

Fallowfield, University of Manchester

Operational Waste Management Plan

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1 Introduction

1.1 Introduction

Buro Happold have been appointed by John Graham Construction Ltd. to provide an Operational Waste Management Plan (OWMP) in support of the University of Manchester (UoM) Fallowfield Student Residences (hereafter referred to as the proposed development). This is to accompany a Reserved Matters Application for consideration of appearance, layout, scale and landscaping, pursuant to Outline Planning Permission Ref. 138126/OO/2023 for the redevelopment of the Site to deliver up to 3,300 Purpose Built Student Accommodation (PBSA) bedrooms alongside associated facilities and ancillary accommodation. In particular, the OWMP seeks to address Condition 36a relating to provision of a written scheme for the storage and disposal of refuse. The proposed development is shown in Figure 1-1.



Figure 1-1 Site Plan for the redevelopment of UoM Fallowfield Student Residences (Sheppard Robson Architects)

Within this report the following sections will be covered:

- **Introduction** – This section outlines the purpose of the report and further outlines the principles of the waste hierarchy and circular economy which have been followed to ensure sustainable design in regard to waste management.
- **Waste management policy and guidance** – This section details the policies from both a national and local context which have been reviewed and adopted into the waste management design.
- **Waste generation forecasts** – This section details the expected waste quantities expected once the development is operational.
- **Waste strategy** – This section outlines the waste strategy from point of generation to waste collection once the development is operational, split into the following key land uses:
 - Residential accommodation
 - Central Hub
 - Satellite hubs
- **Summary** – This section summarises the document and outlines the next steps in order to proceed with the development.
- **Appendices** – The appendices show the Manchester City Council waste proforma and waste vehicle swept path analysis.

1.2 Waste hierarchy and circular economy

The development of a sustainable waste management strategy for the proposed development will conform with a wide range of recognised design principles and international guidance to ensure the building can operate as efficiently as possible, and assist in achieving the following aspirations:

- Provide suitable waste storage spaces according to the collection frequency, waste generating activities and waste streams collected
- Reduce travel distances for staff to waste storage areas as much as feasibly possible, to increase efficiency and encourage the proper segregation and disposal of waste materials
- Ensure waste storage and collections are safe for staff
- Support operators in achieving high levels of recycling through waste segregation, adopting the waste hierarchy and circular economy illustrated in Figure 1-2 and as much as possible by prioritising re-use, recycling and recovery.



Figure 1-2 The waste hierarchy and circular economy

2 Waste management policy and guidance

2.1 Introduction

This section summarises the relevant national, regional and local policies to consider as part of this OWMP. Further detail is provided in Appendix A.

2.2 National context

Legislation

- Environmental Protection Act 1990 (Part II)
- Directive 1999/31/EC on the landfill of waste (Landfill Directive)
- Directive 2008/98/EC on Waste (Waste Framework Directive)
- Waste (England and Wales) Regulations 2011 (amended)
- National Planning Policy for Waste - Ministry of Housing, Communities and Local Government (2014)
- Building Regulations 2010 Drainage and Waste Disposal 2015 Edition (HM Government, 2015)
- Environmental Permitting (England and Wales) Regulations 2016 (amended)
- Our Waste, Our Resources: A Strategy for England - Department for Environment, Food and Rural Affairs (2018)
- The Waste (Miscellaneous Amendments) (EU Exit) (No.2) Regulations 2019
- The Waste (Circular Economy) (Amendment) Regulations 2020
- The Circular Economy Package: Policy Statement (Department for Environment, Food and Rural Affairs, 2020)
- National Planning Policy Framework - Ministry of Housing, Communities and Local Government (2024)
- Environment Act 2021
- Waste Management Plan for England - Department for Environment, Food and Rural Affairs (2021)
- 25 Year Environment Plan - Department for Environment, Food and Rural Affairs, 2023
- Waste Prevention Programme for England (Department for Environment, Food and Rural Affairs, 2023)
- The Environmental Targets (Residual Waste) (England) Regulations 2023
- Environment Act 2021 – UK Parliament (2021) (Commencement No. 9 and Transitional Provisions) Regulations 2024 (Simpler Recycling to be implemented in 2025)

2.3 Regional context

- The Greater Manchester Joint Waste Plan - Greater Manchester Combined Authority (GMCA) (2012)

- The Greater Manchester Joint Minerals Plan - GMCA (2013)
- Manchester Climate Change Framework 2020-25 - Manchester Climate Change Agency (2022)

2.4 Local context

- Guide to Development in Manchester SPD Guidance – Manchester City Council (MCC) (Adopted 2007)
- Manchester Core Strategy - MCC (2012 to 2027) (Adopted 2021)
- Places for Everyone Joint Development Plan – MCC (2021) (Adopted 2024)
- GD04 Waste Storage and Collections Guidance for New Developments – MCC (2023)
- Manchester Green and Blue Strategy – MCC (2015 to 2025)
- Our Manchester Strategy: Forward to 2025 – MCC (2016)
- Manchester Residential Quality Guidance – MCC (2017)

In addition to the local guidance reviewed above, an engagement meeting with a waste officer from the Manchester City Council (15 January 2025) to provide an initial opportunity for any comments or feedback on the proposed waste management strategy and provide an opportunity to demonstrate good practice. The feedback was positive, and the strategy continued to follow the principles demonstrated in the meeting as a result. The waste management strategy proforma also requested by MCC is included in Appendix B.

2.5 Other relevant waste guidance

To supplement the above local codes and standards, it is intended that the design aligns with international good practice standards for waste and the following codes and standards may be of relevance:

- BS 5906:2005 Waste Management in Buildings – Code of Practice.
- UK MHCLG: Building Regulations 2010 Part H6 – Drainage and waste disposal.
- Association of Directors of Environment, Economy, Planning and Transport (ADEPT) - Designing Waste Management in New Developments: A Practical Guide for Developers and Local Authorities.

2.6 University of Manchester

- UoM Sustainability Strategy 2023-2028 - University of Manchester (2023).

3 Waste generation forecasts

To ensure that waste is managed in an environmentally sustainable manner in line with national policy detailed in Section 2, it is key to understand the quantity and type of waste that is to be generated by the proposed development. As such, this section will outline the estimated waste generation forecasted within a typical operational week, and the methodology used to estimate the waste generation and composition.

3.1 Methodology

For student residential properties, source data provided from the University of Manchester's (UoM) Operational Waste Strategy (2017) has been used to estimate waste generation, in line with the previously submitted illustrative masterplan. Further benchmarks have been sourced for the satellite hubs and Central Hub using averages of existing developments with a similar operational land use. All benchmarks are listed in Table 3-1.

Table 3-1 Waste generation and composition benchmarks

Land use	Waste generation	Residual	Paper & cardboard	Mixed dry recycling*	Food	Glass	Source
Student residential	65.1 litres/week	60%	17%	17%	7%	-	UoM (2017)
Bar / restaurant	2.8 kg/m ² /week	22%	21%	11%	18%	27%	Average of three UK based restaurant/bars
Study space	0.043 kg/m ² /week	29%	25%	26%	20%	-	Average of ten UK offices (2022)

* Mixed dry recycling hereafter references the recyclable wastes collected as dictated by waste contractor, with paper/cardboard removed, typically household plastics, metals and glass.

Waste generation benchmarks and compositions are multiplied by the relevant factor (i.e. number of students or m²) to produce waste generation forecasts for each element of the proposed development. In order to ensure an appropriate amount of waste storage is provided within the proposed development's designs, waste generation forecasts in mass (kg/week) are converted to volume (litres/week) using appropriate density conversion factors for each waste stream. While the UoM's most recent data available on composition has been used as a benchmark, the UoM should still continue to increase their recycling rates in line with local and national guidance. Additional storage resilience as covered in Section 4.3 has been provided to enable this.

3.2 Waste generation forecast

Based on the above methodology, it is estimated that approximately 233,000 litres of waste will be generated per week by the proposed development. The total breakdown of waste is shown in Table 3-2.

Table 3-2 Waste generation forecast

Block	Land use	Land use metric	Waste generation forecast (litres/week)					
			Residual	Paper & cardboard	Glass	Dry mixed recycling	Food	Total
1	Residential	104 students	4,038	1,124	0	1,117	489	6,768

Block	Land use	Land use metric	Waste generation forecast (litres/week)					
			Residual	Paper & cardboard	Glass	Dry mixed recycling	Food	Total
2	Residential	99 students	3,844	1,070	0	1,063	466	6,443
3	Residential	205 students	7,959	2,215	0	2,202	965	13,341
4	Satellite hub	333 m ²	33	17	0	40	9	99
5	Residential	206 students	7,998	2,226	0	2,213	969	13,406
6	Residential	103 students	3,999	1,113	0	1,106	485	6,703
7	Residential	98 students	3,805	1,059	0	1,053	461	6,378
8	Satellite hub	291 m ²	29	14	0	35	8	86
9	Residential	252 students	9,784	2,723	0	2,707	1,186	16,399
10	Central hub	2223 m ²	4,256	2,397	1,568	3,039	1,439	12,699
11	Residential	259 students	10,055	2,799	0	2,782	1,219	16,855
12	Residential	102 students	3,960	1,102	0	1,096	480	6,638
13	Residential	110 students	4,271	1,189	0	1,182	518	7,158
14	Residential	115 students	4,465	1,243	0	1,235	541	7,484
15	Satellite hub	247 m ²	24	12	0	30	7	73
16	Residential	102 students	3,960	1,102	0	1,096	480	6,638
17	Residential	104 students	4,038	1,124	0	1,117	489	6,768
18	Residential	277 students	10,754	2,993	0	2,975	1,304	18,026
19	Residential	229 students	8,891	2,475	0	2,460	1,078	14,903
20	Satellite hub	264 m ²	26	13	0	32	7	78
21	Residential	255 students	9,900	2,756	0	2,739	1,200	16,595
22	Residential	103 students	3,999	1,113	0	1,106	485	6,703
23	Residential	115 students	4,465	1,243	0	1,235	541	7,484
24	Residential	102 students	3,960	1,102	0	1,096	480	6,638
25	Residential	115 students	4,465	1,243	0	1,235	541	7,484
26	Satellite hub	271 m ²	27	13	0	33	8	80
27	Residential	117 students	4,542	1,264	0	1,257	551	7,614
28	Residential	103 students	3,999	1,113	0	1,106	485	6,703
29	Residential	103 students	3,999	1,113	0	1,106	485	6,703
Total	-	-	135,540	38,971	1,568	39,492	17,375	232,946

* Glass proposed to be source segregated for the Central Hub only

4 Residential accommodation waste strategy

4.1 Overarching strategy

The principles of the operational site wide waste management strategy for the student residences are as follows:

- **Point of generation** – waste generated in each building will be separated at source into a minimum of four streams (residual waste, paper and cardboard, dry mixed recycling, food waste). Waste streams are to be provided within 3 integrated compartments in the kitchen, in addition to a food waste caddy on the countertop.
- **Point of generation to waste storage rooms** – students will move waste from point of generation to waste storage rooms containing bins located on the ground floor throughout the day
- **Waste storage rooms to bin collection points** – Facilities Management (FM) staff will move bins to temporary bin presentation areas within the public realm on collection days. A refuse vehicle will directly pick up waste from a temporary bin presentation area. Bins will be returned directly to their respective waste storage rooms

The student residential waste management strategy is shown illustratively in Figure 4-1.



Figure 4-1 Student residential waste management strategy

4.2 Waste segregation and internal storage

Waste will be segregated into four primary waste streams within the residential accommodation blocks: residual, paper and cardboard, dry mixed recycling and food waste. The University of Manchester currently collect all the listed waste streams in most areas within the current campus. To future proof the design and waste management strategy for incoming legislation such as the Simpler Recycling directive, source segregation of food waste has been incorporated. The waste stream segregation is shown illustratively in Figure 4-2.

