Kelland Homes Limited

Operational Waste Management Plan

Clonburris K1, County Dublin

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RSK GENERAL NOTES

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	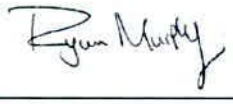		
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CONTENTS

FIGURES

1 INTRODUCTION

1.1 This Operational Waste Management Plan has been prepared by RSK to provide an assessment of the impacts arising from the generation of waste materials during the operational phase of the proposed development for Clonburris Apartments, County Dublin. It will outline how waste arising from residential elements of a completed and operational development will be managed.

1.2 This document is to accompany the planning application for the development that is located on Clonburris, County Dublin.

2 TRENDS IN WASTE MANAGEMENT

National Level

2.1 These govern the way in which waste is managed and outline responsibilities of waste producers, carriers and receivers, planning authorities and regulators and other waste management organisations. The Principal legislation is the Waste Management Act 1996, and a series of regulations have been produced under this act. These legislative instruments are summarised in this report. For example, this legislation will apply to:

- The Authorisation of Waste Facilities and Waste Collection Activities
- Waste Management Planning
- Hazardous Waste
- Waste Electrical and Electronic Equipment
- The Movement of Waste

2.2 Waste Management Policy is set by the Government and is detailed in four key policy documents. It is strongly based upon the Waste Hierarchy and includes measures that are relevant to all 5 tiers of the hierarchy (prevention and minimisation, reuse, recycling, recovery and disposal).

2.3 The Government issued a Policy Statement in September 1998 called '*Changing Our Ways*', which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing our reliance on landfill and finding alternative methods of managing waste.

2.4 It highlighted the mandatory obligations under the Waste Management Act 1996 to increase the cost of disposing of waste to landfill, in the absence of voluntary industry-led initiatives. Specifically, '*Changing Our Ways*' required a diversion of 50% of overall waste (based on 1998 levels) from landfill, a minimum 65% reduction in biodegradable wastes consigned to landfill and the recycling of at least 35% of municipal waste, all by 2013.

2.5 A further policy document '*Preventing and Recycling Waste - Delivering Change*' was published in 2002. This document proposed a number of programmes to increase recycling of waste and to divert waste from landfill and also made clear that waste minimisation at source should be a priority, that is waste production should be reduced at source where possible.

2.6 This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002 in preparation for the World Summit in Johannesburg and was titled '*Making Irelands Development Sustainable - Review, Assessment and Future Action*'. This document also stressed the need to break the link between economic growth and waste generation, again through waste minimisation and reuse of discarded material.

2.7 In order to establish the progress of the Government policy document – '*Changing Our Ways*', a review document was published in April 2004, titled '*Taking Stock and Moving Forward*'. The aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the

local authority waste management plans were put in place, and to identify measures that can be undertaken to further support progress towards the objectives outlined in the policy document.

Regional Level

2.8 The proposed development is located in the Local Authority of South Dublin County Council (SDCoCo).

2.9 *The Eastern Midlands Region Waste Management Plan* 2015 - 2021 provides a framework for the prevention and management of waste in a sustainable manner in 12 local authority areas including SDCoCo.

2.10 The three key objectives of the *Eastern-Midlands Region Waste Management Plan* are:

- Prevent waste: a reduction of one per cent per annum in the amount of household waste generated over the period of the plan.
- More recycling: increase the recycle rate of domestic and commercial waste from 40 to 50 per cent by 2020.
- Further reduce landfill: eliminate all unprocessed waste going to landfill from 2016 onwards.

2.11 Future targets set in the Plan for 2030 include:

- Preparing for reuse and recycling of 60-70% of municipal waste by the end of 2030.
- Reduce and where possible, eliminate the landfilling of all major waste streams including municipal, industrial, and construction & demolition wastes in favour of the recovery of residual wastes.

2.12 Further to this, the development will comply with the requirements set out in the *Dun Laoghaoire Rathdown County Council Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste*, 2019 or any revision thereof, must be adhered to and, in particular, the requirement in the Bye-Laws to segregate waste into separate fractions to facilitate the collection of dry recyclables, organic kitchen/garden waste and residual waste in line with *Waste Management (Food Waste) Amendment Regulations 2015* (S.I. 190 of 2015), the *European Union (Household Food Waste and Bio-waste) Regulations 2015* (S.I. 430 of 2015) and the *Eastern - Midlands Region Waste Management Plan* 2015-2021.

