



Transportation Safety  
Healthcare Waste Management  
Dangerous Goods Safety Advisors

# University College London Hospital Phase 5 Waste Management Plan

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## UCLH Phase 5 - Waste Management Plan

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## 1. INTRODUCTION

This Waste Management Plan was initially prepared by SEWCO in March 2017 on behalf of the University College London NHS Foundation Trust (UCLH) to release planning condition PP6 of planning reference 2015/1281/P (the redevelopment of 43-49 Huntley Street, London Borough of Camden).

*The requirement states that “prior to occupation of the building, details of the location, design and method of waste storage and removal including recycled materials shall be submitted to and approved by the local authority in writing. The facility as approved shall be provided prior to first occupation of the building and permanently retained thereafter.”*

Therefore, this waste management plan has been written in accordance with LB Camden and NHS Trust policy to release this planning condition.

The proposals are for the relocation of the Royal National Throat, Nose and Ear Hospital (RNTNE) and the Eastman Dental Hospital (EDH) from their existing locations at Grays Inn Road to a modern combined facility at the proposed site.

The purpose of this document is to describe the waste management and servicing arrangements for the proposed Development. It builds on the approved Framework Waste Management Plan for the site, dated March 2015.

This Waste Management Plan is structured as follows:

- **Chapter 1** provides an introduction and background to the document, including outline proposals.
- **Chapter 2** explains the relevant National, Local and NHS Trust policy related to waste.
- **Chapter 3** details the waste management plan along with supporting drawings.

In February 2018 ISSL were commissioned to update this document to reflect current regulation and to correct some errors in calculations and waste volumes. SWECO used publicly available data that did not reflect the true waste arisings of the RNTNE and EDH.

## 1.1 Development proposals

The proposals are summarised below in Table 1.1.

<b>Floor</b>	<b>Activity</b>
Basement -3	<b>Plant</b>
Basement -2	<b>Imaging</b>
Basement -1	<b>Minor Procedures</b>
Ground Floor	<b>Entrance</b>
1 <sup>st</sup> Floor	<b>Consultation/Examination Area – Ear, Nose and Throat</b>
2 <sup>nd</sup> Floor	<b>Paediatrics</b>
3 <sup>rd</sup> Floor	<b>Dental</b>
4 <sup>th</sup> Floor	<b>Dental</b>
5 <sup>th</sup> Floor	<b>Consultation/Examination Area – Ear, Nose and Throat</b>

## 1.2 Waste management arrangements

The key focus of this document is the management of waste produced during the Development's operations, the document sets out the following:

- The policy and legislative framework which supports the development of this Waste Management Plan;
- The size and number of waste containers required in order to service the Development when operational;
- The design considerations of the Central Waste Store and Waste Disposal Holds on each floor of the Development; and
- How waste management logistics will be managed when the Development is in use.

## 1.3 Waste Vehicle Arrangements

This document also sets out the waste vehicle arrangements and sets out the following:

- The waste vehicle access strategy;
- The anticipated type of waste deliveries and the estimated daily frequency of vehicle movements.

SWECO prepared this document in consultation with the NHS Facilities Management team, who will operate an entirely private service for waste, deliveries and servicing at the proposed site.

The proposed waste vehicle access strategy has been identified within pre-application discussion with LBC highways development control officers and have been approved as part of the planning permission.

## 1.4 Document scope

It should be noted that this document considers the scope of waste management for the Development once it is operational, it does not consider waste management during the site construction phases.

Additionally, this document does not detail those elements of facility management required to support the Development including cleaner requirements and FM storage.

## **2. POLICY, STRATEGY AND REVIEW**

### **2.1 Introduction**

This section provides summaries of the waste policy, legislative requirements and guidance that are most relevant to the waste management design and operational requirements for the Development.

### **2.2 European and National Waste Policy, Strategy and Legislation**

#### **2.2.1 EU Waste Framework Directive**

The EU Waste Directive 2008/98/EC outlines the principles for managing waste through the adoption of the waste hierarchy, as well as encouraging the application of the “self- sufficiency” and “proximity” principles when treating waste where appropriate and sustainable to do so. These principles have been adopted within various regulations in EU Member States. The relevant Regulations for England and Wales are detailed below.

#### **2.2.2 The Waste (England and Wales) Regulations 2011**

The Waste (England and Wales) Regulations 2011 transpose the requirements of the European Waste Framework Directive within UK legislation. It sets out the requirements for the collection, transporting, recovery and disposal of waste and makes some changes to the way waste is managed in England and Wales. In summary, the Regulations:

- Require businesses to confirm that they have applied the waste management hierarchy when transferring waste and to include a declaration on their waste transfer note or consignment note.
- Require waste producers to ensure that waste management contractors collecting and/or managing wastes are registered with the Environment Agency as Waste Carriers.
- Require the separate collection of waste paper, metal, plastic and glass as from 1 January 2015 for all commercial properties, although this was subject to judicial review and as long as there was good technology in place to segregate and a materials recovery facility, co-mingled collections were permitted.
- Provide guidance on the strict control of hazardous waste from the point of production to the point of disposal.