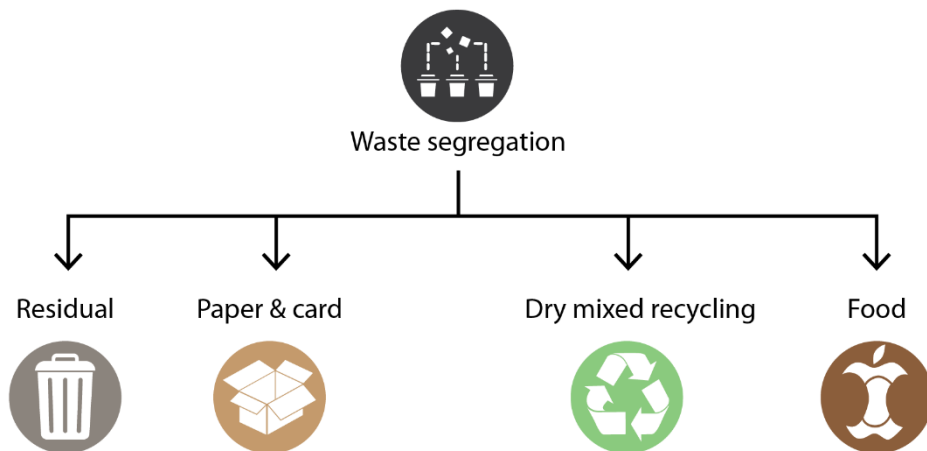


Figure 4-2 Residential accommodation waste stream segregation

In order to encourage the maximum segregation and increase recycle, it has been encouraged that the following factors be considered in the internal bin design:

- Internal bin volume** – It is recommended that bins should be big enough to cater for typical student problematic items (e.g. pizza boxes). In tandem, bins should also not be over sized to allow for students to be able to carry wastes and put them into high sided 1,100L wheeled bins. For this reason, it is recommended that internal waste bins should ideally not be sized to over 50L each.
- Appropriate apertures** - For recyclable waste streams, it is recommended that bins provided utilise appropriately shaped apertures to discourage students from adding the wrong waste types (e.g. slits for cardboard/paper, round holes for mixed recyclables). Any designs in which items can be balanced on top of should be avoided where possible/
- Food waste segregation** - To allow for the capture of food waste as per the simpler recycling directive, internal bins such as food waste caddies should be provided (see Figure 4-3)



Figure 4-3 Example of food waste caddy

- **Internal communications** – Internal University of Manchester waste communications should mirror local authority campaigns and signage which utilise clear messaging about what goes in each bin. Student halls are one of the first opportunities to embed waste behaviours in future local citizens so should be seen as an opportunity. Provision of incentives such as competitions should be explored.

4.3 Waste storage and collection frequency

All waste streams are anticipated to be collected from ground floor waste stores a minimum of twice per week (every 3.5 days). However, a total storage capacity of four and a half days' waste generation has been allowed for in the case of missed collections, bank holidays etc.

It is anticipated that throughout the year, additional specialist waste streams will be required to be collected such as bulky wastes. Any additional waste streams will be collected on an ad-hoc basis, in addition to skips used for the increase of bulky wastes coinciding with the start and end of terms. This will be managed by the UoM or subsequent employed FM team.

All residential waste will be stored within ground floor waste stores dedicated for each block. Total bin numbers required for each store have been calculated using the waste generation forecasts outlined in Section 3, and taking into account the twice weekly waste collection and 4.5 days' storage capacity as detailed in Section 4.2. The resultant bin numbers and indicative waste store layouts are shown in the following sections.

To allow for the washing of bins and waste stores, all waste stores have been fitted with a bib tap suitable for the connection of a hose and floor gulleys for drainage, as coordinated with the mechanical engineer. All waste stores also will have full louvred doors and we have mechanical extract ventilation to disperse and prevent build-up of fumes and provide a well-ventilated space.

4.3.1 Neighbourhood 1

Neighbourhood 1 consists of residential blocks (01, 02, 03, 05 and 06) and block 04 which is a satellite hub. The waste management strategy for satellite hubs is outlined in Section 6. Table 4-1 details the number of bins required within the ground floor waste stores, all of which have been overlaid on top of the architectural layouts (07/02/2025) in Figure 4-4 and Figure 4-5.

Table 4-1 Neighbourhood 1 bin numbers

Block	Number of bins required per store				
	Residual (1,100L)	Paper & cardboard (1,100L)	Mixed dry recycling (1,100L)	Food (240L)	Total
Block 1	3	1	1	2	7
Block 2	3	1	1	2	7
Block 3	5	2	2	3	12
Block 5	5	2	2	3	12
Block 6	3	1	1	2	7

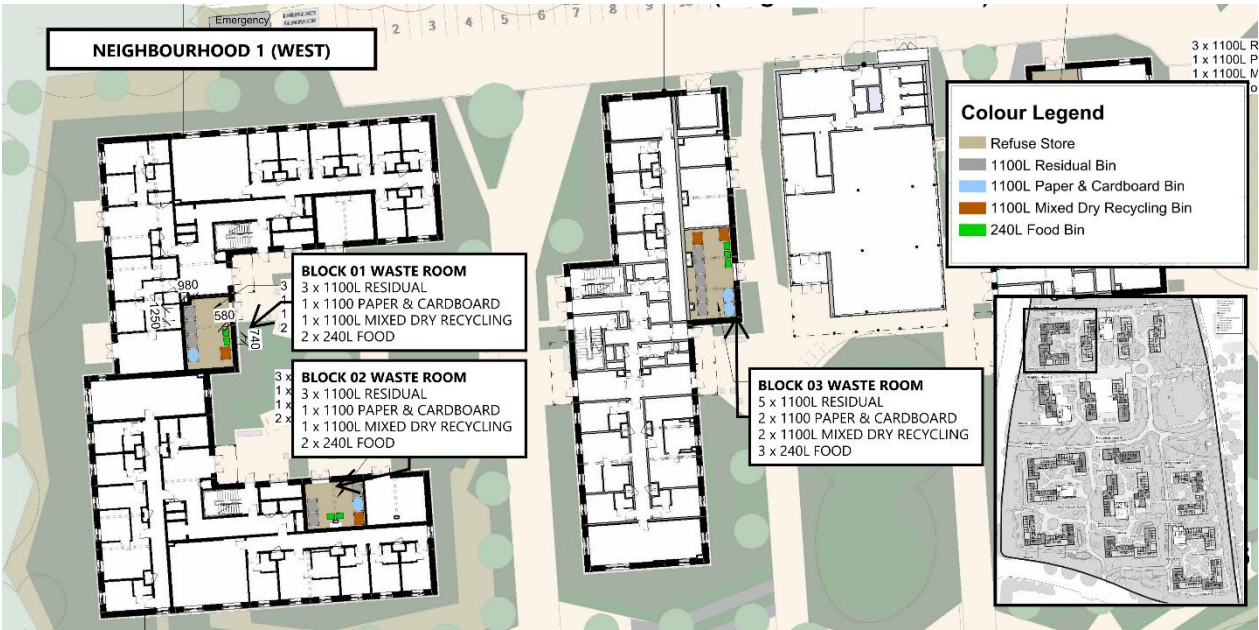


Figure 4-4 Neighbourhood 1: Blocks 01, 02, 03 waste stores

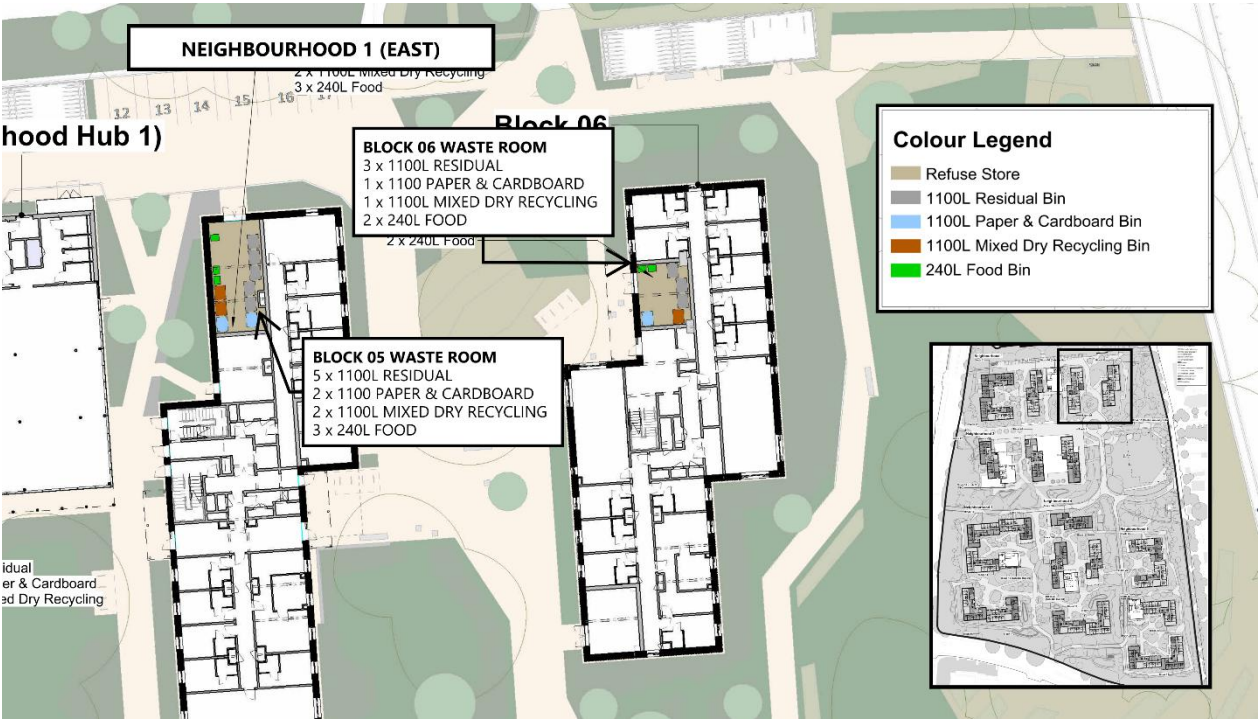


Figure 4-5 Neighbourhood 1: Blocks 05, 06 waste stores

4.3.2 Neighbourhood 2

Neighbourhood 2 consists of residential blocks (07, 09 and 11), block 08 (which is a satellite hub) and block 10 which is the Central Hub. The waste management strategy for the Central Hub is outlined in Section 5. Table 4-2 details the number of bins required within the ground floor waste stores, all of which have been overlaid on top of the architectural layouts in Figure 4-6 and Figure 4-7.