Local Authority Level

2.13 The SDoCo Development Plan (2016-2022) illustrates that waste management plan is a vital requirement in the advocating for sustainable development, enhancing good public health and for the protection of the environment. The SDCoCo is strongly committed to both national and EU waste management goals and legislation.

2.14 The Development Plan has identified key objectives applicable to the proposed development. These are as follows:

- **IES Objective 1:** To support the implementation of the Eastern–Midlands Region Waste Management Plan 2015-2021 by adhering to overarching performance targets, policies and policy actions.
- **IES Objective 2:** - To support waste prevention through behavioural change activities to de-couple economic growth and resource use.
- **IES Objective 3:** - To encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources.
- **IES Objective 5:** - To provide for and maintain the network of bring infrastructure (e.g. civic amenity facilities, bring banks) in the County to facilitate the recycling and recovery of hazardous and non-hazardous municipal wastes.
- **IES Objective 8:** - To secure appropriate provision for the sustainable management of waste within developments, including the provision of facilities for the storage, separation and collection of such waste.

2.15 The local development plan also highlights to the following action that will implemented in all developments during this period: to implement the national waste prevention programme at a local level with households, to promote the amount an increase in the amount of waste re-used and recycled in conjunction with the Regional Waste Management Plan and Waste Hierarchy and to implement the South Dublin Litter Management Plan 2015 – 2019.

Legislative Requirement

2.16 The primary legislative instruments that govern waste management (both hazardous and non-hazardous) in Ireland and applicable to the project are:

- Waste Management Act 1996 (Act No. 10 of 1996) as amended 2001 (Act No. 36 of 2001), 2003 (Act No. 27 of 2003) and 2011 (S.I. No 20 of 2011). Subordinate and associated legislation includes:
    - *European Communities (Waste Directive) Regulations 2011* (SI 126 of 2011) as amended 2011 (S.I. No. 323 of 2011)
    - *Waste Management (Collection Permit) Regulations 2007* (S.I No. 820 of 2007 as *amended 2008 (S.I No 87 of 2008) and 2016 (S.I No. 24 of 2016)*
    - *Waste Management (Facility Permit and Registration) Regulations, (S.I No. 821 of 2007) as amended 2008 (S.I No. 86 of 2008), 2014 (S.I No. 320 and No. 546 of 2014) and 2015 (S.I.* No. 198 of 2015)
    - *Waste Management (Licensing) Regulations 2000* (S.I No. 185 of 2000) as amended 2004 (S.I. No. 395 of 2004) and 2010 (S.I. No. 350 of 2010)
    - *European Union (Packaging) Regulations 2014* (S.I. 282 of 2014) as amended 2015 (SI No. 542 of 2015).
    - *Waste Management (Planning) Regulations 1997* (S.I. No. 137 of 1997)
    - *Waste Management (Landfill Levy) Regulations 2015* (S.I. No. 189 of 2015) o European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)

- *Waste Management (Batteries and Accumulators) Regulations 2014* (S.I. No. 283 of 2014) as amended 2014 (S.I. No. 349 of 2014) and 2015 (S.I. No. 347 of 2015)
- *Waste Management (Food Waste) Regulations 2009* (S.I. 508 of 2009) as amended 2015 (S.I. 190 of 2015) and European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
- *Waste Management (Hazardous Waste) Regulations, 1998* (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000)
- *Waste Management (Shipments of Waste) Regulations 2007* (S.I. No. 419 of 2007) as amended by European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
- *European Communities (Transfrontier Shipment of Waste) Regulations 1994* (S.I. No. 121 of 1994)
- *European Union (Properties of Waste which Render it Hazardous) Regulations 2015* (S.I. No. 233 of 2015)

- Planning and Development Act 2000 as amended 2010 (Act No. 30 of 2010) and 2015 (S.I. No. 264 of 2015, S.I. 310 of 2015).
- Protection of Environment Act 1992 as amended (Act. No. 27 and S.I. 413 of 2003) as amended by the Planning and Development Act 2000 (Act No. 30 of 2000).
- Litter Pollution Act 1997 (Act No. 12 of 1997) as amended by the Litter Pollution Regulations 1999 (S.I. No. 359 of 1999) and Protection of the Environment Act 2003.