#### **2.2.3 Waste Management Plan for England 2013 and Waste Review 2011**

The Waste Management Plan 2013 takes forward the principles of the internationally accepted waste hierarchy and addresses the key challenges for future waste management. The Strategy also identifies that all parts of society (individuals, communities and organisations) are responsible for their own waste. In order to encourage the application of waste management options which are higher up the waste hierarchy, the Strategy has set targets for recycling, composting and reducing household waste. The measures to be taken to ensure that by 2020:

- at least 50% by weight of waste from households is recycled
- at least 70% of waste from demolition and construction to be recycled

The Government reviewed Waste Policy in England in 2011, the Policy Review also included commitments for the promotion of business waste recycling from small and medium sized enterprises, as well as measures to improve the regulation of business waste producers as to how they report waste management activities.

In December 2013 the Government published a Waste Prevention Programme for England. This Programme contains measures to help businesses identify where costs can be saved through introducing waste reduction initiatives, as well as increase awareness on measures which could be implemented to efficiently use resources and prevent waste.

## **2.3 Regional Policy and Strategy**

### **2.3.1 The London Plan 2015 (FALP)**

The London Plan is the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years. The Plan proposes a target to exceed recycling/composting levels for commercial and industrial (C&I) waste of 70% by 2020. The London Plan also states that suitable waste and recycling storage facilities are required in new developments.

### **2.3.2 The Mayor's Business Waste Strategy 2011**

The Mayor's Business Waste Strategy 2011 sets out the Mayor's strategy for meeting the commercial and industrial (C&I) targets set out in the London Plan. The primary focus of the strategy is the promotion of resource efficiency as a means of waste prevention.

A policy proposal to improve storage capacity and collection access arrangements to business premises is also detailed in the Strategy. The Mayor states that he will make use of the planning process, through the London Plan and the Supplementary Planning Guidance on sustainable design and construction, to ensure the provision of appropriate waste storage space in new developments. Local planning authorities will be required to ensure that all planning applications for new developments have provided sufficient space for waste storage space. In addition, an Operational Waste Strategy for new developments should be submitted to show how the potential types and quantities of waste that may be generated can be managed on-site in such a way as to achieve 70% recycling waste.

The waste management provision requirements for new Developments detailed in the Mayor's Business Waste Strategy are applicable to the new UCLH Phase 5 Development. Therefore, waste storage requirements have been considered as part of the design proposals. This document details how waste produced by the Development will be managed. Provision for separate recycling and non-recyclable waste containers has been made at the Development.

## **2.4 Local Policy**

### **2.4.1 Draft North London Waste Plan 2015**

The London Borough of Camden (LBC) is a member of the North London Waste Authority. A draft Waste Plan for the Authority was produced in 2015. It stresses that clinical waste arisings from medical, nursing and dental practices will continue to be sent to the Edmonton clinical waste transfer station. This does not apply to UCLH who use a commercial clinical waste contractor.

The long-term waste management solution is based upon continued use of the existing Edmonton facility until 2025 and the development of a new energy recovery facility on the same site from 2025 onwards. In addition, measures are likely to increase over time to reduce the amount of waste which is sent for hazardous waste disposal.

The Development has included provision for the segregation of different types of clinical wastes, as detailed in Section 2.6.1 below.

#### **2.4.2 The LBC - Core Strategy 2010**

The Core Strategy for the LBC was adopted in 2010 and forms part of the Council's Local Development Framework. The Core Strategy aims to influence planning decisions and shape development within the borough up to 2025.

In terms of waste, Policy CS18 states:

*"The Council will seek to make Camden a low waste borough. We will:*

- aim to reduce the amount of waste produced in the borough and increase recycling and the re-use of materials to meet our targets of 50% by 2020;*
- make sure that developments include facilities for the storage and collection of waste and recycling;*
- deal with North London's waste by working with our partner boroughs in the North London Waste Authority to produce a North London Waste Plan, which will ensure that facilities are provided to meet the amount of waste allocated to the area in the London Plan;*
- safeguard Camden's existing waste site at Regis Road."*

In terms of policy compliance, the Development includes dedicated recycling storage which corresponds with the local recycling collection services offered in the LBC area.

#### **2.4.3 LBC Development Policies 2010-2025**

The LBC Development Policies document forms part of the Council's Local Development Framework (LDF), the group of documents setting out planning strategy and policies. The lead Local Development Framework document is the Core Strategy, which sets out the key elements of the Council's planning vision and strategy for the borough and contains strategic policies.

In terms of waste, Policy DP26 – managing the impact of development on occupiers and neighbours states *"We will require developments to provide facilities for the storage, recycling and disposal of waste"*.

In terms of compliance with Policy DP26, details of the storage facilities for waste and recycling for the Development are provided in Section 3 of this document.

#### **2.4.4 LBC Planning Guidance – CPG 1 Design 2015**

LBC Planning Guidance supports the policies in the Local Development Framework (LDF) and Policy CS18 of the Core Strategy. This guidance is therefore consistent with the Core Strategy and the Development Policies. It forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. Within the guidance, Section 10 provides information on the appropriate storage for waste and recycling in all developments in the LBC.