Table 4-2 Neighbourhood 2 bin numbers

Block	Number of bins required per store				
	Residual (1,100L)	Paper & cardboard (1,100L)	Mixed dry recycling (1,100L)	Food (240L)	Total
Block 7	3	1	1	2	7
Block 9	6	2	2	4	14
Block 11	6	2	2	4	14

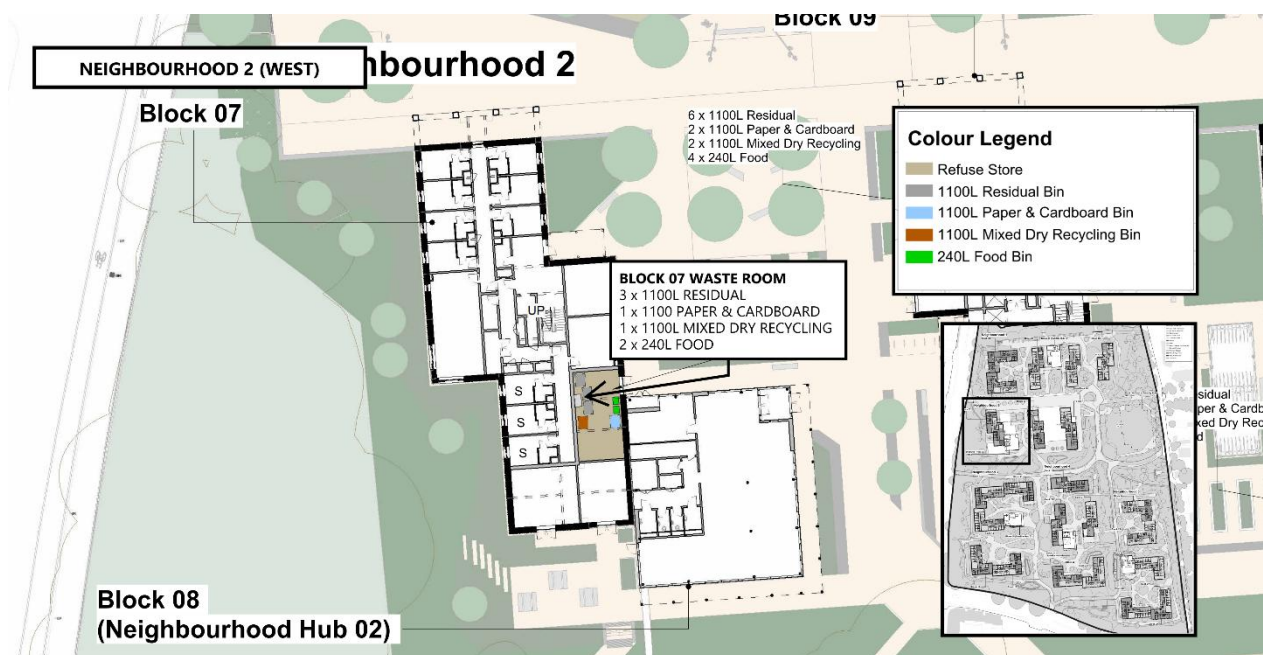


Figure 4-6 Neighbourhood 2: Block 07 waste store

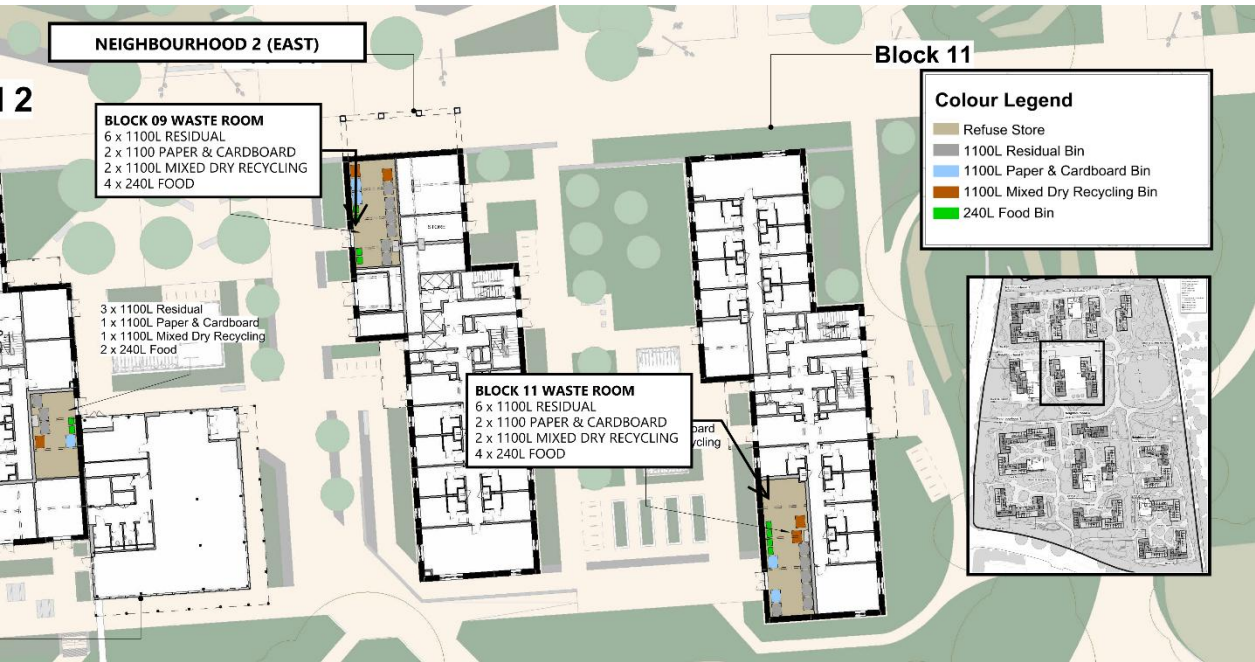


Figure 4-7 Neighbourhood 2: Blocks 09, 11 waste stores

4.3.3 Neighbourhood 3

Neighbourhood 3 consists of residential blocks (12, 13, 14, 16 and 17) and block 15 (which is a satellite hub). Table 4-3 details the number of bins required within the ground floor waste stores, all of which have been overlaid on top of the architectural layouts in Figure 4-8 and Figure 4-9.

Table 4-3 Neighbourhood 3 bin numbers

Block	Number of bins required per store				
	Residual (1,100L)	Paper & cardboard (1,100L)	Mixed dry recycling (1,100L)	Food (240L)	Total
Block 12	3	1	1	2	7
Block 13	3	1	1	2	7
Block 14	3	1	1	2	7
Block 16	3	1	1	2	7
Block 17	3	1	1	2	7

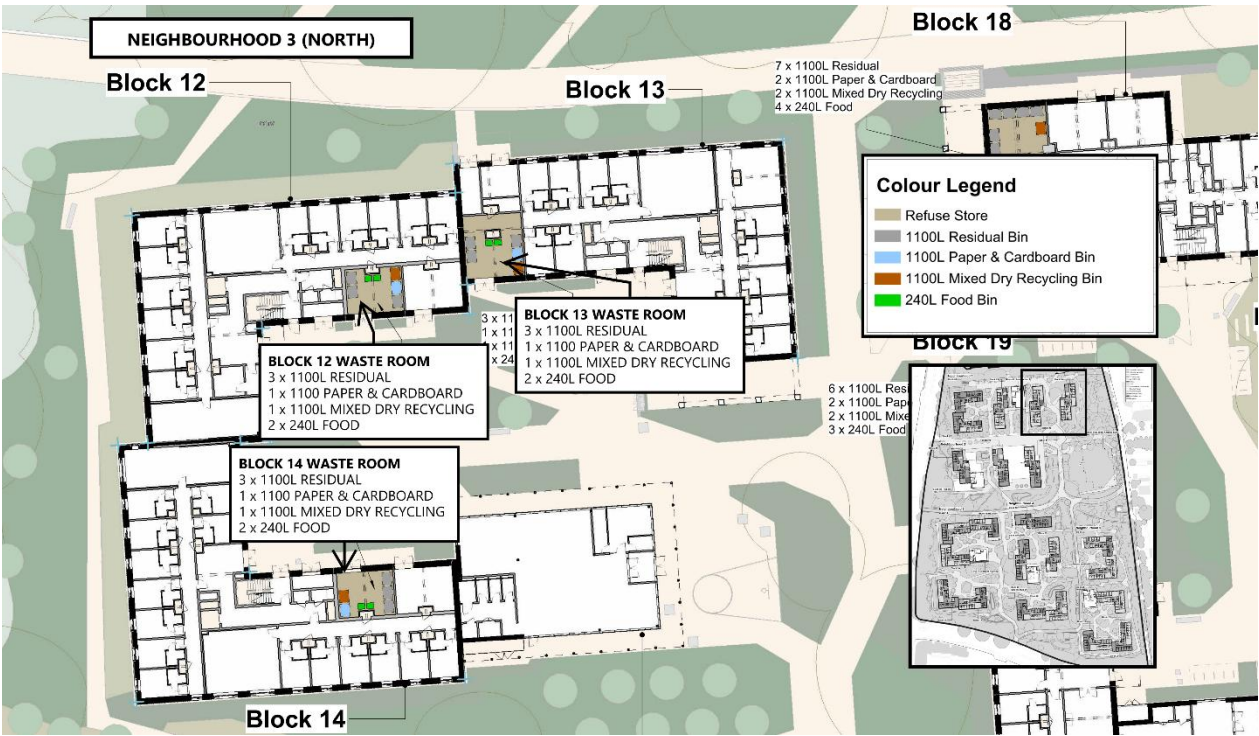


Figure 4-8 Neighbourhood 3: Blocks 12, 13, 14 waste stores

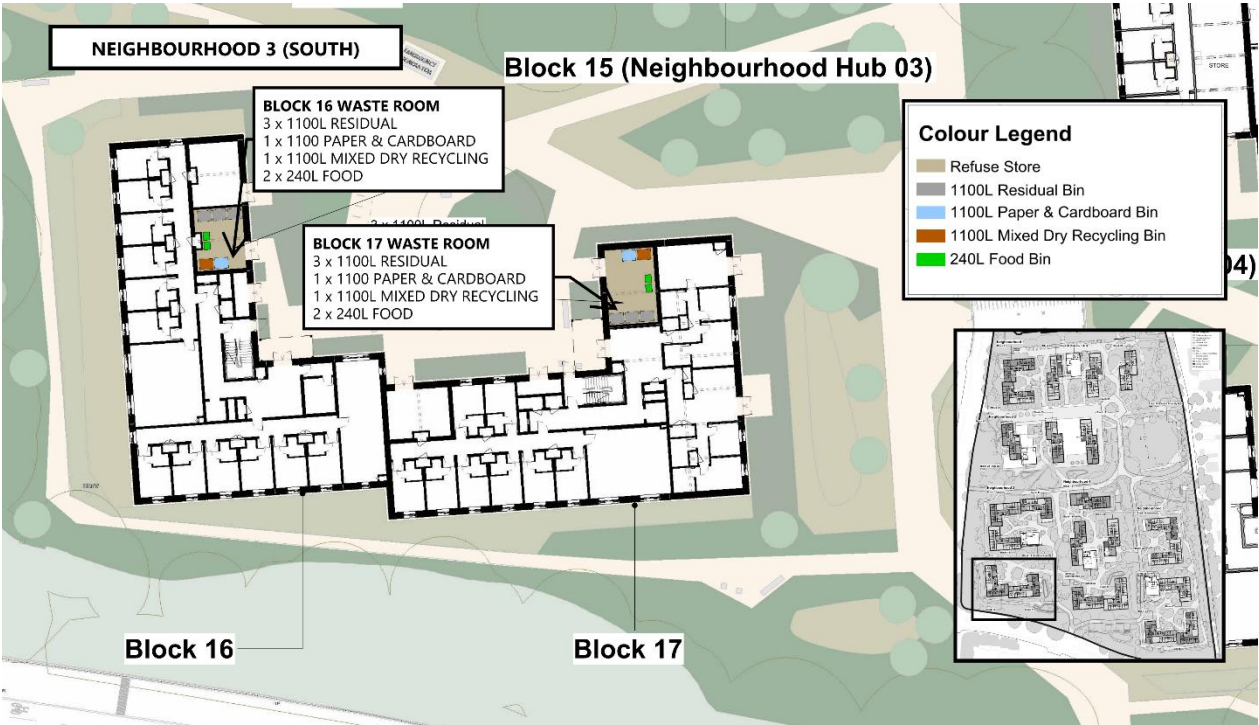


Figure 4-9 Neighbourhood 3: Blocks 16, 17 waste stores

4.3.4 Neighbourhood 4

Neighbourhood 4 consists of residential blocks (18, 19, 21, 22 and 23) and block 20 (which is a satellite hub). Table 4-4 details the number of bins required within the ground floor waste stores, all of which have been overlaid on top of the architectural layouts in Figure 4-10 and Figure 4-11.

