

OPERATIONAL WASTE MANAGEMENT PLAN

READING STATION PARK

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Reading Station Park

Operational Waste
Management Plan
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OPERATIONAL WASTE MANAGEMENT PLAN

Quality Management

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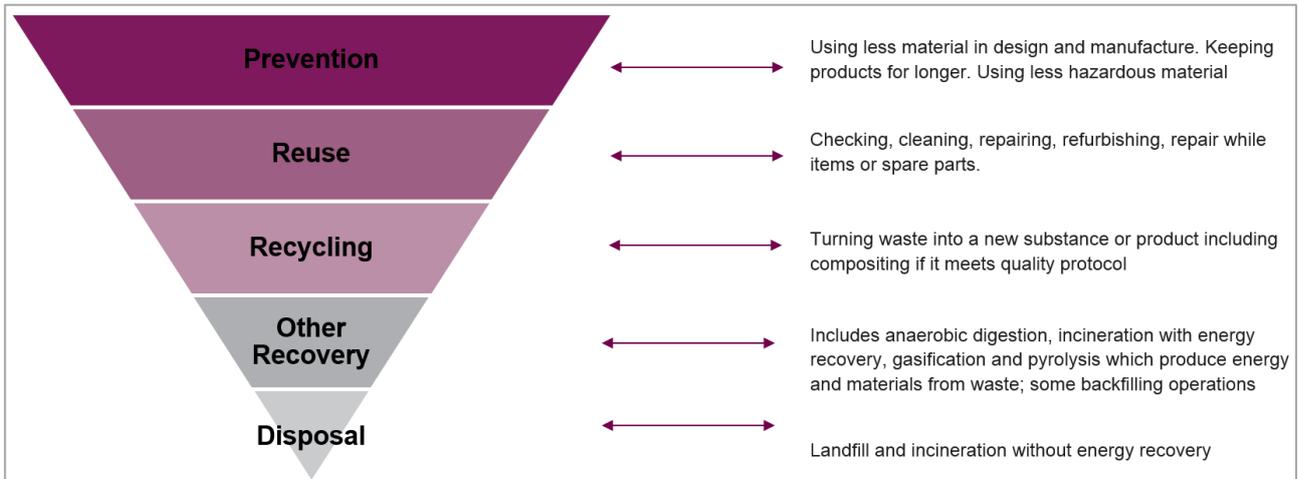
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1 INTRODUCTION

- 1.1 This report, prepared by RPS, comprises an Operational Waste Management Plan (hereafter referred to as the 'WMP') for the outline application of the proposed redevelopment of Reading Station Park (hereafter referred to as the 'proposed development') located in Reading, Berkshire.
- 1.2 The principal aim of this WMP is to demonstrate how the Proposed Development has taken into account sustainable methods for waste management during its operation. This Plan has been prepared in-line with the Outline Masterplan and current Reading Borough Council (RBC) waste management policy and guidance and has been prepared with the following principles and objectives in mind:
- To contribute towards achieving current and long-term UK government and RBC targets for waste minimisation, recycling and re-use;
 - To comply with all legal requirements for handling operational waste;
 - To achieve high standards of environmental performance with respect to waste management; and
 - To provide users of the proposed development with convenient, clean and efficient waste systems that enhances the operation of the buildings and promote high levels of recycling.
- 1.3 This Plan provides a review of the requirements applicable to the Proposed Development under national legislation and policy at all levels (i.e. national, regional and local). Consideration has also been given to local standards and requirements included in guidance documents (i.e. British Standard 5906:2005 Waste Management in Buildings, Code of Practice (BS 5906:2005)) so as to comply with relevant objectives and targets.
- 1.4 The key aims of this WMP are to:
- Provide estimations on the anticipated waste generation within the proposed development;
 - Provide a strategy for the management of the anticipated waste generation within the proposed development, from the point where waste is generated to the point where it is collected for off-site treatment;
 - Ensure that residents can easily segregate recyclables and are encouraged to do so;
 - Allow waste to be disposed of easily, and be stored and collected in an efficient and discreet manner;
 - Ensure that the proposed development has adequate facilities and space to adapt to any future waste management trends and practices; and
 - Ensure that national and local targets, as well as all client waste management aims and aspirations, are met.
- 1.5 Planning for future operational waste management ensures that buildings will be able to operate efficiently and sustainably, while minimising the impacts on the design requirements and building performance. Waste management operations need to be safe, discreet and efficient in order to minimise the impacts on a building's users, while also ensuring waste can be collected, stored, re-used, recycled and disposed of quickly and efficiently. A successful plan will follow the basic principles of the waste hierarchy, illustrated in Figure 1 and outlined as follows:
- Minimise the amount of waste produced and avoid producing waste in the first instance;
 - Re-use items as many times as possible;
 - Recycle what cannot be re-used or is no longer needed;
 - Turn waste materials into new products i.e. the generation of energy from waste; and

- Dispose of what is unable to be recovered in a responsible way.

