England (2013)

The Waste Management Plan for England is a high-level document, which outlines the steps required to move towards a zero-waste economy, as part of the transition to a sustainable economy.

The Waste Management Plan fulfils the Waste Framework Directive (WFD) Article 28 mandatory requirements (Ref. 66), and other required content as set out in Schedule 1 of the Waste (England and Wales) Regulations 2011. The Waste Management Plan provides an analysis of current waste management practices in England and evaluates implementation of the objectives and provisions of the revised WFD.

Planning Practice Guidance

The Planning Practice Guidance (PPG) comprises a web-based resource in support of the NPPF. The guidance document of relevance is titled ‘Waste’ (Ref. 67).

The document entitled ‘Waste’ outlines the consideration local planning authorities should give towards waste management, both within Local Plans and with regards to the Waste Hierarchy. This includes guidance on considerations to be included within development planning applications:

- The promotion of the *“sound management of waste from any proposed development, such as encouraging internal management of waste where this is appropriate, or including a planning condition to encourage or require the developer to set out how waste arising from the development is to be dealt with”;*

- *"Ensuring that collections of household and similar waste are organised so as to help towards achieving the higher levels of the Waste Hierarchy";*
- That steps are *"taken to ensure effective segregation of wastes at source including, as appropriate, the provision of waste sorting, storage, recovery and recycling facilities*"; and
- That it will be useful for proposals that are likely to generate significant volumes of waste through the development or operational phases to include a waste audit. "*This audit should demonstrate that in both construction and operational phases of a proposed development, waste will be minimised as far as possible and that such waste as is generated will be managed in an appropriate manner in accordance with the Waste Hierarchy*".

A Green Future: Our 25 Year Plan to Improve the Environment

In 2018 the Government published the 25 Year Plan to Improve the Environment. This Plan sets out the Government actions to help the natural world regain and retain good health. It aims to deliver cleaner air and water, protect threatened species and provide richer environment. One of the measures set out in this Plan to decrease pressure on the environment is by minimising the generation of waste. This will be done by:

- "*Working towards our ambition of zero avoidable waste by 2050*"; and
- "*Meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious future targets and milestones*".

Our Waste, Our Resources: A Strategy for England

Within the 25 Year Environmental Plan, the Government pledged to leave the environment in a better condition for the next generation. To meet this commitment, Our Waste, Our Resources: A Strategy for England (2018) has been developed. The Strategy for England commits to the following policy instruments, and sets out dates for their production:

- Extended Producer Responsibility
  - The Extended Producer Responsibility (EPR) is "a policy approach through which a producer's responsibility for a product is extended to the post-use stage. This incentivises producers to design their products to make it easier for them to be reused, dismantled and/or recycled at end of life".
- Deposit Return Scheme
  - In a Deposit Return Scheme (DRS), a small deposit will be added to the price of a drink container brought to a store. Once the container has been used, the consumer will dispose of it in a reverse vending machine and the deposit will be returned to the consumer.
- Consistent Collections
  - Subject to consultation, legislation enforcing the government to "*specify a core set of materials to be collected by all local authorities and waste operators*" will be introduced. It is envisioned that specifying a consistent set of dry recyclable materials to be collected from all households and businesses will improve England's recycling rate.

At the current time these policy instruments are out for consultation and (subject to proposals) will be rolled out from 2023.

Regional Waste Planning Policy

The London Plan, Spatial Development Strategy for Greater London (Consolidated with Alterations since 2011) (2016)

The London Plan details the Mayor's commitment to making better use of waste and its management, in an attempt to reduce London's impact on climate change, such as exploiting opportunities to utilise Energy from Waste (EfW). The London Plan describes waste as a valuable resource, which can be exploited for London's environmental, economic and social benefit.

The London Plan contains two policies which are relevant to the management of waste arising from the Proposed Development, these are summarised in Table A 1.