Table 4-4 Neighbourhood 4 bin numbers

Block	Number of bins required per store				
	Residual (1,100L)	Paper & cardboard (1,100L)	Mixed dry recycling (1,100L)	Food (240L)	Total
Block 18	7	2	2	4	15
Block 19	6	2	2	3	13
Block 21	6	2	2	4	14
Block 22	3	1	1	2	7
Block 23	3	1	1	2	7

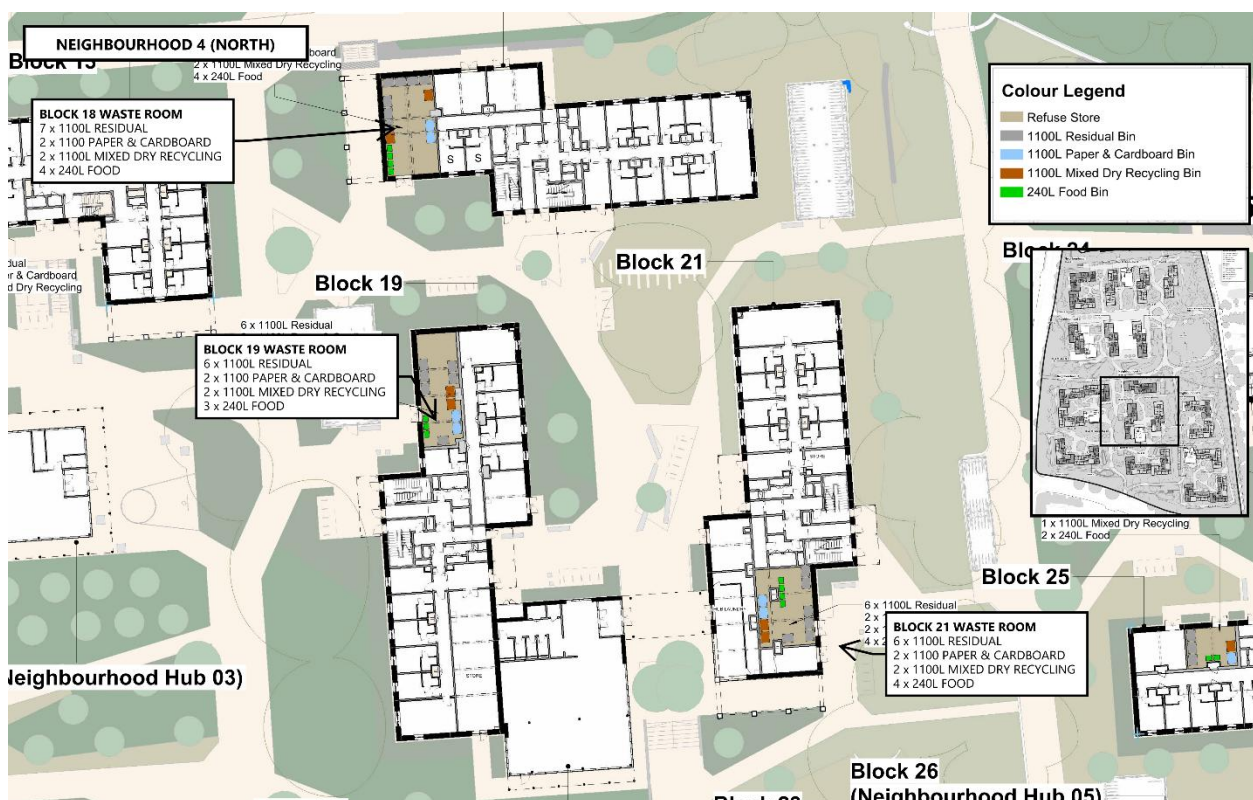


Figure 4-10 Neighbourhood 4: Blocks 18, 19, 21 waste stores

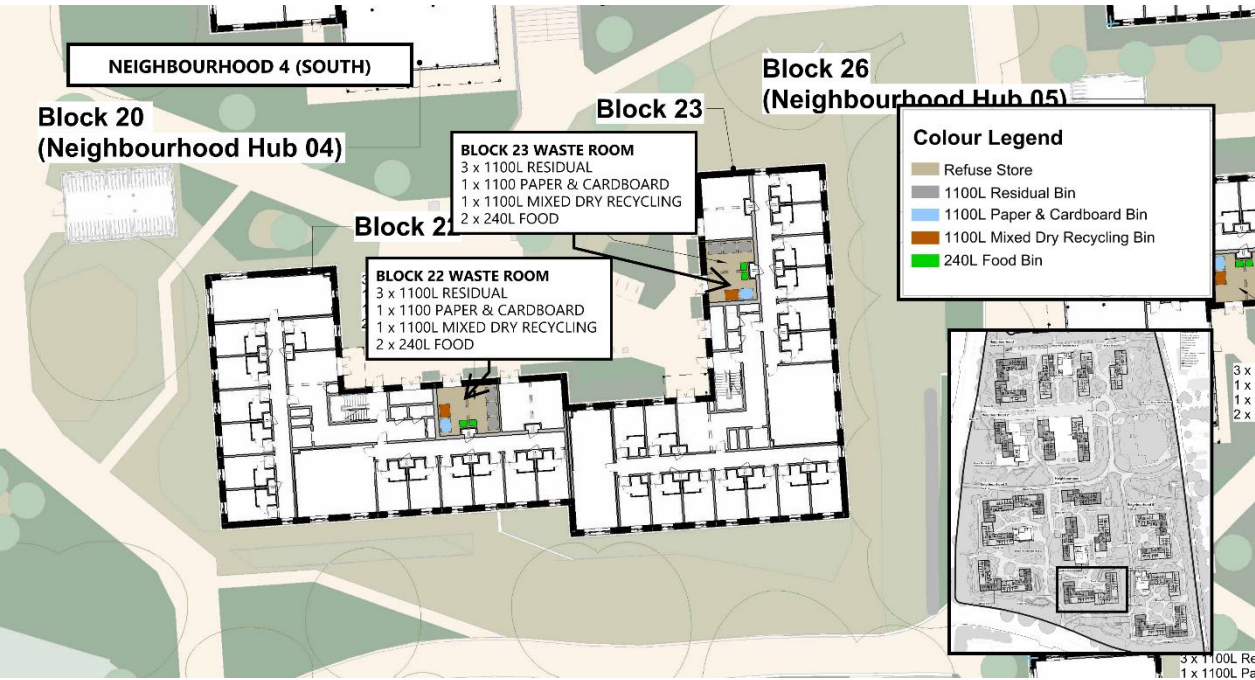


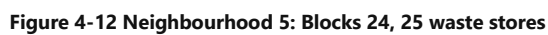
Figure 4-11 Neighbourhood 4: Blocks 22, 23 waste stores

4.3.5 Neighbourhood 5

Neighbourhood 5 consists of residential blocks (24, 25, 27, 28 and 29) and block 26 (which is a satellite hub). Table 4-5 details the number of bins required within the ground floor waste stores, all of which have been overlaid on top of the architectural layouts in Figure 4-12 and Figure 4-13.

Table 4-5 Neighbourhood 5 bin numbers

Block	Number of bins required per store				
	Residual (1,100L)	Paper & cardboard (1,100L)	Mixed dry recycling (1,100L)	Food (240L)	Total
Block 24	3	1	1	2	7
Block 25	3	1	1	2	7
Block 27	3	1	1	2	7
Block 28	3	1	1	2	7
Block 29	3	1	1	2	7



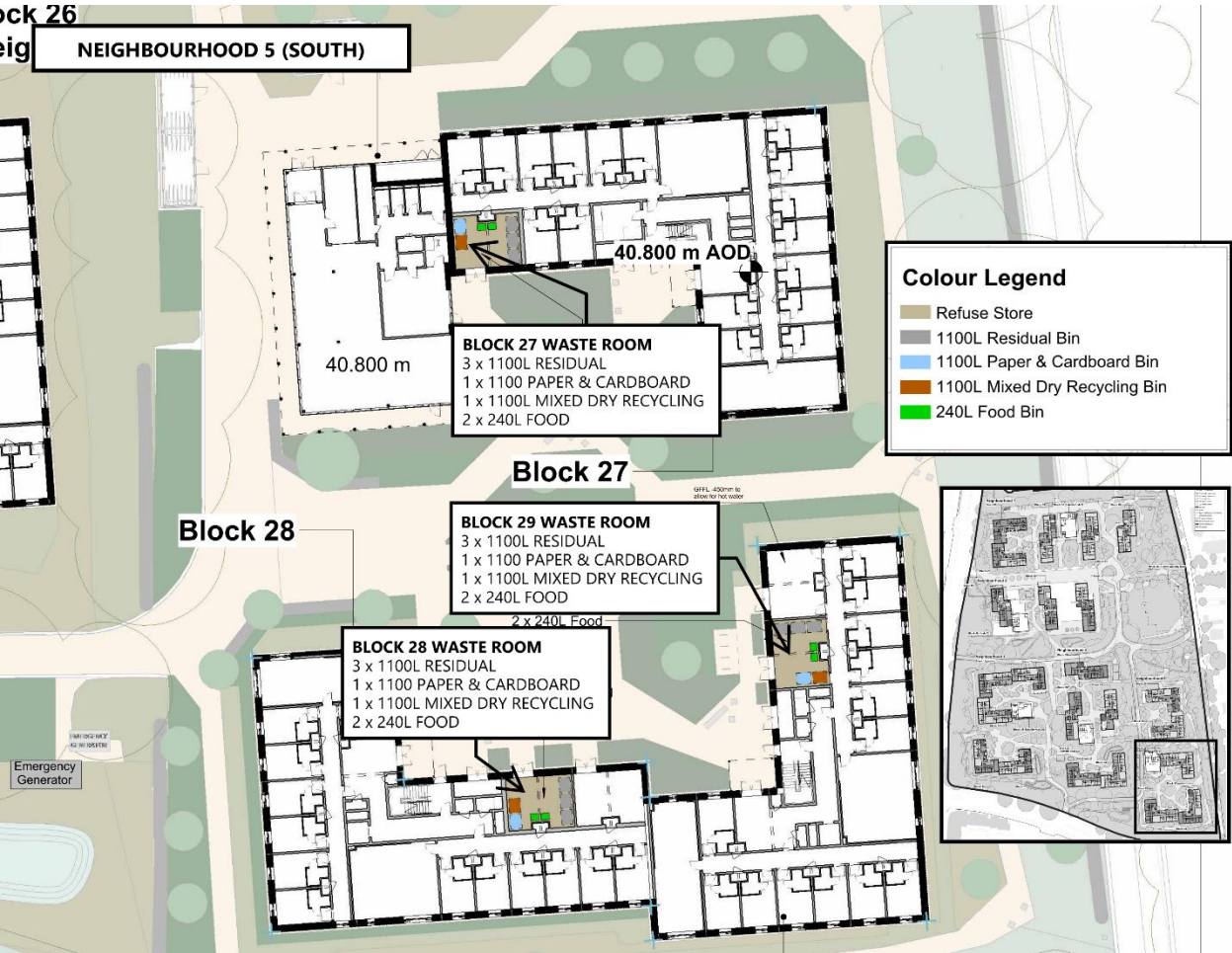


Figure 4-13 Neighbourhood 5: Blocks 27, 28, 29 waste stores

4.4 Waste collection

On waste collection days, the appropriate waste streams will be moved from ground floor waste stores to temporary bin presentation points by FM staff, as shown in Figure 4-14 to facilitate a safe and efficient waste collection. The laborious movement of bins which could risk manual handling injuries is reduced by allowing the waste vehicles onto the campus.