Figure 1: Waste Hierarchy



1.6 Waste management is an industry which is evolving at a fast pace, with new policy and practices to be implemented. As such, this WMP also ensures that the development incorporates adequate future-proofing and flexibility to adapt to future waste management practices.

2 LEGISLATION AND PLANNING POLICY

2.1 A summary of national legislation and national, regional and local planning policy relevant to the proposed development is provided in the following sections. It should be noted that this summary identifies those elements of the policy or guidance applicable to waste management within the proposed development, and does not provide a comprehensive summary of the identified legislation or policy.

Legislation

2.2 Waste legislation considered relevant to the Proposed Development includes:

- The Animal By-Products (England) Regulations 2009 (as amended 2015);
- Clean Neighbourhoods and Environment Act 2005 (as amended 2015);
- Control of Pollution Act (COPA) 1974 (as amended 1989);
- The Controlled Waste (England and Wales) Regulations 2012;
- The Environment Act 1995;
- Environmental Protection Act 1990 (EPA);
- The Waste Enforcement (England and Wales) Regulations 2018;
- The Landfill Tax Regulations 1996 (as amended 2017);
- The List of Wastes (England) Regulations 2005 (as amended 2005);
- The Packaging (Essential Requirements) Regulations 2015;
- The Pollution Prevention and Control (England and Wales) Regulations (as amended 2017);
- The Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (as amended 2016);
- The Hazardous Waste Regulations 2005 (as amended 2016);
- The Waste (England and Wales) Regulations 2011 (as amended 2014);
- The Waste Batteries and Accumulators Regulations 2009 (as amended 2015);
- The Waste Electrical and Electronic Equipment (WEEE) Regulations 2015; and
- The Waste Management (England and Wales) Regulations 2006 (as amended 2007).

National Planning Policy

National Planning Policy Framework

2.3 The National Planning Policy Framework (NPPF) outlines the Government's planning policies for England and how they are expected to be applied. The document identifies three dimensions to sustainable development, with the environmental dimension being one of them. As part of the environmental dimension, the document notes that efforts must be made to minimise waste generation and increase re-use and recycling.

2.4 The NPPF does not contain specific waste policies; instead, national waste planning policy is contained within the Waste Management Plan for England (2013), the National Planning Policy for Waste (2014), the Resources and Waste Strategy for England (2018) and Planning Practice Guidance as discussed below.

Planning Practice Guidance (2014)

- 2.5 Planning Practice Guidance (PPG) provides a web based resource in support of the NPPF. There are two guidance documents that are relevant to waste: 'Design' and 'Waste'.
- 2.6 The document entitled 'Design' states that carefully planned bin storage is particularly important and Local Authorities should make sure that each dwelling is carefully planned, so that sufficient storage is provided, which is discretely designed and accessible. Storage should be allocated based on practices within the specific Local Authority (e.g. relating to recycling, food waste collection and landfilling).
- 2.7 The document entitled 'Waste' outlines the consideration local planning authorities should give towards waste management, both within Local Plans and with regards to the Waste Hierarchy. This includes guidance on considerations to be included within development planning applications:
- The promotion of the *"sound management of waste from any proposed development, such as encouraging internal management of waste where this is appropriate, or including a planning condition to encourage or require the developer to set out how waste arising from the development is to be dealt with"*;
 - *"Ensuring that collections of household and similar waste are organised so as to help towards achieving the higher levels of the Waste Hierarchy"*;
 - That steps are *"taken to ensure effective segregation of wastes at source including, as appropriate, the provision of waste sorting, storage, recovery and recycling facilities"*; and
 - That it will be useful for proposals that are likely to generate significant volumes of waste through the development or operational phases to include a waste audit. *"This audit should demonstrate that in both construction and operational phases of a proposed development, waste will be minimised as far as possible and that such waste as is generated will be managed in an appropriate manner in accordance with the Waste Hierarchy"*.

Resources and Waste Strategy for England (DEFRA, 2018)

- 2.8 This strategy lays out a number of aims and actions to be taken to preserve natural resources, minimise waste, promote resource efficiency and move towards a circular economy. The document has many ambitions in line with the Government's 25 Year Environment Plan. The targets include:
- The proportion of municipal waste sent to landfill to be 10% or less by 2035;
 - A 65% recycling rate for municipal solid waste;
 - Legislation for mandatory separate food waste collections by 2023; and
 - Eliminate avoidable waste of all kinds by 2050.