Table A 1 London Plan Waste Management Policies

Policy	Description
Policy 5.3 Sustainable Design and Construction	States that the highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime. This should be achieved through a number of sustainable design principles, including minimising the generation of waste and maximising re-use and recycling.
Policy 5.16 Waste Net Self-sufficiency	States that the Mayor will work with various stakeholders and authorities to manage as much of London's waste within London as practicable, working towards managing the equivalent of 100% of London's waste within London by 2026, whilst also working towards zero biodegradable or recyclable waste sent to landfill. This should be achieved by a number of ways, including minimising waste, encouraging the reuse of materials, exceeding recycling/composting levels in local authority collected waste (LACW) and commercial and industrial waste, improving London's net self-sufficiency through reducing the proportion of waste exported from the capital over time, and working with neighbouring regional and district authorities to co-ordinate strategic waste management across the south east of England.

The [Intend to Publish] London Plan – Spatial Development Strategy for Greater London (2019)

The Intend to Publish draft London Plan – Spatial Development Strategy for Greater London was issued for consultation in December 2017 and the public consultation period ended in March 2018. The Intend to Publish London Plan has considered recommendations from the Examination in Public and was released 9 December 2019.

On 13 March 2020, the Secretary of State for Housing, Rt Hon Robert Jenrick MP, wrote to the Mayor of London on the need for an improved London Plan and provided a number of directions. The majority of the Secretary of State's directions are related to housing supply within London and do not impact draft policies related to the Proposed Development.

Therefore, for the purposes of this Strategy, all other policies such as those related to waste management are treated as retained in the Intend to Publish form for adoption. As a result, it has been assumed that the policies in the Intend to Publish London Plan will be adopted in their current form and are a material consideration when determining the planning application.

Like the adopted London Plan (2016), the Intend to Publish London Plan details the Mayor's commitments towards a greener London by tackling climate change and moving towards a zero-carbon city by 2050. The Intend to Publish London Plan contains five policies that are relevant to operational recycling and waste and these are displayed in Table A 2.

Table A 2 Intend to Publish London Plan Recycling and Waste Management Policies

Policy	Description
Policy SI 7 Reducing Waste and Supporting the Circular Economy	This policy states that waste reduction and reduction in the quantity of waste going for disposal from London can be achieved by promoting circular economy i.e. – By encouraging the reuse of material and by using fewer resources in the production and distribution of products; – By ensuring that zero biodegradable or recyclable waste is sent to landfill by 2026; – By meeting the set recycling targets (i.e. 65% for municipal waste by 2030 and 95% for construction and demolition waste); and – By designing developments that would provide adequate, flexible and easily accessible storage space to support collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food.
Policy SI 8 Waste Capacity and New Waste Self Sufficiency	This policy indicates the Mayor's intent of sustainably managing the equivalent of 100% of London's waste within London by 2026. This can be achieved by identifying techniques/methods to reduce waste, in line with the principles of the circular economy and determining ways to manage waste that cannot be reduced. In addition to this, existing waste sites are to be safeguarded and their capacities optimised.
Policy T7 Deliveries, Servicing and Construction	This policy states that development proposals must consider the use of rail/water for the transportation of material with increased levels of direct vision on waste. Development plans and development proposals should facilitate sustainable freight movement by rail, waterways and road. At large developments, facilities to enable micro-consolidation should be provided, with management arrangements set out in Delivery and Servicing Plans.

Mayor of London Environmental Strategy (2018)

The London Environment Strategy sets out a framework that identifies the stages to London becoming a zero-waste city. For example, by consolidating commercial

recycling contracts, resulting in fewer and cleaner lorries to transport waste, and by ensuring new major public realm developments are required to install water fountains in appropriate locations. The London Environment Strategy targets a 65% recycling rate for municipal waste (this is broken down into a 50% recycling target for household waste and a 75% target for business waste by 2030) and specifies that no biodegradable or recyclable waste will be sent to landfill by 2026.