2.17 These Acts and subordinate Regulations enable the transposition of relevant European Union Policy and Directives into Irish law.

2.18 One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management (amended) Act 2001 and subsequent Irish legislation, is the principle of "Duty of Care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

2.19 It is therefore imperative that occupants undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licensed contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handle, transport, and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

2.20 A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the Waste Management

(Facility Permit & Registration) Regulations 2007 as amended or a waste or IED (Industrial Emissions Directive) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

3 DESCRIPTION OF THE PROPOSED SITE

3.1 Kelland Homes Ltd seeks permission for development on a site area of 6.3Ha, on lands within the townland of Cappagh, Dublin 22. The proposed development is located west of the Ninth Lock Road, south of the Dublin-Cork railway line, north of Cappaghmore housing estate and Whitton Avenue, and east of an existing carpark / park & ride facility at the Clondalkin Fonthill train station and the R113 (Fonthill Road). The proposed development is located within the Clonburris Strategic Development Zone (SDZ), within part of the development areas of Clonburris Urban Centre (i.e. CUC-S4) and Clonburris South East (i.e. CSE-S1 & CSE-S2), as identified in the Clonburris SDZ Planning Scheme 2019

3.2 The proposed development consists of the construction of 294 no. dwellings, comprised of:

- 118 no. 2, 3 & 4 bed, 2 storey semi-detached and terraced houses;
- 104 no. 2 & 3 bed duplex units accommodated in 10 no. 3 storey buildings;
- 72 no. 1 & 2 bedroom apartments in 2 no. 4 & 6 storey buildings;
- 1 no. 2 storey creche (c.520.2m²);
- 1 no. 2 storey retail /commercial unit (c.152.1m²).

3.3 Access to the development will by via the permitted road network (under Ref. SDZ20A/0021) which provides access from the Ninth Lock Road to the east and the R113 (Fonthill Road) to the west. The proposed development will connect into the permitted infrastructural works as approved under the Clonburris Strategic Development Zone Planning Scheme (2019) and permitted under Ref. SDZ20A/0021, with the proposed development connecting into the permitted surface water drainage attenuation systems i.e. 1 no. pond, 3 no. modular underground storage systems and 1 no. detention basin combined with modular underground storage systems. The proposed wastewater infrastructure will connect into a permitted foul pumping station and pipe network within proposed road corridors to facilitate drainage connections to future wastewater drainage infrastructure within the adjoining SDZ lands (including future Irish Water pumping station permitted under SDZ21A/0006).

3.4 The proposed development also provides for all associated site development works above and below ground, public & communal open spaces, hard & soft landscaping and boundary treatments, surface car parking, bicycle parking, bin & bicycle storage, public lighting, plant (M&E), utility services & 4 no. ESB sub-stations.

3.5 This application is being made in accordance with the Clonburris Strategic Development Zone Planning Scheme 2019 and relates to a proposed development within the Clonburris Strategic Development Planning Scheme Area, as defined by Statutory Instrument No. 604 of 2015.

4 GENERATION OF OPERATIONAL WASTE

4.1 In order to comply with national and regional legislation and guidance the development will ensure that the following wastes are managed on site:

- Dry Mixed Recyclables (DMR) – includes cardboard, paper, plastic packaging and bottles, aluminium cans, tins and Tetra Pak cartons;
- Mixed Non-Recyclable (MNR) / Residual/ General Waste;
- Organic waste – to include both food waste and the limited quantities of green waste, and;
- Glass.

4.2 In addition to the typical waste materials that will be generated on a daily basis, there will be some additional waste types generated in small quantities that may on occasion need to be managed separately including:

- Batteries;
- Waste electrical and electronic equipment (WEEE);
- Chemicals (solvents, pesticides, paints, adhesives, resins, detergents, etc.);
- Fluorescent tubes and other mercury containing waste, and;
- Furniture (and from time to time other bulky wastes).

4.3 Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

5 RESIDENTIAL WASTE GENERATION FIGURES

5.1 When estimating the waste storage requirements for residential developments, previous guidance from the Local Authority has been for the provision of 3 X 1,100 litre bins per 15 residents, one for each of the following waste types: general waste, mixed dry recycling, and organic/food waste.

5.2 This requirement has been relaxed if supporting documentation can prove that the quantity of bin storage is adequate for the development and can be clearly shown with submissions and back up documents.