Waste Management Plan for England (DEFRA, 2013)

- 2.9 The Waste Management Plan for England is a high level document which describes how the government intends to work towards a more efficient and sustainable approach to waste and resource use/management and outlines the steps required to move towards a zero waste economy.
- 2.10 It provides an analysis of the waste management situation in England and how it will aim to achieve the objectives and provisions of the EU Waste Framework Directive.
- 2.11 A number of key targets from the Waste (England and Wales) Regulations 2011 (as amended 2014) are reiterated in the plan, including the following:

- At least 50% by weight of waste from households is prepared for re-use or recycled by 2020; and
- At least 70% by weight of construction and demolition waste is subject to material recovery by 2020.

National Planning Policy for Waste (2014)

- 2.12 The National Planning Policy for Waste provides the planning framework to enable local authorities to put forward, through local waste management plans, strategies that identify sites and areas suitable for new or enhanced facilities to meet the waste management needs of their areas.
- 2.13 The National Planning Policy for Waste states that when determining planning applications for non waste developments, Local Authorities should ensure that:
- *“the likely impact of proposed, non-waste related developments on existing waste management facilities, and on-sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the Waste Hierarchy and/or the efficient operation of such facilities”;*
 - *“new, non-waste developments make sufficient provision for waste management and promote good design to secure the integration of waste management facilities with the rest of the development and, in less developed areas, with the local landscape. This includes providing adequate storage facilities at residential premises, for example, by ensuring that there is sufficient and discrete provision for bins, to facilitate a high quality, comprehensive and frequent household collection service”;* and
 - *“the handling of waste arising from the construction and operation of development maximises reuse/recovery opportunities, and minimises off-site disposal.”*

Regional and Local Policy

Reading Borough Council Local Plan, 2019

- 2.12 Policy CC5: Waste Minimisation and Storage of RBCs Local Plan states that:
- “Development should demonstrate measures to minimise the generation of waste in the construction, use and life of buildings and promote more sustainable approaches to waste management, including the reuse and recycling of construction waste and the promotion of layouts and designs that provide adequate, well-designed space to facilitate waste storage, reuse, recycling and composting.”*

Reading Borough Council Waste Minimisation Strategy 2015-2020

- 2.13 The Waste Minimisation Strategy was introduced in 2015 in response to the main challenges faced by the Council Waste Collection and Disposal service, most notably the requirement to reach the 50% re-use and recycling target set by the Waste (England and Wales) Regulations 2011. The Strategy was revised in 2017.
- 2.14 The Strategy aims to *“increase recycling rates from 33% to the national average of 44.2% as soon as possible with the aim of achieving a 50% rate by 2020”*.
- 2.15 As part of the Strategy, RBC is committed to providing a full collection service to all properties as well as increasing recycling re-use and composting rates and reducing the amount of waste sent to landfill.

3 THE PROPOSED DEVELOPMENT

- 3.1 The proposed development comprises the demolition of existing buildings on site and the construction of residential-led mixed use scheme with four separate buildings.
- 3.2 The planning application is an outline application which seeks permission for the following:
Demolition and redevelopment to comprise: up to 115,000 sqm GEA in one or more land uses comprising: Residential (Class C3 and including PRS); Offices (Use Class B1(a); development in Use Classes A1, A2, A3 (retail), A4 (public house), A5 (take away), C1 (hotel), D1 and D2 (community and leisure); car parking; provision of new plant and renewable energy equipment; creation of servicing areas and provision of associated services, including waste, refuse, cycle storage, and lighting; and for the laying out of the buildings; routes and open spaces within the development; and all associated works and operations including but not limited to: demolition; earthworks; provision of attenuation infrastructure; engineering operations. All development works and operations to be in accordance with the approved Development Parameters Schedule and Plans.
- 3.3 The existing site, illustrated in Figure 2, is on the corner of Caversham Road and Vastern Road and currently occupied by a retail park including Aldi, The Range, Majestic Wines, Mothercare and a TGI Fridays restaurant. The site is in close proximity to Reading Railway Station (approximately 50m at the south western point).
- 3.4 The site is bound to the north/ north east by Vastern Road (A329), the west Caversham Road (A329), to the south sits the former Royal Mail sorting office site with Reading Railway Station to the south east. Land to the north of the development is primarily low-lying residential with accompanying commercial uses.

Figure 2: Site Location Plan



- 3.5 The maximum floor areas for each land use that would be delivered as part of the scheme are shown in Table 1.