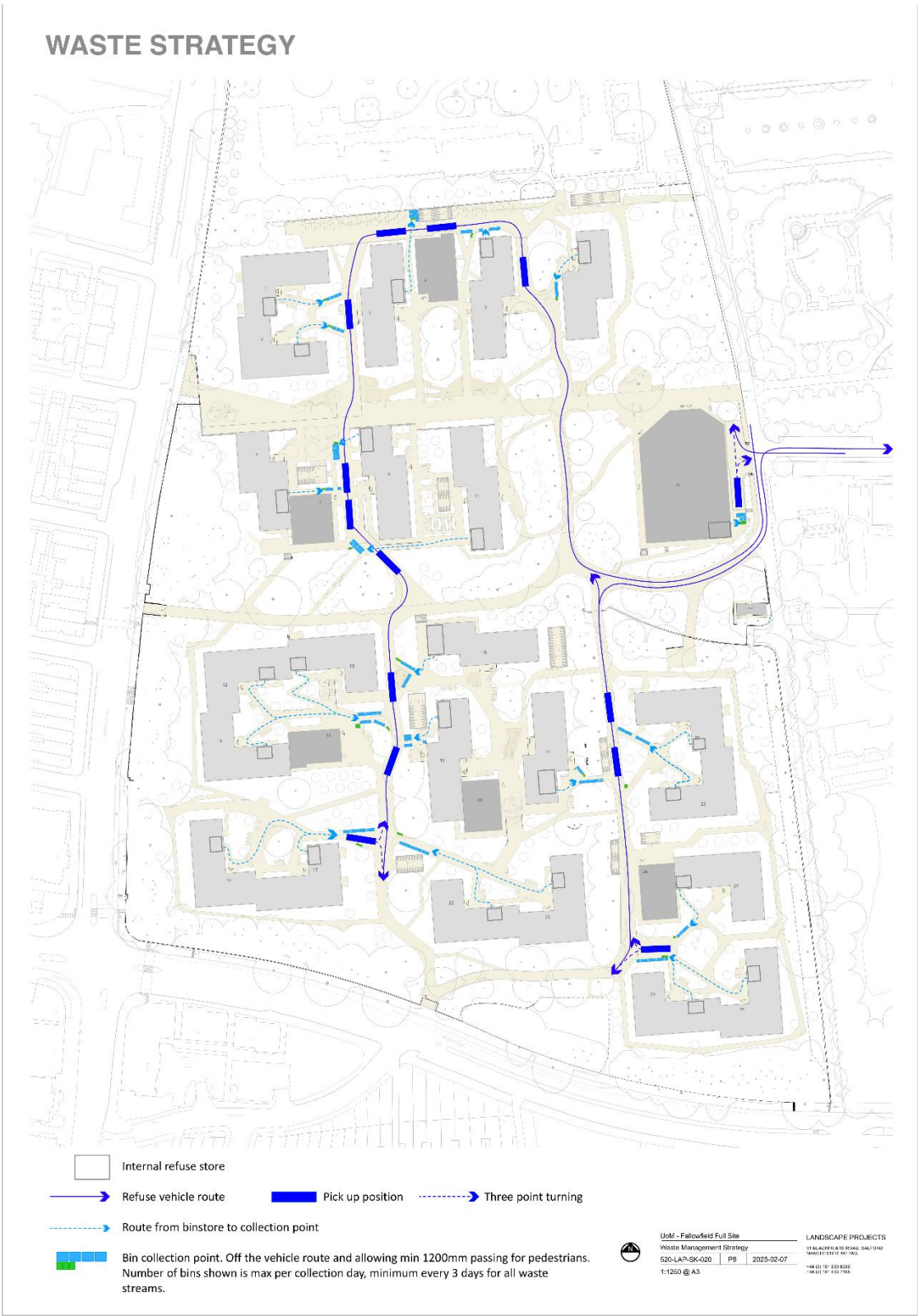


Figure 4-14 Waste collection strategy

Once bins are in temporary bin presentation points, external waste contractors will enter the site via Whitworth Lane and use the waste collection route shown in Figure 4-14 to collect waste bins. It is understood that the current site utilizes a private waste collection contractor and which is expected to continue for the proposed development. Swept path analysis has taken place for the suggested route and is shown in Appendix C. For further detail on waste vehicle movements, refer to the Delivery and Servicing Management Strategy (DSMS).

5 Central Hub waste strategy

5.1 Overarching strategy

The Central Hub is proposed to be a space for students to gather, socialise and study. Within this building, the following land-uses are provided:

- Student bar
- Served
- Office spaces
- Bookable rooms

As such it is expected that the Central Hub will generate waste from the above land-uses. This section of the OWMP outlines how waste will be managed, stored and collected within the proposed development.

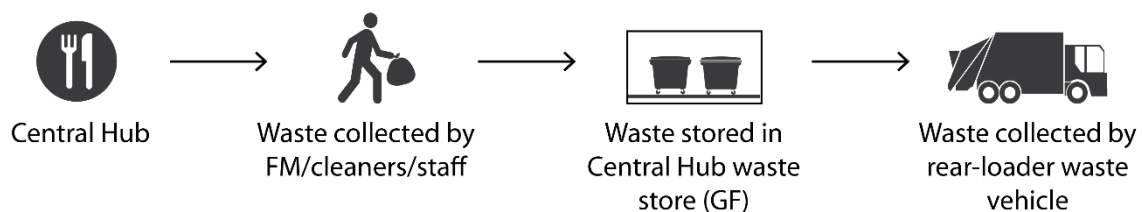


Figure 5-1 Central Hub waste management strategy

5.2 Waste segregation

In line with the simpler recycling (2024) regulations and the MCC Waste Guidance for New Developments document (2023), it is proposed that waste should be segregated into a minimum of residual waste, food waste, paper/cardboard and dry mixed recyclables including plastics and metals. In addition, due to the provision of a bar within the proposed development, it is also recommended that glass should be source segregated within this land use. The proposed waste stream segregation is shown within Figure 5-2. The Central Hub is expected to generate 12,795 litres of waste per week.

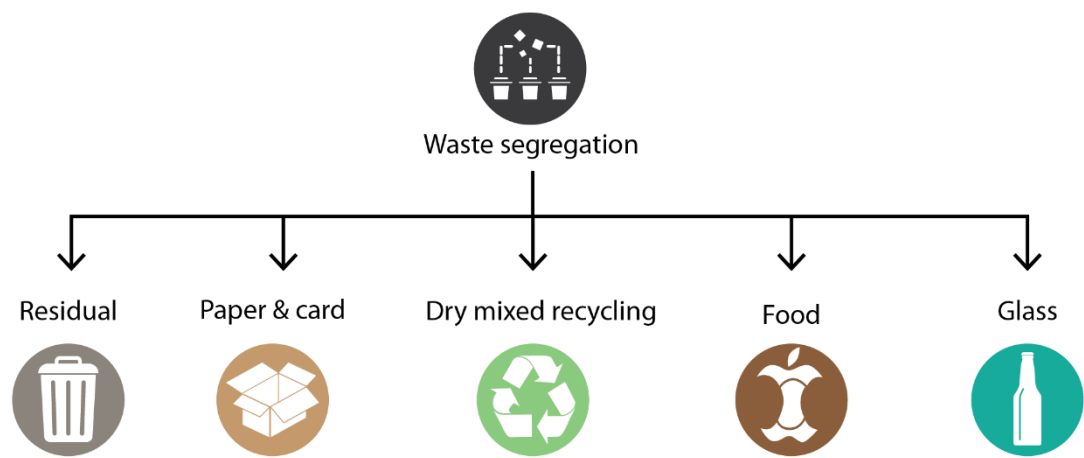


Figure 5-2 Central Hub waste segregation

5.3 Waste storage and collection

Waste will be collected within each land use in source segregated bins within the building. Once collected in public realm bins, waste will be collected by cleaners of Facilities Management staff as required and transported to the central waste store located on the ground floor of the Central Hub.

At the central waste store, source segregated waste will be stored within 1,100L or 240L bins. The proposed number of bins to be stored within the proposed development are outlined in Table 5-1.

Table 5-1 Central Hub waste storage requirement

	Number of bins required per store				
Residual (1,100L)	Paper & cardboard (1,100L)	Glass (240L)	Mixed dry recycling (1,100L)	Food (240L)	Total
2	1	3	2	3	11

A total waste store of 29m² has been provided for the segregation and storage of wastes shown in Table 5-1. The waste store allows for all waste streams to be collected a minimum of three times per week (i.e. 3 days’ storage capacity). However, it is proposed that all waste streams should be planned to be collected more frequently than this (e.g. daily or every other day). On collection days, bins can be directly collected from the waste store as shown in Figure 5-3. The waste vehicle collection path has also undergone swept path analysis, the assumptions of which have been outlined previously in Section 4.4. Waste vehicle swept path analysis for the Central Hub is shown in Appendix C.

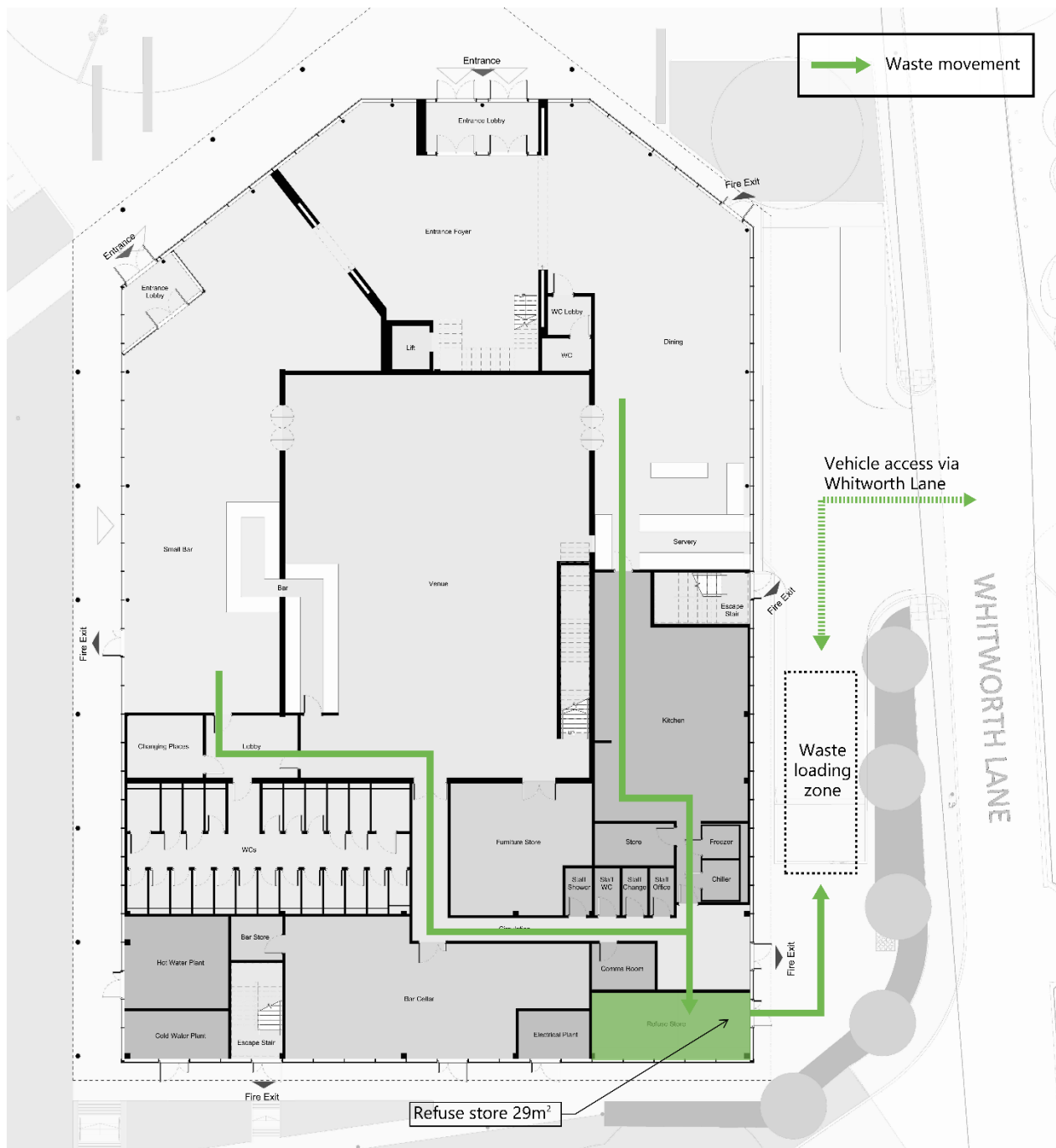


Figure 5-3 Central Hub waste strategy (GF)

It is also noted that landscape waste such as leaves and clippings etc will be generated and fluctuate throughout the year. It is proposed that this waste should be managed as part of the UoM's wider landscaping strategy, and be supported by the area of existing hard-standing South of the Central Hub and to the North of Block 24 has been retained for use as a potential storage of landscaping waste and composting for use by the grounds maintenance team. It is currently accessed from the North by a vehicular access road allowing maintenance vehicles access.