5.3 The following calculations have used national statistics on waste to calculate the quantity of waste that will be generated at the site and the number of containers required.

5.4 Residential waste will be collected from site twice a week. The arrangement for this waste collection will be such that the first collection will be on Day 1 of the 7-day week and the second collection will be on Day 4 or 5 of the 7-day week. As a result, there will be a requirement to ensure there is enough waste storage capacity at the site for 4 days maximum.

5.5 A value of 3.37 Kg of waste generated per person over a 4 day period has been taken for the purposes of this report to estimate the volume of waste to be generated by the residential units. Historical data obtained from the EPA ('The household waste per person in Ireland has been decreasing over the period 2006 to 2012 from 470 kg/person in 2006 to 344 kg/person in 2012.'-Extract from 2013 'EPA Publication, National Waste Prevention Programme'). More recent data states that the local authority area of the development generated 307kg of household waste per person in 2016/17 according to the most recent Eastern Midlands Waste Report.

5.6 The wastes generated within the residential development at the site will be comprised of the following:

- Mixed Non-Recyclable waste - 23%;
- Dry Mixed Recyclable Waste - 34.5% (includes wastepaper (including newspapers, magazines, brochures, catalogues, and leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons);
- Organic Material – 117kg per year of Food Waste, and;
- Glass – 5%.

Population

5.7 When estimating the quantity of waste generated at the development, we need to consider the number of residents in the apartment development.

5.8 We have provided both best- and worst-case scenarios in terms of population, where best case is a minimum population size and worst is maximum population size.

5.9 The proposed development consists of the construction of 294 no. dwellings, crèche and retail / commercial unit, comprised of:

- 118 no. 2, 3 & 4 bed, 2 storey semi-detached and terraced houses;
- 104 no. 2 & 3 bed duplex units accommodated in 10 no. 3 storey buildings;
- 72 no. 1 & 2 bedroom apartments in 2 no. 4 & 6 storey buildings;
- 1 no. 2 storey creche (c.520.2m²);
- 1 no. 2 storey retail/commercial unit (c.152.1m²).

5.10 RSK have assumed the following for the purposes of this report:

- The minimum number of residents for a one bedroom dwelling is one person and the maximum number of residents for a one bedroom dwelling is two persons.
- The minimum number of residents for a two bedroom dwelling is two persons and the maximum number of residents for a two bedroom dwelling is four persons.
- The minimum number of residents for a three bedroom dwelling is three persons and the maximum number of residents for a three bedroom dwelling is six persons.
- The minimum number of residents for a four bedroom dwelling is four persons and the maximum number of residents for a four bedroom dwelling is eight persons.

5.11 Based on the information provided RSK understands that the breakdown of the 294 dwellings are as follows:

- 20 no. 1 bed dwellings
- 123 no. 2 bed dwellings
- 139 no. 3 bed dwellings
- 12 no. 4 bed dwellings

Table 5-1: Minimum and Maximum Population Occupancy

Unit Type	Minimum number of residents	Maximum number of residents
1 bed	20	40
2 bed	246	492
3 bed	417	834
4 bed	48	96
Total	731	1462

Waste Generation

5.12 It has been calculated that 3.37kg of waste will be generated per person over a 4 day period, approximately 23% is Mixed Non-Recyclable Waste (MNR), 34.50% is Dry Mixed Recyclable Waste (DMR), 5% is Glass Waste and a value of 117kg of Organic Material

Waste was used to calculate as organic waste within this development as it is unlikely to comprise of much green waste generation as there are limited gardens, meaning a value 117kg value for food waste will be used to calculate Organic Waste Generation, this figure is taken from most recent Eastern Midlands Waste Report in 2016/2017 https://www.dccae.gov.ie/en-ie/environment/topics/sustainable-development/waste-prevention-programme/Pages/Stop-Food-Waste0531-7331.aspx)..

5.13 Therefore, based on this, the operational phase of the development is subject to generate the following quantities of waste at the minimum and maximum occupancy over a 4 day period.