Table 1: Maximum permitted floor areas (m² GEA) by land use

Use Class	Plot A	Plot B	Plot C	Plot D	Total GEA
C3 Residential	18,500	23,500	27,800	30,200	100,000
B1a Offices	20,000	30,000	34,000	29,000	113,000
C1 Hotel	8,000	8,000	8,000	8,000	8,000
A1-A5, D1-D2	7,000	7,000	7,000	7,000	7,000

3.6 A minimum of 200m² GEA of use class A1-A5 and D1-D2 will also be delivered.

3.7 A maximum of 1,000 residential units would be delivered by the scheme. The worst case unit mix, in terms of waste generation (i.e. that gives rise to the highest number of residents on site) would comprise:

- 40% studio and 1 bedroom apartments; and
- 60% 2+ bedroom apartments

3.8 Due to the outline nature of the application and the range of floor areas that could be delivered as part of the scheme, waste arisings have been calculated for hypothetical schemes as illustrated in Table 2. Waste calculations have been made for the development as a whole.

3.9 To provide a worst case scenario for waste arisings, it is assumed that a maximum of 7,000 m² of A3 land use would be delivered under all three scenarios. A3 land uses (food and drink establishments) are likely to give rise to the highest volumes of waste per m² of floor area.

Table 2: Proposed development scenarios: floor areas (m² GEA)

Use Class	C3 Residential	B1a Offices	A1-A5, D1-D2	Total GEA
Scenario 1 - Residential	100,000	8,000	7,000	115,000
Scenario 2 - Commercial	0	108,000	7,000	115,000
Scenario 2 - Mixed Use	54,000	54,000	7,000	115,000

4 LOCAL CONTEXT

- 4.1 According to Department of Food and Rural Affairs (DEFRA) data for 2018/2019, 66,356 tonnes of waste was collected by RBC of which 29.4% was sent for recycling, composting and reuse and 21.4% was sent to landfill. The remaining waste (48.7%) was sent to an Energy from Waste (EfW) facility. When compared to figures for 2015/2016, as provided in RBC's Waste Minimisation Strategy, it is evident that while the percentage of waste sent to landfill has decreased, the recycling (including composting) rate has also decreased with a greater share of waste now being sent for incineration with energy recovery.
- 4.2 Accordingly, this WMP aims to support and encourage further improvements in recycling rates.
- 4.3 The Council currently provides weekly or fortnightly refuse collection services for residents living in purpose-built blocks of flats, with separate collections of recycling undertaken on a fortnightly basis. The collection frequency for all new developments and new build/converted properties will be on a fortnightly basis for both household and recyclable wastes.
- 4.4 There is currently no separate collection for food waste however according to Reading Council's website, residential food waste collection will commence in October 2020. It is therefore assumed that by the time the development is operational, separate food waste collection will occur.
- 4.5 All recyclable materials collected from households in Reading are transferred to the Material Recycling Facility (MRF) in Smallhead, Reading, operated by Re3 Ltd. Non-recyclable waste is sent to the Energy from Waste centre in Colnbrook. The remaining waste is sent to landfill, including bulkier items delivered to the recycling centres.
- 4.6 In addition to recycling at home, residents have access to the Re3 Recycling Centre at Smallhead, approximately 4km south of the site. Glass bottles and textiles can also be recycled at local recycling banks in the vicinity of the site, for example the Bottle Bank and Recycling Point at Hills Meadow Car Park to the north of the site.

5 PROPOSED DEVELOPMENT WASTE ARISING

Estimated Waste Arisings

- 5.1 Waste arisings from the residential component of the development has been calculated in accordance with BS 7906:2005.
- 5.2 5 litres of food waste per unit has also been included however it is acknowledged that RBC do not currently collect separate food waste.
- 5.3 These guidelines determine the minimum capacity for waste storage space to be allocated and are as follows (and illustrated in Table 3 below):
- 30 litres (L) per unit + 70L per bedroom;
 - Split 50 : 50 between mixed-dry recyclables (MDR) and residual waste; and
 - 5L per residential unit for food waste.

Table 3: Weekly Residential Waste Arisings Methodology

No. of bedrooms	Weekly Waste Arisings per Unit (L)			
	MDR	Residual	Food	Total
1 bedroom	50	50	5	105
2 bedrooms	85	85	5	175

- 5.4 With regard to waste arisings from commercial and other land uses, BS 5906:2005 provides a methodology for the calculation of waste arisings from nurseries, gyms, performance spaces, community spaces (D1 land use class), serviced workspace (B1 land use class), retail (A1 land use class) and café (A3 land use class). Due to the outline nature of the application, all development in the use class categories A1-A5 and D1-D2 has assumed to be A3, as this land use gives rise to the highest volumes of waste arisings.
- 5.5 The calculation methodologies are outlined within Table 4 below. A 50:50 split between MDR and residual waste has been assumed for the office and hotel, while A3 waste calculations are based on 50% MDR 30% food waste and 20% residual waste.