6 Satellite hub waste strategy

As previously stated, there are five satellite hubs within the proposed development, primarily to be used as study areas for students. A low level of operational waste is expected to be generated by the study areas. The overarching waste management strategy is shown illustratively in Figure 6-1.



Figure 6-1 Satellite hub waste management strategy

The expected waste generation is outlined in Table 6-1. It is expected that waste will be source segregated into internal waste bins in each of the study areas. Throughout the day waste will be collected from bins as required by FM staff and disposed of in the nearest adjacent block store as identified in Table 6-1. Each block waste store has been sized to accommodate the capacity of waste generated within each adjacent satellite hub. Once waste is stored within the satellite hub, it will be stored and collected as per the strategy outlined in Section 4.

Table 6-1 Satellite hub waste generation

Neighbourhood hub	Block	Waste generation (litres/week)					Adjacent storage location
		Residual	Paper & cardboard	Dry mixed recyclables	Food	Total	
Hub 1	Block 4	33	17	40	9	99	Block 3
Hub 2	Block 8	29	14	35	8	86	Block 7
Hub 3	Block 15	24	12	30	7	73	Block 14
Hub 4	Block 20	26	13	32	7	78	Block 21
Hub 5	Block 26	27	13	33	8	80	Block 27
Total		138	70	170	40	417	

7 Summary

The Operational Waste Management Plan has summarised the expected waste generation and composition for the proposed development at the Fallowfield campus. Based on the expected waste forecast and review of relevant waste policy and guidance at a national, regional and local level, a plan for the segregation, storage and collection of waste has been developed.

The proposed collection plan for the 232,000 litres of waste generated includes the segregation of waste into a minimum of residual, paper/cardboard, mixed dry recycling and food waste streams in line with current and future policy direction. All wastes are to be stored in wheeled bins within ground floor storage rooms and collected by a rear-loader waste vehicle throughout the site.

Appendix A Waste management policy and guidance

A.1 National context

Environmental Protection Act 1990 (Part II)

Part II of the Environmental Protection Act 1990 sets out a regime for the regulation and licensing of the acceptable disposal of controlled waste (any household, industrial and commercial waste) on land. Unauthorised or harmful depositing, treatment or disposal of controlled waste is prohibited and enforced by criminal sanctions. Further, there is a broad duty of care on importers, producers, carriers, keepers, treaters or disposers of controlled waste to prevent harmful activities. The Proposed Development would fall under this duty of care. It also states that local authorities have a duty to collect controlled waste and to undertake recycling. Businesses who fail to co-operate with local authorities' arrangements will be subject to criminal penalties.

Directive 1999/31/EC on the landfill of waste (Landfill Directive)

The Landfill Directive aims to prevent and reduce any possible negative effects on the environment from the landfilling of waste. In order to do this, the Landfill Directive sets minimum standards for the location, design, operation and construction of landfills. It also sets targets for the diversion of biodegradable municipal waste and controls the nature of waste accepted for landfill (e.g. banning flammable wastes).

Directive 2008/98/EC on Waste (Waste Framework Directive)

The Waste Framework Directive sets out basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. It also sets out basic waste management principles: it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

The principles that the Waste Framework Directive introduces are "polluter pays principle", "extended producer responsibility" and the "waste management hierarchy". The Waste Framework Directive also requires that States adopt waste management plans and waste prevention programmes.

Waste (England and Wales) Regulations 2011 (amended)

The Waste (England and Wales) Regulations 2011 work towards implementing the revised EU Waste Framework Directive (2008/98) relating to some key components of waste operations; collection, recovery, transport and disposal of waste materials. They also address the application of additional responsibilities to the contents of transfer notes, the introduction of a two-tier system for the registration of waste carriers and brokers, further amendments to hazardous waste controls and also the omission of certain categories of waste from waste controls.

National Planning Policy for Waste - Ministry of Housing, Communities and Local Government (2014)

The document aims to support the UK's waste ambitions of engaging communities to take responsibility of their waste and enabling reuse and recovery of materials. This document also outlines requirements for waste infrastructure within new developments such as the provision of the segregation, storage, and collection of waste.

Building Regulations 2010 Drainage and Waste Disposal 2015 Edition (HM Government, 2015)

The HM Government Building regulations detail waste disposal requirements and relevant legislation for both domestic and non-domestic land uses, including the relevant design requirements.

Environmental Permitting (England and Wales) Regulations 2016 (amended)

The Environmental Permitting (England and Wales) Regulations 2016 transpose fifteen directives of varying subject matters to set out an environmental permitting and compliance regime that applies to various activities and industries. To the extent of their relation to waste, they impose and regulate environmental permitting for activities such as landfill, incineration, mining and general waste operations. Before plans are finalised, the EA will be liaised with in relation to the environmental permits required.

Our Waste, Our Resources: A Strategy for England - Department for Environment, Food and Rural Affairs (2018)

This overarching strategy for England sets out a roadmap on preserving materials resources by minimising waste, promoting resource efficient and the government's vision for moving towards a more circular economy. This strategy will contribute to the delivery of five strategic ambitions:

- Work towards all plastic packaging placed on the market being recyclable, reusable or compostable by 2025;
- Work towards eliminating food waste to landfill by 2030;
- Eliminate avoidable plastic waste over the lifetime of the 25 Year Environment Plan;
- Double resource productivity by 2050; and
- Eliminate avoidable waste of all kinds by 2050.

The Waste (Miscellaneous Amendments) (EU Exit) (No.2) Regulations 2019

The regulations amend 12 domestic waste regulations which implement different European directives related to waste management to ensure the waste regime can continue to operate after the UK leaves the EU, including the directives outlined below.

The Waste (Circular Economy) (Amendment) Regulations 2020

The Waste (Circular Economy) (Amendment) Regulations 2020 (SI 2020/904), transpose the EU's 2020 Circular Economy Package (2020 CEP) in England and Wales. These Regulations implement for England and Wales, and partially implement for Scotland and Northern Ireland, six amending EU Directives in the field of waste, namely Directives (EU) 2018/849, (EU) 1999/31 (EU) 2018/850, (EU) 2018/851, (EU) 2018/852, (EU) 2020/362 and (EU) 2020/363.

The amending Directives cover packaging and packaging waste, landfill of waste, end-of life vehicles (ELVs), batteries and accumulators and waste electrical and electronic equipment (WEEE).

The Circular Economy Package: Policy Statement (Department for Environment, Food and Rural Affairs, 2020)

The Circular Economy Package identifies steps for the reduction of waste and the establishment of a credible long-term path for waste management and recycling. Many of the themes and provisions covered within the Circular Economy Package relate to areas of resources and waste policy where the UK nations are already actively involved through existing measures or work underway to take forward commitments made in their respective domestic waste strategies. Furthermore, the bulk of the 2020 Circular Economy Package measures are relatively small technical changes and/or the implementing legislation simply adopts the same wording as that of the Directive. The UK

government has also stated that the departure from the EU will not weaken any current or future environmental protections planned.

National Planning Policy Framework - Ministry of Housing, Communities and Local Government (2024)

The National Planning Policy Framework (NPPF) notes that the purpose of the planning system is to contribute to the achievement of sustainable development. The document identifies three dimensions to sustainable development, with an environmental dimension being one. As part of the environmental role, the document notes that efforts must be made to minimise waste generation and increase re-use and recycling. In the NPPF it is stated that during the planning stages of development, recycled or secondary materials should be prioritised over the use of primary material. waste accepted for landfill (e.g. banning flammable wastes).

The Environmental Targets (Residual Waste) (England) Regulations 2023

This regulation specifies 'the residual waste long-term target' in section 1 of the Environment Act 2021. The target is a matter within the area of resource efficiency and waste reduction. It sets out a target that by the end of 31st December 2042 the total mass of residual waste for the calendar year 2042 does not exceed 287 kilograms per head of the population in England.

25 Year Environment Plan - Department for Environment, Food and Rural Affairs, 2023

The 25-year environment plan sets out the Government's long-term policy for improving the environment within a generation. It includes commitments to double resource productivity, reach zero avoidable waste by 2050 and eliminate avoidable plastic waste by 2042, amongst other targets.

Waste Prevention Programme for England (Department for Environment, Food and Rural Affairs, 2023)

The Waste Prevention Programme for England articulates the actions for government and for others which result in reduced waste arisings and increased resource efficiency. The aim of the Programme is to improve the environment and protect human health by supporting a resource efficient economy, reducing the quantity and impact of waste produced whilst promoting sustainable economic growth. This consultation is now closed and the feedback from all respondents is undergoing analysis.

Environment Act 2021 – UK Parliament (2021) (Commencement No. 9 and Transitional Provisions) Regulations 2024 (Simpler Recycling to be implemented in 2025)

This legislation aims to provide more streamlined collection from all households, businesses and relevant non-domestic premises (such as schools and hospitals). It sets that all waste is to be segregated into 4 bins are; Residual (non recyclable waste), food waste (mixed with garden waste if appropriate), paper and card and all other dry mixed recyclable material. This is the maximum default for waste segregation. However, local authorities and waste collectors have the flexibility to make the best choice to suit local needs. The simpler recycling plan is as follows:

- Paper and card should be collected separately, by default.
- Local flexibility to co-collect paper and card with other recyclables remain, only if technically or economically impracticable, or provide no environmental benefit.

Local authorities and other waste collectors can offer more separate containers for different types of materials if they see fit

A.2 Regional context

The Greater Manchester Joint Waste Plan - Greater Manchester Combined Authority (2012)

As part of their Statutory Development Plan, the Association of Greater Manchester Authorities produced their Waste Plan which provides a spatial planning framework to deliver sustainable waste management in Manchester to 2027. The main objectives are to promote the waste hierarchy and ensure their waste growth does not increase to the same degree as their economic growth. Waste management systems should also provide flexibility to allow for new technologies and emerging systems, as well as protect the quality of life of communities and the natural environment. The plan also identifies the existing waste infrastructure within Manchester and the gaps to be filled in order to achieve their targets:

- Reducing residual waste per household
- Increasing the percentage of household waste sent for reuse, recycling, and composting
- Contributing to the offset of carbon emissions through sustainable waste management.
- Planning permission is only granted for developments identified as appropriate in the Waste Plan and where the highest level of recycling is demonstrated by the applicant.

The Greater Manchester Joint Minerals Plan - Greater Manchester Combined Authority (2013)

In conjunction with the individual development plans of the ten Greater Manchester councils, this document outlines the overarching aim and objectives for the management of minerals and therefore any waste arisings. These are broken down per policy which all revolve around the consideration of minerals as a valuable resource and therefore maximising reuse of materials and resources and minimising waste. Additionally, adverse impacts on the environment must be mitigated and sustainable modes of waste and materials transportation ensured.