Table 5-2: Min vs Max Weight Of Waste Streams (kg)

Occupancy	Total Weight (kg)	MNR (kg)	DMR (kg)	Food Waste (kg)	Glass (kg)
731	2,442	562	842	937	122
1462	4,883	1123	1685	1875	244

Table 5-3 Min Quantity of Waste Generated in 4 days (tonnes)

Min No. of Residents	Quantity of non-recyclable waste generated (tonnes)	Quantity of dry mixed recyclable waste generated (tonnes)	Quantity of food waste generated (kgs)	Quantity of glass waste generated (tonnes)
731	0.5615542	0.8423313	0.937282192	0.122077

Table 5-4 Max Quantity of Waste Generated in 4 days (tonnes)

Max No. of Residents	Quantity of non-recyclable waste generated (tonnes)	Quantity of dry mixed recyclable waste generated (tonnes)	Quantity of food waste generated (kgs)	Quantity of glass waste generated (tonnes)
1462	1.1231084	1.6846626	1.874564384	0.244154

5.14 To determine the volume of waste we can use a waste conversion factors to convert from tonnes to m^3, the table below calculates all waste streams conversions (tonnes/m^3) used (source – Environment Agency). Cubic metres are then converted to litres. These calculations have then been used to establish the number of 1,100 litre containers and

660 litre containers that would be required to satisfy the calculated minimum and maximum apartment occupancy numbers depending on waste stream.

Table 5-5: Min vs Max Quantity Conversion Factor (tonnes/m^3)

Waste Stream	Waste Conversion Factor (t/m^3)	Waste Conversion Factor (t)	Volume of Waste for 731 residents (litres)	Volume of Waste for 1462 residents (litres)
MNR	0.26	0.00026	2,160	4,320
DMR	0.2	0.0002	4,212	8,423
Glass	0.3	0.0003	407	814
Organic	0.2	0.0002	4,686	9,373

Waste Storage Container Requirements

5.15 The above calculations or both minimum and maximum occupancy have been used to calculate the estimated number of containers required for the residential apartment block for the stated waste streams in the operational phase.

Table 5-6: Min vs Max Waste Storage Container Requirements for 4 days

Occupancy	Total number of 1,100 litre container for MNR waste required	Total number of 1100 litre container for DMR waste required	Total number of 660 litre container for food waste required	Total number of 660 litre container for glass waste required
731	1.963476224	3.828778636	7.100622665	0.616550505
1462	3.926952448	7.657557273	14.20124533	1.23310101

6 STORAGE OF OPERATIONAL WASTE

6.1 The developer will therefore provide the most appropriate facilities for waste and recycling management based on the needs of the development.

6.2 The *Eastern-Midlands Region Waste Management Plan* 2015 – 2021 does not provide guidance regarding the waste storage facilities required. The following is a summary of feedback provided by a local authority in Dublin County for waste storage areas.

- Waste storage areas should within a brightly lit (a minimum Lux rating of 220 is recommended), safe and well-designed area, spacious enough for easy manoeuvrability, good ventilation and ready access if required for the control of potential vermin.
- Sufficient access and egress must be provided to enable receptacles to be moved easily from the storage area to an appropriate collection point on the public street nearby. i.e. Passageways and doors to be wide enough, no steps between waste storage area and collection point and as small an incline as possible to allow easy movement of containers. As short a distance as possible between storage area and collection point.
- Suitable wastewater drainage points should be installed in the receptacle storage area for cleaning and disinfecting purposes. There should be a floor sloped to a central foul drain and a hot and cold-water supply to facilitate cleaning and disinfection of bins. This is standard practice and should be included.

6.3 In addition, the following will be considered:

- Should a twice weekly collection of waste be undertaken, the maximum length of time between any two collections will be 4 days.
- Bins will comply with IS EN 840 1997. The bin dimensions outlined within the table 6.1 below will be considered when planning waste storage areas. In addition to the bins listed, further consideration will be required for the storage of any additional containers and bags for other recyclables that may be generated.
- Floors within waste storage areas will be fitted with a non-slip floor surface;
- There will be suitable access and egress to waste storage areas to enable bins to be moved easily to/from collection point with no steps and minimal incline ramp
- All surfaces that containers need to move over shall be of a smooth continuous finish and free from steps or other obstacles. Steps shall incorporate a drop-kerb.
- Any waste area should ideally be located clear of any road, pavement and cycleway.
- Bin store doors must be lockable with access only available to authorised people. Bin store doors should be wide enough to allow bins to be removed for emptying and with doors that can be secured in the open position to allow safe movement of bins. Arrangements will need to be agreed with the waste contractors with regards to collection.