Table 4: Weekly Non-Residential Waste Arisings Methodology

Land Use Class	Average Weekly Waste Arisings	Comments
B1: Serviced Work Space	50L per employee	Employment densities are calculated as one employee per 12m ² NIA. This equates to 4.17L per m ² NIA
A3: Restaurant (including Community Café)	75L per cover	One cover per 3m ² NIA. This equates to 25L per m ² NIA

- 5.6 The NIA has been estimated in accordance with the Homes and Communities Agency Employment Density Guide which advises the following benchmarks for floorspace measurements:
- GIA = 95% of GEA
 - NIA = 80-85% of GIA

5.7 Based on the calculation methodologies outlined above, estimated waste arisings for each waste stream under the three hypothetical development scenarios is outlined to Table 5 below.

Table 5: Illustrative Waste Estimates for the Proposed Development

Land Use	Floor Area / Units	Weekly Waste Arisings (L)			
		Residual	MDR	Food	Total
Scenario 1 - Residential					
Residential (1000 units)	400 x 1 Bed	20,000	20,000	2,000	42,000
	600 x 2 Bed	51,000	51,000	3,000	105,000
B1 Office	8,000m ² GEA (6,460m ² NIA)	13,458	13,458	n/a	26,917
A3	7,000m ² GEA (5,652.5 m ² NIA)	70,656	28,263	42,394	141,312
TOTAL					<u>315,229</u>
Scenario 2 - Commercial					
Residential	0	0	0	0	0
B1 Office	108,000 m ² GEA (87,210m ² NIA)	181,688	181,688	n/a	363,375
A3	7,000m ² GEA (5,652.5 m ² NIA)	70,656	28,263	42,394	141,312
TOTAL					<u>504,687</u>
Scenario 3 – Mixed Use					
Residential (500 units)	200 x 1 Bed	10,000	10,000	1,000	21,000L
	300 x 2 Bed	25,500	25,500	1,500	52,500
B1 Office	54,000m ² GEA (43,605 m ² NIA)	90,844	90,844	n/a	181,688
A3	7,000m ² GEA (5,652.5 m ² NIA)	70,656	28,263	42,394	141,312
TOTAL					<u>396,500</u>

5.8 The estimates provided in the above table are for illustrative purposes and show that the volume and composition of waste varies greatly according to the proposed land uses. Furthermore, wastes from retail and offices will differ further in their composition with the office being mainly paper waste, whereas the retail waste is likely to be mostly packaging and possibly some food residues.

Future Waste Arisings

5.9 Developers should ensure that all storage areas and systems are designed to meet current waste and recycling targets as a minimum, and are sufficiently flexible to meet more ambitious future targets.

5.10 Estimates of future waste generation rates vary widely, therefore inflationary waste growth predictions have not been applied to the waste calculation estimates for the Proposed Development. The DEFRA data for the years from 2010 to 2018 show that household waste arisings in England have fluctuated, but have remained relatively stable at around 22,000 kilo

tonnes per year¹. The total volume of waste collected has increased marginally each year from 2010-2016 however the waste arisings per person has seen a decrease since 2016. Between 2016 and 2018, total waste arisings decreased from 22,770 tonnes to 22,033 tonnes and the waste arisings per person decreased from 412kg to 394kg. Recycling rates have remained stable since 2012 at between 44% and 45%.

- 5.11 It is considered that widespread initiatives to reduce waste and improve materials reuse and recycling are likely to reduce long-term production of waste from the proposed development. Improvements in data centre security and storage, and increasing reliance on information technology is also likely to lead to a reduction in paper usage in the long-term. Therefore, it is likely that the current waste production and storage requirements will represent a reasonable worst-case scenario and should therefore form the basis for long-term waste management provisions.

¹ DEFRA, 2018. Local authority collected waste from households from January 2010 to March 2018 - England data

6 WASTE MANAGEMENT REQUIREMENTS

- 6.1.1 In accordance with BS 5906:2005 all waste containers will be stored under cover in specially designed waste storage rooms, or stores, which will be built to the same general standard for both domestic and commercial premises. The walls and roofs of these stores will be formed of non-combustible, robust, secure and impervious material, and have a fire resistance of one hour when tested in accordance with BS 476 21 Fire tests on building materials and structures: Part 21, whilst the door of the stores will be made of steel, or have a fire resistance of 30 minutes when tested in accordance with BS 476 22 Fire tests on building materials and structure: Part 22.
- 6.1.2 In line with BS5906:2005, Part H6 of the Building Regulations (2010) and Reading Waste Management Guidance, the following measures will be designed into the Proposed Development at the detailed design stage, which will help maintain a compliant waste strategy when operational.