There are some key messages that developments should accommodate when planning for waste recycling and storage:

- *“adequate space (designed) for the storage of waste and recyclables;*
- *safe location - accessible for all users and collectors and minimises nuisance to occupiers and neighbours (and their amenity space) e.g. noise, obstruction, odours, pests, etc;*
- *refuse collection by any waste contractor (and allow for reasonable changes to collection services in the future);*
- *containers should have designated storage areas; and*
- *sensitively designed/located, especially in conservation areas/or listed buildings.*

The guidance applies to:

- *all new build development;*
- *development that significantly increases the amount of floor space and on-site waste; and*
- *other activities that significantly increase the amount of waste generated on-site.”*

The Development proposals have been produced in accordance with LBC Planning Guidance – CPG 1 Design. Details of storage capacity for waste and recycling containers are detailed in Section 3.3, 3.4 and 5 of this document. A central storage area for waste containers is provided on level 0 (ground floor), of the Development.

#### **2.4.5 The LBC's Waste Storage Requirements 2011**

The LBC have developed a 'Waste Storage Requirements' guide that provides basic information for architects and others with regards to providing waste storage facilities for premises within the LBC. It describes the methods of storage available and the LBC's general requirements.

The document states that:

*“waste management issues can have a major impact on the layout of any residential or non-residential development. To ensure that storage space for the efficient management of waste and recyclable material is incorporated into the final layout it is essential that liaison between planning authorities and architects, as well as collection authorities, takes place. The developer or his agent should reach agreement with all appropriate authorities, particularly upon the following points:*

- *the methods of storage, collection of waste, including recyclable material, to be used for the form of layout and building density adopted;*
- *a designated location for waste including recyclable material storage areas to be provided and means of access to them for waste collection staff and vehicles;*
- *the storage capacity to be provided with allowance for the frequency of collection specified by the collection authority, the volume and nature of waste including recyclable material expected and the size and type of containers to be used;*
- *the responsibility for cleaning and maintenance of storage facilities;*
- *environmental aspects, e.g. air pollution, indoor air quality, noise control, and litter abatement;*



- *means of escape and fire-fighting arrangements in waste & recyclable material storage and collection areas; and*
- *appropriate arrangements for older persons and persons with disabilities.”*

The Development proposals have been produced in accordance with the LBC's Waste Storage Requirements document and details on how each of these requirements is met are provided in Section 3.4, 3.5 and 3.6 of this document.

## **2.4.6 Fitzrovia Area Action Plan**

Fitzrovia is an area where an established residential community lives alongside activities including commercial, university and health uses. LBC has prepared an Area Action Plan (AAP) for Fitzrovia in response to continued significant pressure for development in the area. Principal 9 of the Fitzrovia Area Action Plan states:

*“The Council will have regard to the particular impacts on residential amenity that arise from the dense mix of land uses in Fitzrovia, and will seek:*

- *to prevent cumulative harm to residential amenity from noise, mechanical ventilation, light pollution, deliveries and waste collection.*
- *Offices and educational, medical and research institutions can cause disturbance to residents through servicing, mechanical ventilation and lighting, particularly where these activities take place 24 hours a day or when ambient noise levels are low.”*

Consideration will be given to this principle when scheduling waste container collections at the Development so that activities do not generate noise at nuisance levels to local residential properties.

## **2.5 Other Development Guidance**

### **2.5.1 The Building Regulations 2015**

The Building Regulations 2015 require the following:

#### *‘Solid waste storage – Part H6’*

- (1) Adequate provision shall be made for the storage of solid waste.*
- (2) Adequate means of access shall be provided:*

*For the people in the building to place of storage and; From the place of storage to a collection point.*

In the Secretary of State's view, the requirements of H6 (above), will be met if the solid waste storage area:

- a) *Designed and sited so as not to be prejudicial to health;*
- b) *Of sufficient area having regard to the requirements of the waste collection authority for the number and size of receptacles under Sections 46 and 47 of the Environmental Protection Act 1990;*
- c) *Sited so as to be accessible for use by people in the building and of ready access for removal to the collection point specified by the waste collection authority under Sections 46 and 47 of the Environmental Protection Act 1990."*

Section H6 sets out the general requirements for solid waste storage for domestic and non-domestic developments. The Development proposals have been produced in accordance with the Building Regulations and details on the provision for waste and recycling storage is detailed in Section 3.4, 3.5 and 3.6 of this document.

## **2.5.2 British Standard 5906:2005 Waste Management in Buildings – Code of Practice**

This British Standard (BS) document details the codes of practice for methods of storage, collection, segregation for recycling and recovery of waste from residential and non-residential buildings. The standard is applicable to all new developments including but not limited to retail premises and offices. It details a number of considerations which are required to be made when designing new developments to ensure that waste management storage provision and accessibility, for collection and removal, is appropriate. The waste container store at the proposed development will comply with the requirements of BS5906:2005

## **2.6 Hospital Specific Guidance**

### **2.6.1 Health Technical Memorandum 07-01: Safe Management of HealthCare Waste**

This document, updated in 2013, provides: "advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare."