Manchester Climate Change Framework 2020-25 - Manchester Climate Change Agency (2022)

The framework is Manchester's high-level strategy for minimising the city's impacts on climate change which, complements the commitment in Our Manchester Strategy 2016-25. The objectives and targets established includes staying within the city's carbon budget, build climate adaptation and resilience, improve health and wellbeing and provide an inclusive, zero carbon and climate resilient economy. A particular area of interest in meeting the objectives and targets is food; specifically the reduction of food waste, both individually and commercially.

A.3 Local context

Guide to Development in Manchester SPD Guidance – Manchester City Council (2007)

This document guides developers, designers, and residents to the type of development desired within Manchester. Its role is to inform the ongoing development of the City by highlighting its many and varied existing qualities and describing how they can be enhanced in the future. The waste management section states that all developments should have a waste management strategy included in the Environmental Standards Statement. This will ensure that adequately sized bin storage areas, access for collection crews and vehicles, and other aspects of waste management are designed into the development at the earliest stage.

Manchester Core Strategy (2012 to 2027) - Manchester City Council (2012)

This key document within the Local Development Framework outlines the status of Manchester City as of 2012, when it was published, and sets out the Council's vision for Manchester by 2027, along with planning policies and requirements to achieve their aspirations. Detailed under Objective 6 (Environment) is Policy EN 19 (Waste) which specifies the requirement for all developers to demonstrate alignment with the waste hierarchy, have full regard to the socio-economic impacts of the waste management, and consider the sustainable modes of waste transportation. Manchester does not have any landfill capacity and with its growing population, are keen to prioritise waste prevention, reduction, and material reuse.

Places for Everyone Joint Development Plan – Manchester City Council (2021)

Places for Everyone is a long-term plan of nine Greater Manchester districts for jobs, new homes, and sustainable growth and will determine the kind of development that takes place in these boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development. It will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

GD04 Waste Storage and Collections Guidance for New Developments – Manchester City Council (2023)

The document is for planners, architects and developers on planning and design considerations for storage and collection of residual and recyclable waste in domestic and commercial developments. This document is a practical guide to the minimum standards which planners and designers of new developments must adhere to in relation to the design of waste storage and collection, and for recycling facilities in both domestic and commercial properties. The document provides technical details for the requirements for the expected waste infrastructure and vehicles broken down by development type. Relevant design guidelines are elaborated below.

Waste storage room requirements

- Waste stores should have adequate lighting
- Floor and wall surfaces of waste store should be impervious and easy to clean. A trapped gully and waste supply should be provided for bin washing
- Bump strips should be provided at bin height to prevent damage of bins
- Doors must have the capacity to be held open during collection
- Housing Management organisations are responsible for the upkeep of the communal bin stores, regular washing of bins and arranging bin replacements

Waste storage areas

- Storage must be identified on architectural plans
- At least 1.3 m clear doorways (including thickness of doors) should be provided
- A minimum of 1.3 m clear path should be provided within the waste store to allow movement and access of each waste receptacle
- The distance for occupants to move waste to the waste store (excluding vertical movement) should not exceed 30 m as stated in the Building Regulations 2002, Part H

- In instances whereby residual and recyclable waste have separate waste stores, preference for easier access (e.g., closest) to the recycling waste store should be provided to encourage recycling
- In mixed use developments, separate refuse areas must be provided for residential and commercial developments
- Containers should have designated external storage areas that are accessible for disabled people

Waste collection vehicle requirements

- The road networks must accommodate manoeuvring and loading of Refuse Collection Vehicles (RCVs) with the specifications outline in [Table 6—1](#)
- Collection vehicles should not be expected to reverse into the development from a major road and should enter a major road in a forward gear
- Waste operatives should not be required to move wheeled bins for more than 10m from bin presentation point to the RCV

Table 6—1 Council waste collection vehicle specifications

Specification	Dimensions
Overall length	11.5 m (13.1 m when loading)
Overall width	3 m (4.1 m when loading)
Overall height	4 m (6 m including top loader arms)
Turning circle (between kerbs)	17.88 m
Turning circle (between walls)	19.39 m

Surface requirements

- Where there are communal stores, the paths between the stores and the collection points must have a minimum width of 1.54 metres
- Paths should be free from kerbs or steps. Where the path meets the roadway, dropped kerbs should be provided.
- Paths should have solid foundations with a smooth finish

Other design guidelines

- Provision for cigarette disposal should be provided and recommended in smoking areas
- Clauses should be written in tenant contracts to encourage their commitment to segregating and recycling waste
- Food waste generated must comply with Animal By-Products Regulations 2005

Manchester Green and Blue Strategy – Manchester City Council (2015 to 2025)

The Green and Blue Strategy and Action Plan sets out the framework for maintaining the city's green spaces and waterways to ensure growth and developments in these areas are sustainable economically, socially, and environmentally.

Our Manchester Strategy, Forward to 2025 – Manchester City Council (2016)

The Our Manchester Strategy 2016–2025 sets out the long-term vision for Manchester's future and the goals every stakeholder within the area will work together on to ensure Manchester achieves its ambitions. Such ambitions include achieving net zero carbon by 2038 at the latest achieved via green growth, sustainable design, green infrastructure, and increasing climate resilience.

Manchester Residential Quality Guidance – Manchester City Council (2017)

This document outlines the considerations, qualities, and opportunities that will help to deliver high quality residential development for successful and sustainable neighbourhoods across Manchester. A key aim for residential design within Manchester is to 'make it practical' and ensure the back of house functions are effective and efficient. In particular, the document provides details for waste infrastructure requirements such as:

- Segregation of waste into four streams, three of which are recycled
- Bin storage should be carefully considered so that it is easy to understand and integrated seamlessly into design
- Larger residential blocks should provide facilities to manage recycling internally, and explore other innovative solutions to reduce waste generation

A.4 University of Manchester

UoM Sustainability Strategy 2023-2028 - University of Manchester (2023)

UoM published a sustainability strategy which, includes commitments that contribute to the University's core goals on social responsibility, teaching and learning and, research and discovery. The commitments focuses on risk and climate resilience, responsible procurement, travel and transport, valuing nature, construction and refurbishment and, resource management. Under resource management, there are aspirations to increase resource efficiency which, achieves wider international goals i.e. United Nations' Sustainable Development Goals (SDGs) SDG 12 on responsible consumption and SDG 13 on climate action. Relevant waste management targets include:

- Recycle 45% of waste produced through campus operations by 2025
- Divert 100% of waste from landfill from 2023 onwards
- Introduce food waste collection to all buildings by 2024 or when legislation demands it

Other relevant commitments include increasing awareness on the impacts of materials in the perspective of carbon and end of life implications, work with suppliers, staff and students on encouraging behavioural change in reducing waste. Lastly, introducing mechanisms that supports low consumption, reuse and sharing across the University.

Appendix B Waste management proforma

Appendix E - Waste Management Strategy (v7.00 from September 2023)

Planning Application Number: 20 FEBRUARY 2025

Date Submitted:

Estimated volumes / m2 required by the development

TOTAL 232,946 LITRES PER WEEK. SEE SECTION 3.2 OF OPERATIONAL WASTE MANAGEMENT PLAN FOR FURTHER BREAKDOWN.

Will this property be used as a House in Multiple Occupation (HMO)?	Yes / No (delete as appropriate)
If this property will be used as an HMO, how many people do you intend to accommodate (5+)?	UNIVERSITY OF MANCHESTER STUDENT ACCOMODATION, PLUS BAR/SERVERY AND STUDY SPACES

Low Rise Domestic

Waste Types	Capacity required (litres)	Number of bins required (per household)	Confirm what is to be provided (and whether the developer or the resident will be responsible for ordering these)
General refuse	140 standard / 240 in certain circumstances	1 x wheeled bin (possibly more for HMO)	N/A
Pulpable Recycling	240	1 x wheeled bin (possibly more for HMO)	N/A
Mixed Recycling	240	1 x wheeled bin (possibly more for HMO)	N/A
Garden Waste	240	1 x wheeled bin (possibly more for HMO)	N/A
Food Waste	23	1 x 23 litre caddy (Possibly more for HMO)	N/A

High Rise Apartment Developments

0.43m2 has been provided per apartment for the containers, with extra space for residents to access each container and space for staff to manoeuvre each container for collection. (different for purpose-built student accommodation – see guidance) SEE SECTION 4.3 OF OPERATIONAL WASTE MANAGEMENT PLAN FOR WASTE ROOM LAYOUTS.	Yes / No (delete as appropriate) How many of each container do you plan to provide? <u>89</u> x general refuse x 1100 litre (based on 110 litres per apartment) <u>30</u> x pulpable Recycling x 1100 litre (based on 55 litres per apartment) <u>30</u> x mixed recycling x 1100 litre (based on 55 litres per apartment) <u>57</u> x food waste x 240 litres (based on 10 litres per apartment) <u>N/A</u> x garden waste (if applicable) x 240 litres
Is it as easy, or easier, for residents to recycle, as it is for them to dispose of general waste?	Yes / No (delete as appropriate) AS EASY - ALL BINS ARE IN THE SAME WASTE ROOMS.

Commercial Developments

Please state number of bins you propose, showing calculations where appropriate.

General Waste - 2 X 1,100L Dry recycling (include material type details) - 1 X 1,100L PAPER/CARDBOARD, 2 X 1100L MIXED DRY RECYCLING, 3X 240L GLASS Food Waste - 3 X 240L Industrial Waste - Other - SEE SECTION 5.3 OF OPERATIONAL WASTE MANAGEMENT PLAN FOR FURTHER DETAILS.	
Has / will a contract be obtained with a licenced waste carrier?	Yes / No (delete as appropriate)

Mixed Use Developments

Are the stores for residential and commercial waste completely separate from each other, with residents having no access to the commercial store and the commercial units having no access to the residential store?	Yes / No (delete as appropriate)
--	-------------------------------------

Internal Stores (Residential and Commercial)

Please provide details of internal stores / segregation of waste and recycling.

ALL WASTE STREAMS SHOULD BE SEGREGATED AT SOURCE TO A MINIMUM OF RESIDUAL, PAPER/CARD, MIXED DRY RECYCLING AND FOOD WASTE. INTERNAL SOURCE SEGREGATED BINS WILL BE PROVIDED BY THE UNIVERSITY TO MAXIMISE SOURCE SEGREGATION. FURTHER PLANNED DETAILS CAN BE FOUND IN SECTION 4.2 OF THE OPERATIONAL WASTE MANAGEMENT STRATEGY.

Storage Areas for Waste Containers (Residential and Commercial)

Please provide details of container stores, attaching plans if appropriate.

SPATIAL ALLOWANCE FOR THE SOURCE SEGREGATION OF WASTE STREAMS HAS BEEN ALLOWED FOR WITHIN ALL WASTE ROOMS, TAKING INTO ACCOUNT WASTE GENERATION, COLLECTION FREQUENCY AND A FACTOR OF RESILIENCE. WASTE ROOM LAYOUTS AND DETAILS CAN BE FOUND IN SECTION 4.3 OF THE OPERATIONAL WASTE MANAGEMENT PLAN.

Ensure all bins in the store are accessible	☒
Ensure recycling facilities are as easy to access as general refuse	☒

Please confirm details of waste store ventilation and hygiene / cleaning proposals

Ventilation -	WASTE STORES HAVE FULL LOUVRED DOORS AND MECHANICAL EXTRACT VENTILATION
Hygiene -	WASTE STORES HAVE A BIB TAP SUITABLE FOR THE CONNECTION OF A HOSE AND FLOOR GULLYS FOR DRAINAGE.