Part H6 of Building Regulations

- 6.1.3 Waste storage areas will be:
- Designed and sited so as not to be prejudicial to health and local amenity;
 - Sited so as to be accessible for use by people in the building and of ready access for removal to the collection point;
 - Designed so as to not exceed the 30m horizontal distance from each residential unit to the waste stores (excluding any vertical distance);
 - Designed to provide a clear space of 150mm between and around containers to allow their filling and emptying;
 - Designed to be of adequate height to allow the lids of containers to be fully opened, with a minimum height of 2m high for enclosures, compounds or storage rooms for communal containers; and
 - Designed to provide provision for washing down and draining the floor into a system suitable for receiving a polluted effluent. Gullies will incorporate a trap which maintains a seal, even during prolonged periods of disuse.
- 6.2 In addition, the waste collection point(s) will be located such that it is reasonably accessible to the size of the waste collection vehicles typically used by the waste collection authority and private waste contractors.

BS 5906:2005

- All containers for waste, including recyclable material will be easily accessible to both the occupier and waste collector;
- Waste stores will be designed and located in such a way as to limit potential noise disturbance to residents;
- Storage areas for waste and recyclable material will be clearly designated for this use only, by a suitable door or wall sign and, where appropriate, with floor markings;
- Waste storage sites will include areas for instructional signage detailing correct use of the facilities;
- The entrance of the waste stores will be free from steps and projections;
- Ventilation will be provided;
- Waste stores will have lighting; and

- Gullies for wash down facilities will be positioned so as not to be in the track of container trolley wheels.

6.1.1 Vehicles should also enter and exit the Proposed Development (to leave or re-join the highway) in a forward direction.

RBC Guidance

6.3 In addition to the above requirements, Reading requires the following:

- Where there is more than one bin within a storage area, there must be 2m clearance in front of each bin to enable it to be accessed and safely moved without needing to move any of the other containers.
- There must be a water supply with standard tap fittings available to the bin storage area to enable washing down of the bins, walls and floor.
- Bin storage areas must have a suitable impermeable hard standing ground covering which can be cleaned easily. The slope of the floor must enable it to drain properly and completely. The drainage system must be suitable for receiving a polluted effluent. Any gullies must not be in the track of the container wheels.
- The space in the collection area must be sufficient to enable operatives to return emptied bins to a position that does not obstruct the manoeuvring of those containers that are yet to be emptied.
- The bin storage areas must be located at a point where the collection vehicle can safely stop for loading.
- The surfacing of the route the operatives will take between the bin storage/collection area and the vehicle should have a hard, smooth and continuous finish. The pathway must be free of any steps, ironworks, trees, drainage gullies or other features which would obstruct or impede the movement of the bins. Slopes should be avoided wherever possible along the pathway. Where needed the gradient should fall away from the bin storage area and should be no greater than 1:12. It is not acceptable for the route between the storage area and the collection vehicle (i.e. in the direction that filled bins will be pulled) to have any uphill gradients.

6.1.1 In addition to the above requirements, past experience and best practice for the storage of waste materials will include the following provisions:

- Waste storage facilities will not block any utility service points;
- Waste storage areas will not obstruct sight lines for pedestrians, drivers and cyclists;
- Waste containers will be inside or at least enclosed. If bins are outside, they will be secured in a compound;
- Bins stores will be accessible for wheelchair users, including enough space for a wheelchair turning circle, if this is not possible alternative provisions will be put in place;
- Where bins need to be moved around the development, manual or vehicle tugs will be used;
- Colour coding will be used for bins of different streams; and
- Any internal storage areas adjacent to a fire escape route will be fitted with fire doors, automatic fire detection and a sprinkler system and comply with the Regulatory Reform (Fire Safety) Order 2005 (Ref. 42).

6.1.2 In order to encourage recycling, information packs will be provided to residents to include full information on available recycling facilities and colour coding will be used for bins of different streams.

7 WASTE MANAGEMENT AND STORAGE STRATEGY

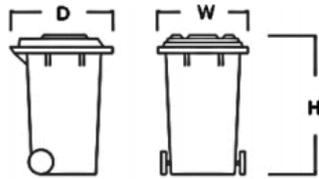
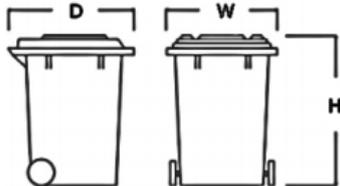
Internal Waste Management

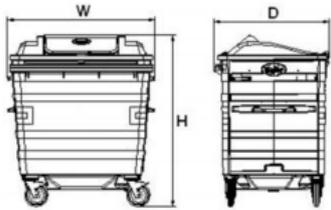
- 7.1 Each individual housing unit and business unit will be required to sort their waste internally into the following categories:
- Dry Mixed Recycling
 - Organic Waste (Food and Garden); and
 - Mixed non-recycling waste.
- 7.2 To encourage residential occupiers to recycle their waste, the development will incorporate measures to enable internal storage for separate waste streams within each unit.
- 7.3 The site operator will provide commercial occupiers with allocated space for the appropriate management of waste.