With regard to designing waste management storage and collection, the guidance recommends that:

*"Healthcare waste receptacles may need to be stored before being transported to treatment/disposal sites. They should not be allowed to accumulate in corridors, wards or other places accessible to unauthorised personnel or members of the public.*

*Arrangements should be made to routinely transport waste from ward level, treatment room or department to a storage area pending collection by a waste contractor."*

The guidance also provides guidance on the specification of bulk waste storage areas, used for the holding of waste receptacles prior to their collection by waste contractors. It recommends that such storage areas should be:

- reserved for healthcare waste only;
- well-lit and ventilated;
- close to any on-site incineration or other disposal facility;

- sited away from food preparation and general storage areas, and from routes used by the public;
- totally enclosed and secure;
- provided with separate storage for sharps receptacles, anatomical and waste medicines, which may need a higher degree of security to prevent unauthorised access;
- sited on a well-drained, impervious hard standing;
- readily accessible but only to authorised people;
- kept locked when not in use;
- secure from entry by animals and free from insect or rodent infestations;
- provided with wash-down facilities;
- provided with washing facilities for employees;
- clearly marked with warning signs;
- provided with separate, clearly-labelled areas for waste that requires, rather than is destined for, different treatment/disposal options;
- provided with access to first-aid facilities;
- appropriately drained to a sewer (with discharge consent). Furthermore, with regard to the sizing of these areas:

*“All bulk stores should have storage capacity to match the proposed frequency of collection. Bank (or other) holidays need to be taken into account and a margin provided for any interruption in the disposal system.”*

During the design phase of the Development, those recommendations detailed in the HTM 07-01 document have been used to inform the waste management storage requirements.

HTM 07-01 provides recommendations for the segregation and separate collection of healthcare waste types based on their properties. Segregation of wastes will facilitate the different treatment requirements of the waste material, based on their infectious or hazardous properties. The Development will adopt the recommended approach for waste segregation during its operational phase, further details of which are detailed in Sections 3.1 and 3.3.

## **2.6.2 Royal College of Nursing: Safe Management of Health Care Waste**

In 2007, 2010 and again in 2018, the Royal College of Nursing issued a guidance document on the appropriate separation and segregation of medical wastes. The information in this document reiterates that which was originally produced in the original version of HTM 07-01. The document identifies two types of medical wastes: hazardous and non-hazardous wastes. These waste types should then be further separated and placed in colour coded receptacles.

The reasoning behind segregation of these wastes types is to minimise the quantity of waste being sent for costly incineration or treatment. This can be achieved by reducing the amount of non-infectious wastes, which are more appropriate to be treated through less costly measures such as recycling or landfill, being sent for costly treatment.

The waste management measures detailed in this document apply these good practice waste segregation measures. In addition to these measures, the Development will further apply the waste hierarchy contained within EU, UK, regional and local Government policy by the provision of waste receptacles for recyclable collection.

### **2.6.3 UCLH Waste Management Policy**

The UCLH Waste Management Policy details the measures which are to be implemented at UCLH buildings to achieve reductions in waste generated. It identifies a number of different waste streams which are expected to be produced by the Trust and how those waste streams should be stored, collected and disposed of. The Policy details how for those wastes collected in colour coded bags and containers at the ward/clinic level, these collections will occur at least once a day or when the containers are at least three quarters full. The colour coding of bags relate to the types of waste material which should be disposed of in these bags, and this is in accordance with NHS Guidance document HTM07-01, as shown in Appendix A of this Waste Management Plan. For those waste types not collected in bags but containers, the Policy details how often these waste types will be collected and how they will be disposed of. The Policy will apply to the waste management practices and operations within the new Development.

### **2.6.4 Policies Impacting Delivery and Servicing**

This Waste Management Plan has also been produced with reference to:

- LB Camden Core Strategy
- The London Freight Plan
- TfL guidance on Delivery and Servicing Plans
- DfT guidance on Delivery Plans

### **2.6.5 LBC Core Strategy**

LBC's Core Strategy Policy CS11 – 'Promoting sustainable and efficient travel' details a requirement for development to promote the sustainable movement of freight and minimise the impact of freight movement on local amenity traffic and the environment through consolidation in particular. This is reinforced within LBC's Development Management Policy DP20 Movement of goods and materials, which states that the council will attempt to minimise the movement of goods and materials by road, by:

- expect development that would generate significant movement of goods or materials both during construction and in operation to minimise the movement of goods and materials by road, and consider the use of more sustainable alternatives such as rail and canal links;
- promote the development and use of freight consolidation facilities and other initiatives with potential to reduce the impact of goods vehicles, and encourage the use of cycle courier services for local deliveries; and
- seek to promote and protect facilities for the movement of goods by rail and water, including facilities for transfer between road, rail and canal.

Policy DP20 also states the council will attempt to minimise the impact of the movement of goods and materials by road by expecting developments to:

- be located close to the Transport for London Road Network or other Major Roads;
- avoid any additional need for movement of vehicles over 7.5 tonnes predominantly residential areas;
- accommodate goods vehicles on site; and

- seek opportunities to minimise disruption for local communities through effective management, including through the optimisation of collection and delivery timings and the use of low emission vehicles for deliveries.

#### **2.6.6 TfL Guidance on Servicing and Delivery Plans**

This document has also been produced in accordance with, The London Freight Plan, Transport for London (TfL) guidance on DSPs and DfT guidance on Delivery Plans, with TfL guidance stating that implementing a delivery and servicing strategy can help organisations:

- Manage deliveries to reduce the number of trips, particularly during the morning peak, thereby reducing congestion
- Identify where safe and legal loading can take place to reduce the potential risk of accidents;
- Commission delivery companies who can demonstrate their commitment to best practice and allow the site to achieve environmental goals including reducing CO<sub>2</sub> emissions; and
- Save money by reducing the unit cost of travel through consolidation.

### 3. WASTE MANAGEMENT PLAN

This section details the provision for waste management storage which has been included within the new Development and provides an overview as to how waste will be managed in the building once operational.