The London Environment Strategy also highlights the circular economy principles which the GLA would like to embed within the day to day running of businesses. Its policies include to build on London's strengths and grow the low carbon and environmental goods and services sector. The Mayor is working towards achieving a more sustainable, circular economy by:

- "*Reducing waste and the use of single use packaging, so that fewer disposable products are created in the first place;*
- *Ensuring valuable resources are kept in use for as long as possible;*
- *London boroughs, businesses and the waste industry increasing the availability and visibility of recycling facilities and services; and*
- *Making the most of materials that can no longer be reused or recycled, by using them to generate low carbon energy*".

The Business Waste Management Strategy (2011)

In addition to the policies described in the London Plan, the Business Waste Management Strategy (Ref. 68) provides further guidance on the management of waste arising from businesses. It sets out initiatives to help London businesses (including shops, restaurants and offices) save money and reduce harm to the environment, through better waste management practices. The Business Waste Management Strategy is aimed at encouraging waste reduction and promoting better re-use and recycling from commercial activities. It looks to improve the efficiency of resource management and reduce the financial and environmental impact of waste by managing as much as is practical within London's boundaries.

The Municipal Waste Management Strategy (2011)

The Municipal Waste Management Strategy (Ref. 69) provides further guidance on the management of municipal waste, in addition to policies contained within the London Plan. The Municipal Waste Management Strategy sets six additional targets, which aim to reduce the amount of municipal waste generated by the capital and significantly increase recycling and composting performance. The strategy goes on to explain that municipal waste, which cannot be re-used or recycled, will be used to produce EfW in the most environmentally sensitive way possible.

Local Waste Planning Policy

North London Waste Authority (NLWA) Joint Waste Strategy (2009)

In addition to the draft NLWP, the North London Joint Waste Strategy (NLJWS) provides the strategic framework for municipal waste management in North London from 2004 to 2020. The NLJWS sets out the targets for reducing, reusing and recovering a greater proportion of municipal waste generated within the NLWA and it also sets out the targets aimed at reducing the amount of waste sent to landfill for disposal. The NLJWS states its objectives as being:

- "*To minimise the amount of municipal wastes arising;*

- *To maximise recycling and composting rates;*
- *To reduce greenhouse gases by disposing of less organic waste in landfill sites;*
- *To co-ordinate and continuously improve municipal wastes minimisation and management policies in North London;*
- *To manage municipal wastes in the most environmentally benign and economically efficient ways possible through the provision and co-ordination of appropriate wastes management facilities and services; and*
- *To ensure that services and information are fully accessible to all members of the community".*

Draft North London Waste Plan (Regulation 19) - Proposed Submission (2019)

The seven North London Boroughs of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest are working together to produce the North London Waste Plan (NLWP). The Draft NLWP was submitted to the Secretary of State for Housing, Communities and Local Government in August 2019. Following this, the NLWP Examination Hearings took place in November 2019. The seven NLWA boroughs are currently working on main modifications to address the issues raised at the hearings by representors and the Inspector. Once the Inspector is satisfied with these, the boroughs will consult formally on the main modifications.

In February 2020, the boroughs wrote to the Inspector to inform him that consultation on the main modifications would start after early May. Since this time, the elections have been postponed for a year due to the COVID-19 pandemic and the boroughs have decided not to start any consultations until both council staff and consultees are better able to prepare and participate in the consultation process.

The Draft NLWP has two main purposes:

- "*To ensure there will be adequate provision of suitable land to accommodate waste management facilities of the right type, in the right place and at the right time up to 2035 to manage waste generated in North London; and*
- *To provide policies against which planning applications for waste developments will be assessed, alongside other relevant planning policies/guidance".*

Table A 3 below sets out the strategic objectives of the draft NLWP as relevant to the management of waste.