Waste Storage

- 7.4 Due to the outline nature of the application, waste storage arrangements cannot be determined at this stage. The strategy will be detailed at the Reserved Matters Application stage(s) which will be supported by a Detailed Operational Waste Strategy for each Phase of the Application. The Detailed Strategy(s) will be produced in accordance with the measures and guidance outlined in this WMP and RBC’s Waste Management Guidelines.
- 7.5 It is however envisaged that waste will be stored in dedicated storage areas in wheeled Eurobins. Wheeled bins provided for developments must meet the standards set out in the British Standard for Mobile Waste Containers (BS EN 840). Dimensions of the typical bins provided by the Council, as outlined within the RBC Waste Management Guidelines, are provided below.
- 7.6 It should however be noted that private waste contractors can use additional size bins, including 660L and 1280L wheeled bins which are common for developments of this scale.

Table 6: Typical Bin Dimensions

Bin Type	Specifications
<p>240L Bin</p> 	<p>Capacity: 240L</p> <p>1085 x 575 x 730(mm)</p> <p>Grey/Black (Residual) or Red (Recycling)</p>
<p>360L Bin</p> 	<p>Capacity: 360L</p> <p>1090 x 880 x 580(mm)</p> <p>Grey/Black (Residual) or Red (Recycling)</p>
<p>1100L Bin</p>	

Bin Type	Specifications
	<p>Capacity: 1100L</p> <hr/> <p>1295 x 1118 x 1370(mm)</p> <hr/> <p>Grey/Black (Residual) or Green (Recycling)</p>

- 7.7 Bin storage areas will be clearly identified on plans at the reserved matters stage. To ensure that maximum permitted distances for carrying waste are not exceeded, it will be necessary to provide several bin storage areas to ensure an adequate distribution across the site. This will entail a minimum of one bin storage area within each Plot.
- 7.8 The location of bin storage areas will have regard to the impact of noise and smell on the occupants of neighbouring properties, both existing and proposed. Bin storage areas will be contained within a suitable enclosure to prevent nuisance from the spread of waste, odour or noise. The enclosures will be suitably designed to prevent entry by vermin and should be well ventilated.
- 7.9 Storage areas for waste will be segregated, so that household and commercial waste bins are in separate, secured bin storage areas. Any commercial waste will be segregated from residential waste. Any access to the domestic bins should only be possible for residents and site management. The commercial bin storage area should also be secured to prevent residents from disposing household waste. All storage areas will be easily identifiable through the use of clear and appropriate signage.
- 7.10 Commercial units that produce large quantities of food waste will also likely require a separate waste storage area and a higher frequency collection service to minimise odours. Hotels and restaurants will be designed to include separate storage provision for waste cooking oil.
- 7.11 There is likely to be a small component of the overall waste arisings from the proposed development that will comprise other waste streams, such as WEEE, printer and toner cartridges, and fluorescent light tubes. Building maintenance will also give rise to materials such as paints and waste lubricating oils, which will require separate storage in dedicated sealed containers.
- 7.12 This type of waste is termed “unique” as it is unlikely to be produced on a regular basis and therefore its management will be on special arrangement with a registered waste handler for the specific waste that is produced. However, separate space will be provided within the proposed development to handle and manage this waste, such as through battery recycling boxes and other applicable storage containers (e.g. if a liquid is to be stored, even within its own container, this will need to be stored within a second container which holds 110% capacity of the volume of the liquid being stored).
- 7.13 Separate arrangements will be made for the storage and safe disposal of these waste streams, as covered by the Hazardous Waste Regulations 2009, Control of Substances Hazardous to Health (COSHH) Regulations, 2002 as amended (Ref. 39) and WEEE Regulations 2013. All waste management will be required to comply with The Waste (England and Wales) Regulations 2014 and provisions for the safe separation and storage of these wastes will need to be provided within the Proposed Development.

Waste Compaction

- 7.14 Due to the large quantities of waste likely to be generated by the proposed development, depending on the use, it is recommended that waste is compacted on site prior to collection. Compacting waste into bins allows a direct reduction of the number of bins requiring collection and therefore reduces the storage space required as well as the time required to service developments.
- 7.15 RBC recommends that compactors are used for all office developments larger than 5,000m² and that for office developments in excess of 20,000m², a portable skip compactor or rotary compactor may be used. Portable compactors can achieve compaction ratios of between 4:1 and 6:1 while rotary compactors can achieve compaction ratios of up to 10:1.
- 7.16 For residential waste, it is proposed that lever-arm compactors can be provided in each bin store for in-bin compaction of waste. It is envisaged that mixed dry recyclables could be compacted at a ratio of 2:1 in order to allow for later segregation of material. Residual waste could be compacted at a ratio of 3:1 in order to prevent bins from becoming too heavy to manage.
- 7.17 These compaction ratios have been determined based on a WRAP study conducted in 2011². This study demonstrated that the typical weight of residual household waste is approximately 85kg per 1,100L, whilst MDR can weigh as little as 36kg per 1,100L. Therefore, using 85kg as a worst case scenario, the following weights will apply:
- 1 x 1,100L bin –2:1 compaction = 275kg (85kg x 2 = 170kg + 105kg (the average weight of a metal 1,100L Euro Bin) = 275kg); and
 - 1 x 1,100L bin –3:1 compaction = 360kg (85kg x 3 = 255kg + 105kg = 360kg).
- 7.18 These compaction ratios are therefore below the maximum lifting weight of refuse vehicles of 500 kilograms (kg). These weights are also compliant with the Manual Operations Regulations 1992 (as amended) for moving full bins around the Proposed Development, or for the collection crews.
- 7.19 Example methods of compaction are illustrated in Table 7 below.