The development is expected to be open 5 days a week, Monday-Friday. If demand is higher than expected, it is anticipated that the site may also become operational during Saturdays. The site will be closed on Sundays and public holidays.

#### 3.1 Waste types

In line with existing UCLH waste management practices and guidance as detailed in Section 2 above; the Development will separate waste in to the following primary waste streams:

- Infectious, hazardous wastes;
- Offensive, non-hazardous wastes;
- Sharps;
- General waste; and
- Recyclable waste.

In addition to these primary waste streams there will be secondary waste streams, which will be produced in much smaller quantities, collected on an ad-hoc basis.

- Confidential wastes;
- Food waste;
- Amalgam, Ad Hoc wastes;

#### 3.2 Operational assumptions

The Development will consist of outpatient services, offices, waiting areas, a café and staff areas. The function of each floor is provided in Table 3.1

Floor	Activity
Basement -3	Plant
Basement -2	Imaging
Basement -1	Minor Procedures
Ground Floor	Entrance, Café and Waiting area
1 <sup>st</sup> Floor	Consultation/Examination Area – Ear, Nose and Throat
2 <sup>nd</sup> Floor	Paediatrics – Consultation and Treatment
3 <sup>rd</sup> Floor	Dental
4 <sup>th</sup> Floor	Dental
5 <sup>th</sup> Floor	Consultation/Examination Area – Ear, Nose and Throat

Waste will be generated from various sources throughout the Development including:

- Consultation / examination rooms / surgery rooms; and
- Non-medical functions i.e. offices, staff area, café area.

It has been assumed that all X-rays carried out the hospital would be digital. It is also assumed that amalgam traps will be placed where required in the dentistry consultation rooms.

### **3.3 Waste Containers**

In line with HTM 07-01 and other existing UCLH operations, all waste, with the exception of sharps, will initially be stored in metal waste or plastic containers (bins) located within the consultation / examination rooms, public and staff areas, as indicated in Section 2. It is recommended that generic white bins are purchased which can be clearly labelled to indicate the waste stream and lined with colour coded sacks to contain the waste.

These containers will be regularly emptied or replaced by facility management staff and the bagged waste will be taken to the Waste Disposal Hold on the floor it is produced. The bagged waste will also be placed within the correct waste container located in the Waste Disposal Hold.

One waste disposal hold will be located on each operational floor, other than the ground floor (which will house the central waste store) and Floor -3 (plant room). Each waste hold will contain one 1,100ltr waste container to store bagged general waste and one 1,100ltr container to store bagged recyclable waste.

Infectious waste will be bagged and tagged using the appropriate UN approved yellow and orange clinical waste bags., Offensive waste will be contained in yellow bags that have one or more black stripes, these are out of scope of the dangerous goods regulations so the bag needs to be fit for purpose rather than UN approved. The bags will be placed in separate 360ltr waste containers also located within each waste disposal hold. These waste containers will be provided by the chosen UCLH waste contractor and will meet British Standard EN 840:2004 design. Where they are to be transported in the road they will meet the test requirements of ADR. They will be maintained by the waste contractor and UCLH staff so that they are kept clean and operationally fit for use.

Sharps will be placed in small receptacles which meet BS EN ISO 23907:2012 and the ADR P621 standard are marked with the UN approved mark and with the Class 6.2 danger label, then stored in a designated 770ltr waste container contained within the central waste hold for overnight collection.

An appropriate level of signage will be provided informing the user of the waste type which is to be placed within each waste clinical cart. This is in order to limit contamination of waste streams in accordance with best practice outlined in Section 2 above. Waste bags will be sealed with a numbered tag to determine the waste type and avoid contamination.

Waste container dimensions are detailed in table 3.2 below:

**Table 3.2. Waste Container Dimensions in Table**

Waste Container Volume	Height (mm)	Width (mm)	Depth (mm)	Height Lid Open (mm)	Space Required
360 Litre	1,070	620	860	1,690	0.57m <sup>3</sup>
1100 Litre	1,370	1,370	800	2,170	1.5m <sup>3</sup>
1100Litre	1,370	1,250	980	2,350	1.68m <sup>3</sup>

Table 3.2 shows that clinical waste bins have a storage volume of 360ltrs. The food waste bins have storage a volume of 770ltrs and the general and recyclable bins each have a storage volume of 1100ltrs.

As required, facility management staff will remove full containers from each Waste Disposal Hold and place them in the central waste hold. The central waste hold will also contain empty bins which will replace the full bins in each waste hold. The operation of this is explained more in Section 3.7.

### 3.4 Waste Production

Existing waste production data has been obtained from the Pre -Acceptance reports produced by ISSL for both hospitals on the dates stated below. These are the two hospitals which will be relocated to form the main part of the new Phase 5 facility. Table 3.3 shows the amount of annual waste which was collected at the RNTNE and EDH during 2016-2017, respectively. This represents the latest information available.

**Table 3.3. Existing Annual Waste Produced by RNTNE and EDH Combined**

Waste Stream	RNTNE Tonnes of waste Produced 2016-2017	EDH Tonnes of waste Produced 2016-2017	Combined Tonnes of waste Produced 2016-2017	Percentage Split
Offensive	4.4t	4.8t	9.2t	3%
Infectious	29.4	27.2	56.6t	17%
General Waste	55.1t	66t	121.1t	39%
General Recycling	58.8t	71t	129.8t	41%
<b>Total</b>	<b>147.7 Tonnes</b>	<b>169 Tonnes</b>	<b>316.7 Tonnes</b>	<b>100%</b>

Table 3.3 shows that recycling forms the main stream (41% of the total), with general waste forming the second highest waste stream (39% of the total). Infectious waste forms 17% of the total waste stream and offensive waste forms the final 3%.