Table A 3 Draft North London Waste Plan (NLWP) Strategic Objectives

Strategic Objective (SO)	Description
Draft SO 1	States "to support the movement of North London's waste as far up the waste hierarchy as practicable, to ensure environmental and economic benefits are maximised by utilising waste as a resource".
Draft SO 6	States "to provides opportunities for North London to contribute to the development of a low carbon economy and decentralised energy".
Draft SO 7	States "to support the use of sustainable forms of transport and minimise the impacts of waste movements including on climate change".

Camden Local Plan (2017)

The Camden Local Plan sets out the Council's planning policies and replaces the Core Strategy and Development Policies planning document (adopted in 2010). It ensures that Camden continues to have robust, effective and up-to-date planning policies that respond to changing circumstances. The Local Plan covers the period from 2016-2031.

Table A 4 outlines the policies relevant to the management of waste arisings from the Proposed Development.

Table A 4 Camden Local Plan Waste Policies

Policy	Description
Policy CC5 Waste	States that "The Council will seek to make Camden a low waste borough. We will: *a.* aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031; […] b. d. Make sure that developments include facilities for the storage and collection of recycling and waste."
Policy CC1 Climate change mitigation	States that "The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. We will": "f. Expect all developments to optimise resource efficiency".

Appendix B Communication from NHS Director of Estates

8 November 2019

Simon Corben
NHS Estates
NHS England - Improvement
Quarry House
Quarry Hill
Leeds LS2 7UE

E:simon.corben@nhs.net
W: improvement.nhs.uk

Directors of NHS Estates and Facilities
Assistant/Associate Directors of Estates
and Facilities
Via e-mail

Dear Directors

Management of Clinical Waste Across the Healthcare Sector

I am writing to you as the newly appointed Senior Responsible Officer for clinical waste across the NHS to bring to your attention some rather specific Duty of Care responsibilities behest upon your chief executive as the Senior Officer responsible for your organisation in relation to clinical waste. Waste disposal is a key support service without which hospital services cannot operate.

You will be aware of the focus on the waste sector within health and the wider government and ongoing service disruption we are experiencing more than a year after the first issues were identified.

During this time we have assembled a central national team to support NHS trusts at a local level whilst simultaneously creating a clear and directional strategy for the following 10 years.

Aside from building a national infrastructure and supplier resilience plan, a core part of this work focuses in on the requirements of local action in individual organisations. I have set these out below:

1. Competent Waste Manager; every NHS organisation is to have an appointed competent and qualified manager responsible for their clinical waste;
2. Waste segregation; waste is to be segregated into three core streams as determined in HTM07-01; The Safe Management of Healthcare Waste. Broadly they are:
    a. Waste destined for high temperature incineration [hazardous];
    b. Waste destined for alternative treatment (e.g. steam sterilisation) [infectious]; and
    c. Waste destined for low temperature domestic incineration [no-hazardous and non-infectious];

    The percentage split of the above three streams should broadly constitute 20% destined for high temperature incineration, 20% destined for alternative treatment and 60% destined for low temperature domestic incineration. Note: no NHS waste should be sent to landfill.

3. Annual pre-acceptance audits; detailed annual audits required to be carried out, signed off by the organisation and logged with the Environment Agency;
4. Accurate Data and record keeping; organisations are to ensure that accurate records are kept of every consignment; ensuring waste is traced to point of destruction. Accurate volume data is to be kept and reported centrally on an annual basis through the Estates Return Information Collection (ERIC);
5. Remove plastics from high temperature incineration; move toward UK approved reusable containers or non-plastic sharps and pharmaceutical packaging.

Recent analysis has shown that segregation at a local level is poor in a number of organisations; with some organisations sending a majority of their waste to high temperature incineration. My team has been working hard to ensure organisations have complete visibility of their current performance in relation to their segregation positions and I enclose a copy of the full analysis for your viewing.