Please provide details of who will be responsible for placing the bins at the collection point and returning them to the store / property promptly e.g., resident / management company

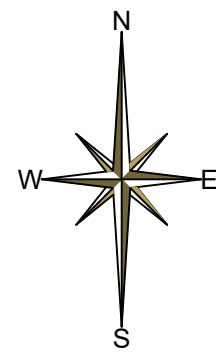
UNIVERSITY OF MANCHESTER APPOINTED FACILITIES MANAGEMENT CONTRACTOR WILL BE RESPONSIBLE FOR MOVING BINS TO BIN PRESENTATION POINTS AND RETURNING THEM TO THE STORE ON WASTE COLLECTION DAYS.

Please ensure that you have attached:

Detailed plans of bin stores	☒
Location plans showing stores	☒
Location plans showing the proposed collection point and the route the collection vehicle will take (please refer to the Road, Vehicle and Waste Operative Access Specification – paying particular attention to turning space and reversing)	☒

Please ensure that you have completed this form in accordance with the latest version of GD04 Waste Storage and Collection Guidance for New Developments – v.7 September 2023, read in conjunction with the Waste and Recycling Service Standard found on the Council website.

Appendix C Waste vehicle swept path analysis



TRACKING ROUTE - REFUSE VEHICLE
(SCALE 1:500)

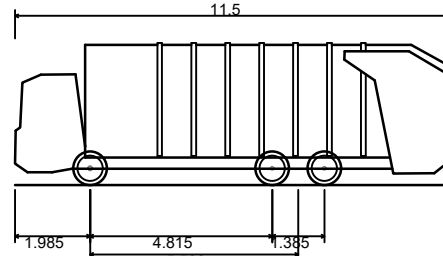
NOTES

1. THIS DRAWING IS PRELIMINARY AND IS SUBJECT TO CHANGE DEPENDING ON FURTHER DEVELOPMENT OF THE G.A. AND SITE LAYOUT.
2. TO BE READ IN CONJUNCTION WITH ALL RELEVANT KENNEDY REDFORD DRAWINGS AND SPECIFICATION.
3. TO BE READ IN CONJUNCTION WITH EXTERNAL ARCHITECTURAL MEP AND LANDSCAPE DESIGN DRAWINGS.
4. ANY DISCREPANCIES IN THE DESIGN INFORMATION SHOULD BE RAISED TO THE ENGINEER IMMEDIATELY.

LEGEND

- VEHICLE BODY - FORWARD DIRECTION
- VEHICLE BODY - REVERSE DIRECTION
- VEHICLE CHASSIS - FORWARD DIRECTION
- VEHICLE CHASSIS - REVERSE DIRECTION

VEHICLE PROFILE



UoM - Manchester Council	11.500m
Overall Length	2.550m
Overall Width	3.780m
Overall Body Height	0.312m
Min Body Ground Clearance	2.550m
Track Width	4.00m
Lock to lock time	8.940m

VEHICLE SPECIFICATION BASED ON:
GD 04 WASTE STORAGE AND COLLECTION GUIDANCE FOR NEW DEVELOPMENTS, MANCHESTER CITY COUNCIL, VERSION 7.00

THE ROUTE TESTED ON THIS DRAWING
IS TAKEN FROM SKETCH TITLED
"WASTE COLLECTION" RECEIVED BY
EMAIL FROM GRAHAM DATED 14-02-25.

P02	19/02/25	AMENDED TO SUIT LAYOUT	A.W.	J.H.	P.V.
P01	17/02/25	FIRST ISSUE	A.W.	J.H.	P.V.
REV	DATE	DESCRIPTION	DRN	CHK	APP

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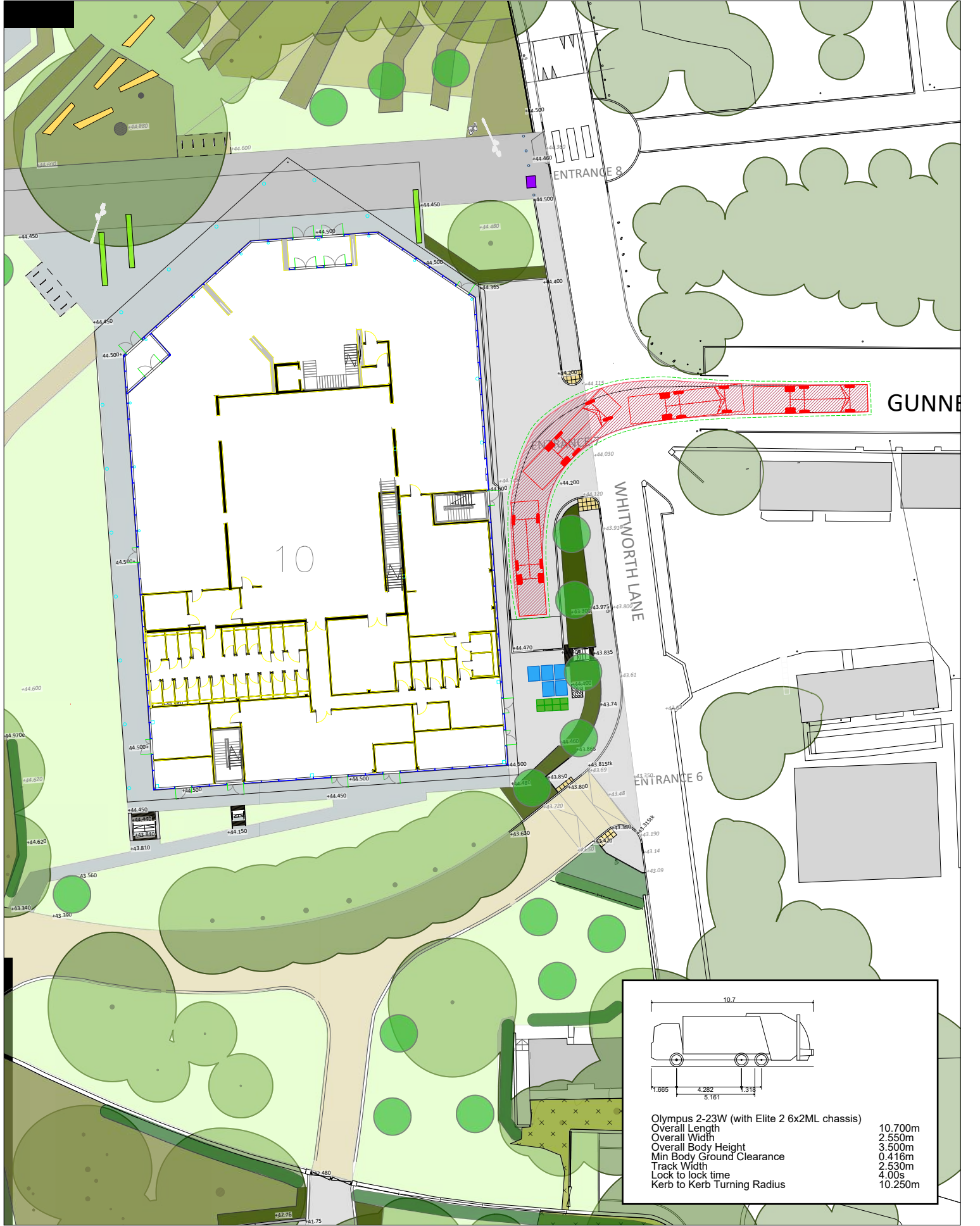
PROJECT NAME
UoM STUDENT RESIDENCES
FALLOWFIELD

DRAWING TITLE
VEHICLE TRACKING
REFUSE VEHICLE

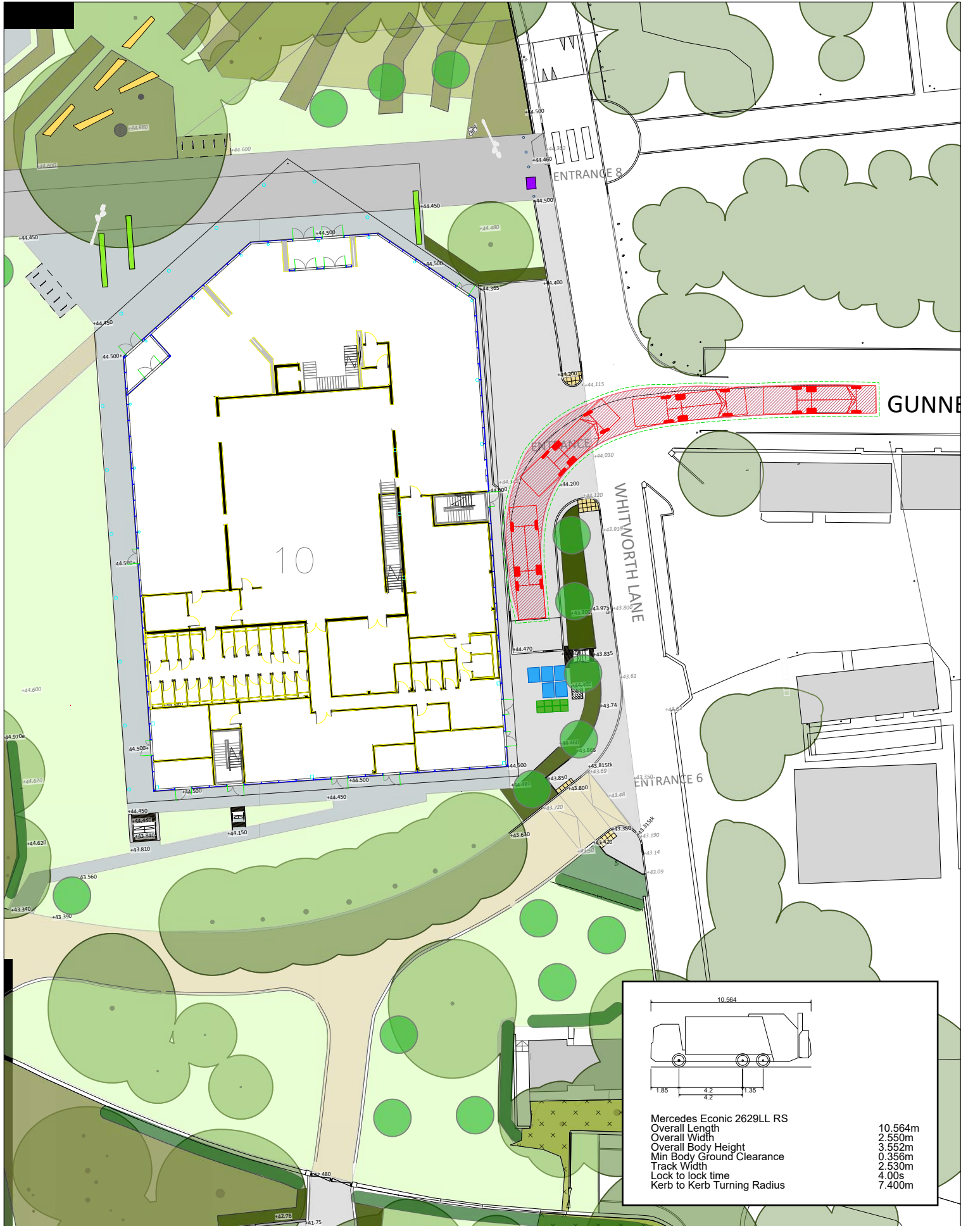
DATE	SCALE	SHEET SIZE	REV
17/02/25	1:500	A0	P02

DRAWING STATUS
S3 - FOR REVIEW / COMMENT

DRAWING NUMBER
UMRF -KRD -XX-XX-DR -C - 0151



BURO HAPPOLD	Project: UoM Fallowfield Campus Redevelopment	Project Number: 0062342	Status: For information		
	Sketch Title: Central Hub - Large refuse truck	Sketch Number: SK-CH-TP-0010	Date: 14/02/25	Initials: NJH	Revision: P01



	Project:	Project Number:		Status:	
	UoM Fallowfield Campus Redevelopment	0062342		For information	
	Sketch Title:	Sketch Number:		Date:	Initials:
	Central Hub - Rear-steer refuse truck	SK-CH-TP-0040		14/02/25	NJH
					Revision:
					P01

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