- 240 litre containers have been suggested for glass. However, larger containers may be considered where required.

Operational Waste Collection

6.4 Only companies who are approved and hold a waste collection permit will be considered for the collection of any waste. This will ensure that wastes are collected and disposed of at an approved facility.

6.5 A list of the approved waste collection providers can be found on the DCC website at https://www.dublincity.ie/residential/environment/waste-and-recycling/your-waste-collection-services

6.6 Non-recyclable waste, dry recyclable waste and organic waste may be collected twice a week, with a period no greater than 4 days between each collection. All waste storage bins will be presented for collection in a manner that will not create a hazard to traffic.

6.7 Records of the waste collections will be maintained by the facilities management company for the development.

6.8 Typical dimensions of waste receptacles used in the WSAs are shown in the table below.

Table 6-1: Waste Container Dimensions

Container Type	Size (litres)	Dimensions (height x width x depth in mm)
1100 litre 'Euro' bin (4-wheel bin)	1,100	1380 x 1270 x 1000
660 litre bin	660	1340 x 1200 x 700
240 litre standard bin	240	1075 x 580 x 715

Figure 6-1 Typical Waste Receptacles

6.9 Each bin/container will be clearly labelled and/or colour coded to avoid cross contamination of the different waste streams. Signage will be posted above and/or on the bins to show exactly which waste types can be placed in each bin. Dry Recyclable, non-recyclable, organic and glass waste bins will be required to be collected/emptied twice a week.

6.10 Access for vehicles will be designed in accordance with the requirements laid out by *BS 5906:2005 Waste management in buildings — Code of practice*. This will be dealt with at the detailed design stage.

6.11 Access to the waste storage area should be restricted to facilities management only. The areas will be suitably screened from public view and restricted to access by authorised personnel only. Access by any appointed waste contractor would need to be arranged.

6.12 A Waste Storage Area (WSA) has been allocated for this development.

7 SUMMARY

Operational Waste Management Plan

7.1 The table below presents a summary of the calculated minimum and maximum number of waste containers that will be required for the entire residential development. These numbers are based on a maximum requirement of waste storage for every 4 days.

Table 7-1: Waste Container Requirements for four days

Waste Type	Residual/Non-recyclable	Dry Mixed Recyclables	Glass Waste	Food/Organic Waste
Bin/Container Type	**1100 litre containers**	**1100 litre containers**	**240 litre containers**	**240 litre containers**
Total Bin/Container (731 residents)	2 No. (+1 overspill)	4 No (+1 overspill)	8	1
Total Bin/Container (1462 residents)	4 No. (+1 overspill)	8 No (+1 overspill)	14	2

7.2 The residential development will therefore need to have waste storage for a minimum of eight no. (8) 1,100 litre containers and nine no. (9) 660 litre containers and a maximum of fourteen no. (14) 1,100 lire container and sixteen no. (16) 660 litre containers for a 4 day capacity requirement.

Waste Storage Area Design

7.3 All new developments are provided to the satisfaction of the Council with adequate provision for the storage, collection and management of waste generated and any associated recycling needs, i.e. sufficient and well-designed internal and external accommodation for storage of waste and any associated access for collection.

8 CONCLUSION

8.1 Waste generated on site will be managed in an appropriate manner and in a sustainable way. The principles of the waste hierarchy will be complied with to ensure the environmental risks are minimised and the policies of SDCoCo are adhered to.

8.2 Given that the proposed development will be mixed use; bin storage requirements for non-recyclable waste, organic and dry recyclables will be efficiently met by external storage arrangements. In addition, the final design of the development element of the development will comply with SDCoCo/BS 5906 guidance requiring adequate access for refuse vehicles and refuse collectors.

8.3 The development will, as a minimum, incorporate adequately sized internal and external waste and recycling storage areas for dry recyclable, non-recyclable, organic and glass waste containers.

8.4 This Waste Management Plan is an outline strategy only at this stage of the development. As each phase of the development progresses, the Waste Management Plans can be developed and/or amended as necessary.

9 REFERENCES

1. Environment Agency. Guidance on the classification and assessment of waste (1st edition; 2018)
2. Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, August 2017).
3. Waste Framework Directive (2008/98/EC).
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5. European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended 2011 (S.I. No. 323 of 2011)
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