Aside from the statutory responsibilities placed on you to ensure your waste is segregated correctly, it is worth noting there are considerable cost savings associated with this behaviour. We have calculated that these are upward of £15m a year across the whole sector, so everyone playing their part will have a measureable impact and increase flexibility in incinerator capacity. My team will be looking at how we can drive forward innovation, resilience and minimise costs in the long term working with NHS trusts and suppliers.

I trust you will be fully supportive of the approaches set out in this letter.

The Environment Agency will shortly be writing out to your organisation to advise you that they plan to start inspections of NHS sites from early 2020. They will be looking for compliance in line with the elements set out in this letter. We advise you to ensure your Chief Executive and Boards are aware and to enable your organisations to prepare themselves for these forthcoming visits.

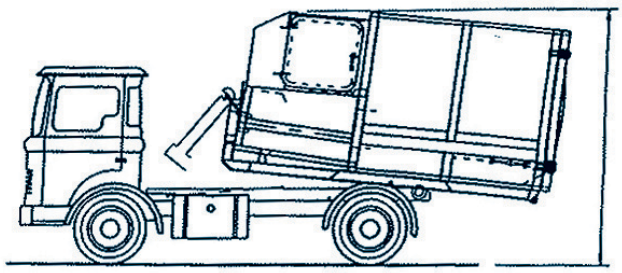
Yours faithfully

Simon Corben
Head of Profession and
Director of NHS Estates

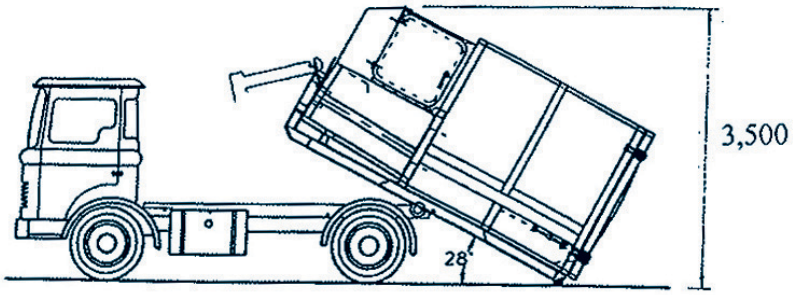
Appendix C FLL Babyhook Vehicle

Vehicle specification

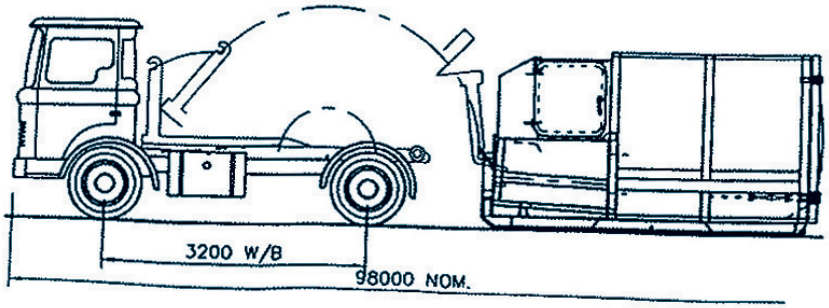
FLL baby hooklift vehicle information sheet



INTERIM -



MAXIMUM LOADING ANGLE



		Travel Length	Working Length	Travel Height	Working Height	Turning Circle	Payload
		TL	WL	TH	WH	(kerb to kerb)	
12 TON GVW (2 axies)	Meters Max	6.3	6.3	3.5	4	3.5	12000 kg

Lea Riverside, Twelvetrees Crescent, Bow, London, E3 3JG

Tel: 020 7001 6000 **Email: recycle@bywaters.co.uk**

Fax: 020 7001 6001 **Web: www.bywaters.co.uk**

\

Oriel
Creating the centre for advancing eye health

Oriel-london.org.uk

Moorfields Eye Hospital NHS Foundation Trust

NHS

Moorfields Eye Charity

UCL INSTITUTE OF OPHTHALMOLOGY