As the RNTNE and EDH are being relocated to the Phase 5 site, a similar amount of waste will be produced at the new Phase 5 development per year.

A volume of 40litres per 4kg bag has been assumed for the production of waste within the development, which is the equivalent to 12,500 litres per tonne. Table 3.4 applies the anticipated amount of waste to the required density.



Table 3.4

	Offensive	Infectious	Landfill	Recyclable	Total Waste
Tonnes per Annum	9.2	56.6	121.1	129.8	361.7
Litres per Annum (1 tonne = 12,500 litres)	115,000	767,000	1,513,750	1,621,250	3,958,750
Litres per day (5-day week = 253day incl. Bank holiday)	454.5	2,796	5,983	6,408	15,647
No of Clinical bins per day (360 ltrs per bin)	1.26	7.76	None	None	N/A
No of bins per day (1100 ltrs per bin)	None	None	5.40	5.80	N/A

Table 3.4 shows that a total volume of 15,647ltrs of waste is likely to be produced per day at the Site. This is equivalent to 1.25tonnes of waste per day.

Table 3.5 applies the predicted amount of waste produced per day to the floor plan assuming a daily collection for all waste streams. The current waste volumes indicate that each bin may not be full each day, but as there is no storage for the bins on the ground floor, an assumption has been made that each one will be emptied on a daily basis.

Table 3.5 Waste Requirements at Site

Floor	360ltr bins required per day Offensive Waste	360ltr bins required per day Infectious Waste	1100ltr bins required per day General Waste	1100ltr bins required per day General Waste	Proposed number of waste containers (in disposal holds per floor)
-2	1	1	1	1	4
-1	1	1	1	1	4
GF	0	0	1 (for Café general use)	1 (for Café general use)	1x 1100ltr general waste. 1x 1100 recyclable waste. (1x 770ltr food waste bin. 1x 770 cart to contain sharps bins Additional provisions for 7x 1100ltr bins (for either recyclable or general waste). Or provision for 14x 360ltr bins (for infectious and non-infectious wastes)
1 <sup>st</sup>	1	1	1	1	4
2 <sup>nd</sup>	1	1	1	1	4
3 <sup>rd</sup>	1	1	1	1	4
4 <sup>th</sup>	1	1	1	1	4
5 <sup>th</sup>	1	1	1	1	4
<b>TOTAL</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>8</b>	

Table 3.5 shows that there is a requirement of 4 bins per waste hold (other than the central hold). On an average day, the Site will produce the equivalent of 5.4 x 1,100ltr bins of general waste, 5.8 x 1,100ltr bins of recyclable waste, 7 x 360ltr bins of clinical (non- infectious) waste and 7 x 360ltr bin of clinical (infectious) waste.

In reality, there will be times where a lesser or greater amount of waste will be produced per day owing to demand fluctuations. In addition, there may be instances where general and recyclable waste will not be collected owing to national holidays. During these instances, there is available capacity for additional waste to be stored, without the need for additional bins.

As the central waste hold is the only hold located on the ground floor, it will also contain provision for general, food and recyclable waste produced by the ground floor uses, including the café. It also contains a sharps bin, for central sharps collection.

Drawing 116338-TP-3006-01 shows the proposed layout of the waste bins in each waste hold, other than the ground floor.

Drawing 116338-TP-3006-02 shows the general layout of the ground floor central waste bin store, outside of waste collection times.

### **3.5 Waste Disposal Holds**

The locations of Waste Disposal Holds are shown within the floor plans for the Development included within this application's submission. Provision of Waste Disposal Holds within the Development's design has been determined in conjunction with UCLH facility management staff. The waste holds are located in proximity to service lifts. The lifts are designed to accommodate 2 waste bins at any given time.

Each Waste Disposal Hold has been designed to accommodate the following waste containers:

- 1 x 1,100ltr General waste container;
- 1 x 1,100ltr Recycling waste container;
- 1 x 360ltr Offensive clinical waste container;
- 1 x 360ltr Infectious clinical waste container; and

The waste disposal holds have been designed to accommodate the required amount of waste, as discussed in the previous section. This includes an additional footprint to allow a person to pass between the waste containers and the wall and also enables each waste container to be removed from the Waste Disposal Hold.

The door(s) to each Waste Disposal Hold are sized to allow a 1,100ltr waste container to enter and exit, and will also be lockable to prevent unauthorised access. Each Waste Disposal Hold will have an appropriate level of wall protection, to avoid structural damage.

### **3.6 Central Waste Store**

Waste containers will be collected regularly by the designated facility management staff from the Waste Disposal Holds throughout the Development and transferred to the Central Waste Store. The Central Waste Store is located on level 0 (ground floor) of the Development, close the loading bay.

The Central Waste Store will contain either full or empty waste containers for storage either before they are collected by the waste contractor or prior to being distributed to the Waste Disposal Holds.