Table 7: Example Compaction Units

Compactor Type	Specifications
Wheelie Bin Compactor 	Example: PAKAWASTE LF1100 Single Phase Compatible Bins: 1100L Wheelie Bin Compaction Ratio: 3:1 Size: 1.16m x 1.15m x 2.12m
Portable Skip Lift Compactor	Example: ACM Skip Lift P8 Compatible Bins: 240 - 1100L Wheelie Bins

² WRAP, (2011); Co-Collection of Household and Commercial Waste and Recyclables.

Compactor Type	Specifications
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Compaction Ratio: 6:1
 Size: 2.36m x 4.0m x 2.05m

Rotary Bin Compactor



Example: Bergmann 1100E
 Compatible Bins: 660L, 770L and 1100L
 Wheelie Bin
 Compaction Ratio: 6:1
 Size: 1.45m x 1.73m x 2.58m

Waste Collection

- 7.20 Due to the outline nature of the scheme, the collection strategy cannot be detailed at this stage of the application.
- 7.21 The strategy will be detailed at the Reserved Matters Application stage(s) which will be supported by a Detailed Operational Waste Strategy for each Phase of the Application. The Detailed Strategy(s) will be produced in accordance with the measures and guidance outlined in this WMP and RBC’s Waste Management Guidelines.
- 7.22 It is noted that RBC does not offer a compacted waste collection service. Alternative arrangements would need to be made with a private contractor to have any compacted waste collected.
- 7.23 Waste will either be collected from individual blocks or from a central waste collection point for the whole site. The bin storage areas will be located at a point where the collection vehicle can safely stop for loading.
- 7.24 The collection area will be designated, and provision will be made to prevent other vehicles parking or impeding access. The distance that operatives will need to wheel bins from the furthest point within this area to reach the loading point at the back of the collection vehicle should not exceed 15m.
- 7.25 If refuse bins have been moved at a separate time to the recycling bins, there will be adequate arrangements in place at all waste storage areas to ensure that residents attempting to deposit non-recyclable refuse have the opportunity to do so without contaminating a recycling container.

Pollution Prevention

7.26 Waste management activities have the potential to cause pollution via two predominant routes:

- Leachate generation as waste undergoes various degradation processes; and
- Gas liberation (including methane and hydrogen sulphide) due to biological activity under anaerobic conditions within landfill sites.

7.27 To minimise these pollution impacts, the following steps will be undertaken:

- Only appropriately licensed waste carriers will be used in accordance with applicable legislation;
- The contractor responsible for waste transport and disposal will be required to provide confirmation that the receiving facility is permitted under both the Environmental Permitting (England and Wales) (Amendment) (no.2) Regulations 2016 (Ref. 45) and the Pollution Prevention and Control Act 1999 as amended. As such, appropriate controls will be in place to monitor and control pollution from waste transport disposal; and
- Where possible, the waste management contractor will manage waste in accordance with the waste hierarchy, avoiding disposal of waste at landfill wherever feasible.

8 SUMMARY

- 8.1 The Proposed Development will be sustainable with high standards of environmental performance. As such, due consideration has been given to waste generated by the Development during its operation. Waste management within the Development has the following aims:
- To contribute towards achieving current and long-term government and RBC targets for waste minimisation, re-use and recycling;
 - To allow that all legal requirements for handling and management of waste during operation of the Development are complied with; and
 - To provide tenants with convenient, clean and efficient waste management systems that enhance the operation of the buildings and promote high levels of recycling.
- 8.2 The waste storage and collection strategy will be detailed at the Reserved Matters Application stage(s) which will be supported by a Detailed Operational Waste Strategy for each Phase of the Application. The Detailed Strategy(s) will be produced in accordance with the measures and guidance outlined in this WMP and RBC's Waste Management Guidelines.
- 8.3 All waste infrastructure introduced to the Development will comply with Building Regulations Part H6 and BS 5906:2005. The Development will be designed to be compliant with all relevant waste management policy.