The Central Waste Store will hold waste containers in demarcated areas, according to the waste type (infectious clinical waste inc Sharps / non-infectious clinical waste / general waste, food waste and recyclable waste). Demarcation could be in the form of a separating structure or painted lines on the floor, the latter being more flexible to any future changes to operational requirements. A container washing facility for domestic and recycling waste carts will be provided and located in a safe operating area in the central waste hold. Clinical and offensive waste bins will be cleaned by the waste contractor.

Doors on the Central Waste Store will be sized to allow a 1100ltr waste container to pass through. Access will be restricted to those persons approved by UCLH. The Central Waste Store will have an appropriate level of wall protection to avoid structural damage caused by the movement of waste containers.

### **3.7 Waste Collection Strategy**

The proposed typical daily waste collection strategy for all waste streams is staged as follows:

1. Late afternoon: checks made to ensure all bagged waste in surgery rooms, staff areas, general areas and the café has been transferred to the waste holds on each floor for collection.
2. Evening: 14 x Full clinical waste bins (7 x containing hazardous and 7 x containing non- infectious offensive waste) are transferred from waste holds on each floor to the central waste hold on the ground floor for out of hours collection.
3. Out of hours: Clinical waste vehicle arrives. 14 x empty clinical waste bins are transferred from the clinical waste vehicle into the loading bay. The 14 x full clinical waste bins contained within the ground floor central waste hold are transferred to the clinical waste vehicle for collection. The 14 x empty clinical waste bins in the loading bay are transferred into the central waste hold for distribution
4. Early morning: 14 x empty clinical waste bins are transferred from the central waste hold to the waste holds on each floor.

Drawing 116338-TP-3006-03 shows the proposed strategy for clinical waste collection.

5. Morning: 8 x 1100ltr full general waste bins are transported from each waste hold to the central waste store for collection. Depending on the time of general waste collection, the full general waste bins are transferred from the central waste hold to the loading bay for collection. The general waste collection vehicle will park on Shropshire Place. The full bins are emptied. The empty bins are then returned to the loading bay. Site staff will then transfer the empty general waste bins to the central bin store for cleaning (if required). Empty general waste bins are then transferred to the relevant waste hold on each floor.
6. Morning: 8 x 1100ltr full recycling waste bins are transported from each waste hold to the central waste store for collection. Depending on the time of recycling waste collection, the recycling waste bins are transferred from the central waste hold to the loading bay for collection. The recycling waste collection vehicle will park on Shropshire Place. The full bins are emptied. The empty bins are then returned to the loading bay. Site staff will then transfer the empty recycling waste bins to the central bin store for cleaning (if required). Empty recycling waste bins are then transferred to the relevant waste hold on each floor.

Drawing 116338-TP-3006-04 shows the proposed strategy for general waste / recyclable waste collection.

#### 7. Stage 1 recommences, as above

The exact waste collection times will be agreed closer to the site occupation date. The above sequencing assumes that the general waste collection would take place before the recycling collection. However, if recycling collection is to take place before general waste collection, then stages 5 and 6 above would switch.

Food waste from the café will be collected on an ad-hoc basis.

The Central Waste Store is 22.2m<sup>2</sup> and has been designed to accommodate the required provision as shown in Table 3.5.

The Central Waste Store will be cleaned regularly, and any detritus will be removed to prevent accumulation. In times of contingency, where additional capacity is required for the storage of waste containers as a result of missed collections, or significant increases in waste arisings, waste containers can be temporarily stored in the loading bay.

### **3.8 Waste movements in the Development**

Clinical and offensive waste containers will be removed and replaced daily. It is planned that general and recyclable waste containers are also emptied daily. The waste transfer sequencing as discussed in Section 3.7 will be implemented, from site occupation.

On each relevant floor of the Development, the Waste Disposal Hold is located in close proximity to the lift core. This was designed to limit the distance the waste containers will be required to travel between lifts and Waste Disposal Holds.

Prior to collection, the waste container the waste bins will be removed from the Waste Disposal Hold and transferred by staff via the lift. The lift is specified so that they are sized to accommodate two 1,100ltr waste containers with adequate space for a person. Waste containers will be transported in the lifts to level 0 (ground floor) where they will be placed in the Central Waste Store for collection.

Infection prevention and control measures will be implemented in the Development so that food, clean linen or clinical items which are required to be kept in a clean environment would not be distributed throughout the building using the same lifts in which waste containers are transported.

In the case of confidential waste, the contractor will empty the receptacles containing confidential waste from their locations throughout the Development.

### **3.9 Waste collection frequency**

It is anticipated that one delivery will occur per day for each major waste stream. It is assumed that all clinical waste containers will be collected after closing during the night and replaced with empty clinical waste containers from the clinical waste vehicle. These empty containers will be placed back in the central waste hold to be distributed throughout the development during the night.

A waste container containing collected sharps bins will be collected for removal on an ad hoc basis when there is an appropriate amount to warrant scheduling a collection.

All daytime waste collections will, where possible, be arranged with the selected waste contractor to occur outside of peak traffic times. In practice this would be before 8.30am, and after 6.30pm.

The collection frequency of other secondary waste streams will be scheduled by the Development's facility management staff and will be determined by:

- the levels of waste generation; and
- the amount of time that materials can be stored prior to removal without causing an environmental nuisance.

### **3.10 Waste Collection Vehicles**

General and recyclable waste will be collected using 6.6m long refuse vehicles. This service may be provided by the local authority or an appointed waste contractor. As previously discussed, there will be separate collections of general waste and recyclable waste. The collection times of these are to be confirmed but are anticipated to take place every morning the hospital is open, outside of peak traffic hours.

Waste collection for general and recyclable waste will occur from the Shropshire Place, as shown in drawing 116338-TP-3006-04. Shropshire Place is proposed to become a shared surface as part of LB Camden's West End Project proposals. All goods and waste collection vehicles will reverse down Shropshire Place, as in the approved Framework Waste Management Plan.

### **3.11 Other Waste Types**

#### **3.11.1 Dental waste**

During the dental procedures that will be carried out in the hospital, amalgam waste will be generated; this contains mercury so needs to be dealt with separately from other wastes. It is unlikely that this waste will be generated in large quantities however small containers will need to be placed in each of the dental procedure rooms for this waste to be collected.

Amalgam traps will also need to be placed on the sinks in the procedure rooms to ensure the waste amalgam does not go into the drainage system.

#### **3.11.2 Food waste**

Food waste produced from the café and food preparation areas has the potential to be collected separately. Currently UCLH is examining the potential for the separate collection of this waste stream to be sent for recycling or recovery.

The provision of a 770ltr food waste bin is provided in the central waste store.

It is likely that kitchen caddies, similar in size to those widely distributed to households for food waste collections, will be placed in areas where food waste is produced or collected. These full caddies would be transferred and emptied in to a larger container within the Central Waste Store. If a food waste scheme was introduced in the Development it would be collected on a daily basis, given the potentially odorous nature of the waste.

### **3.11.3 Ad Hoc waste**

Sufficient space is provided in the loading bay, central waste store and the disposal hold in basement level -1 for any ad-hoc waste e.g electrical waste, faulty equipment etc. The collection of such waste would need to be arranged as and when required.

### **3.11.4 Waste management contractors**

All waste will be collected for disposal/recycling by a licensed waste management contractor and taken to a suitably permitted waste management facility. This will be put in place by UCLH prior to the building becoming operational.

Site facilities management staff will be expected to oversee the transfer of waste operations. Drivers arriving at the site to collect waste, will work to a pre-arranged schedule. This will allow waste to be stored at the correct location, at the correct time. In addition, it will prevent waste from being held within the waste holds for longer than necessary.

## 4. CONCLUSION

This Waste Management Plan, has been prepared on behalf of the University College London NHS Foundation Trust (UCLH) to release planning condition PP6 associated with the approved planning permission reference 2015/1281/P for the production of the site waste management plan, which is to be agreed prior to Site occupation.

Sufficient waste storage provision has been provided on site to not only cater for the anticipated demand of waste from the site, but also provide for any unexpected increases in waste. The anticipated levels of waste production have been calculated. Existing waste production data has been obtained from the pre-acceptance reports produced by ISSL for both hospitals on the dates stated, detailing information on the amount of waste produced by the existing Royal Nose Throat and Ear Hospital and Eastman Dental Hospital.

A waste store will be provided on each floor, other than floor -3 (plant). The central waste store at ground floor will also be used as a location for storing full bins prior to collection and empty waste containers, post collection.








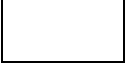
The site facilities management team will ensure that waste is transferred between each communal (including the café), surgery and office area and placed in the relevant waste storage facilities within each waste store, prior to collection. They will also ensure waste is transferred between the waste holds on each floor and the central waste store, both before and after collection.

The development will have a dedicated internal service yard accessed from Shropshire Place which will be used for general servicing during the day time and for night time collections of clinical waste. This will be undertaken by the selected UCLH waste contractor.

This document and supporting drawings have demonstrated the operational waste strategy is compliant with national, local and NHS Trust policy.

## APPENDICES

### Appendix A – Waste Colour Coding

Colour	Description
 <b>YELLOW</b>	Waste which requires disposal by incineration Indicative treatment/disposal required is incineration in a suitably permitted or licensed facility.
 <b>ORANGE</b>	Waste which may be “treated” Indicative treatment/disposal required is to be “rendered safe” in a suitably permitted or licensed facility, usually alternative treatment plants (ATPs). However, this waste may also be disposed of by incineration.
 <b>PURPLE</b>	Cytotoxic and cytostatic waste Indicative treatment/disposal required is incineration in a suitably permitted or licensed facility.
 <b>YELLOW / BLACK</b>	Offensive/hygiene waste* Indicative treatment/disposal required is landfill or municipal incineration/energy from waste at a suitably permitted or licensed facility.
 <b>RED</b>	Anatomical waste for incineration <sup>1</sup> Indicative treatment/disposal required is incineration in a suitably permitted facility
 <b>BLACK</b>	Domestic (municipal) waste 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. Clear/opaque receptacles may also be used for domestic waste.
 <b>BLUE</b>	Medicinal waste for incineration <sup>1</sup> Indicative treatment/disposal required is incineration in a suitably permitted facility
 <b>WHITE</b>	Amalgam waste for recovery

1. The use of yellow/black for offensive/hygiene waste was chosen as these colours have historically been universally used for the sanitary/offensive/hygiene waste stream.
2. The colours “red” and “blue” are new to the colour-coding system in this edition. Care should be taken when ordering red containers to ensure that they can be clearly differentiated from orange. The colour coding could be agreed as part of a contract specification.



Appendix B – CGI Activities per Floor

