



Cove Communities Ltd

# Medmerry Park, Earnley, Chichester

Outline Waste Management Plan

## RSK GENERAL NOTES

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**Client:** Cove Communities Ltd

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Revision No.	Revision Information	Date	Reviser
00	First issue submitted to client.	06/06/2023	Andrew Sowerby

# 1 INTRODUCTION

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## 1.1 Background

- 1.1.1 This Outline Waste Management Plan (OWMP) has been prepared by RSK on behalf of Cove Communities Ltd ('the Applicant') to support the Material Resources and Waste Chapter of an Environmental Impact Assessment to be submitted as part of an application made ('the Application') for the phased demolition, redevelopment and refurbishment ('the Proposed Development') of Medmerry Park, Earnley, Chichester, PO20 7JP ('the Site') within West Sussex.
- 1.1.2 Full details and scope of the application is described in the submitted Planning Statement, prepared by Laister Planning.
- 1.1.3 This report considers the potential overall impacts that may arise as part of the development from waste generated during site preparation, construction and operational phases, with an overall aim of developing a strategy for legislative compliance and good practice in the separation, storage, collection, treatment and/or disposal of waste arisings.
- 1.1.4 The report also outlines the opportunity for implementing waste mitigation measures for the potential impacts from each phase of the development, specifically site preparation (including any demolition), construction and operation, in order to assure such measures are consistent with both government and local authority waste policies and targets.

## 1.2 Summary of Proposed development

- 1.2.1 The site falls within Chichester District Council area and is approximately 33.3 hectares in size. Consisting of the main built up area of Medmerry Park and adjoining amenity land.
- 1.2.2 The application site currently comprises an established Holiday Park and visitor destination. It has been used as a holiday park since the 1930s and many of the existing lodges were installed in the 1960s and 1970s. Refurbishment of lodges and facilities has been ongoing.
- 1.2.3 A scheme is proposed to redevelop the site. The description of the development is as follows:

*'Phased demolition, redevelopment and refurbishment of Medmerry Park to provide 308 holiday lodges, wetland lakes, amenity lake and beach, central village hub, boathouse, children's play and picnic area, adventure playground, adventure golf and paddle tennis, beachside pool, tennis courts and playing field, back of house maintenance area, associated landscaping, drainage facilities, car parking, access roads and habitat enhancement areas.'*
- 1.2.4 The construction period is currently anticipated to take approximately six years and has been designed to be undertaken over five different phases to ensure that

each phase is self-contained with minimal impact on the existing operation of the park. A summary of the different phases is provided in **Table 1** below.

**Table 1. Brief Overview of Phases**

Phase		Activity
1	a	Construction of two wetland lakes, internal roads associated with lakes Construction of 100 lodges Creation of landscape bunding along northeast boundary of site Refurbishment and extension of existing facilities to create central village hub Refurbishment and extension of swimming pool area Development of adventure playground Development of adventure golf and tennis facilities Landscaping and first phase of ecological enhancements
	b	Demolition of 116 units
	c	Construction of back of house operations and facilities
2	a	Construction of activity lake and boathouse store Construction of screening bund at northern boundary Construction of dining/picnic area, childrens' play area and open air cinema
	b	Reprofiling of ground levels Construction of 113 lodges
	c	Demolition of 66 units Construction of 24 lodges Construction of outdoor amenity area Second phase of ecological enhancements
3	a	Construction of 40 lodges
	b	Demolition of 95 units
4		Construction of wetland area Construction of 22 lodges Demolition of 31 units Landscaping Resurfacing of internal access roads
5		Construction of 9 lodges Landscaping and ecological enhancements Resurfacing of internal access roads

- 1.2.5 The purpose of this Outline Waste Management Plan (OWMP) is to assist the Applicant, Developer and Local Authority to manage and minimise the production of waste during site preparation, any required demolition of existing structures, construction of the proposed development and during operation.

### 1.3 Assessment Aims

- 1.3.1 The aim of this OWMP is to consider the key issues associated with the sustainable management of construction waste at the proposed development with particular reference to;

Identifying opportunities to maximise the reduction, reuse, recycling and recovery of waste and thereby minimising disposal in line with Government policy; and

Identifying opportunities for waste segregation and the transfer of waste to appropriate processing facilities.

### 1.4 Methodology

- 1.4.1 The development of this OWMP has involved a number of tasks including;

A desk top review to collate information relating to waste generation, collection, and disposal options;

A review of Chichester District Council's and West Sussex Council's waste management requirements, as the local planning authorities, and any forthcoming policy changes for development in the area;

A review of available and accessible planning and policy guidance; and

Identification of opportunities for waste minimisation, reuse and recycling during the site preparation (including demolition where required), construction and operational phase (including options for sustainable re-use and recycling of wastes such as Environmental Permit Exemptions; the CL:AIRE DoWCoP (for re-use of soils); and WRAP Quality Protocol (for the reuse of demolition materials)).

### 1.5 Limitations

- 1.5.1 This report should be considered in the light of any changes in legislation, statutory requirement or industry practices that may have occurred subsequent to the date of issue.

The comments given in this report and the opinions expressed are based on the plans provided at the time and discussions with relevant parties. However, there may be conditions pertaining to the site that have not been disclosed by investigations and therefore could not be taken into account.

The comments given in this report are subject to RSK's 'Service Constraints' provided in **Appendix A**.

## 2 WASTE LEGISLATION, POLICY AND GUIDANCE

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### 2.1 Introduction

2.1.1 This section contains detail of the national legislation as well as regional and local waste policy and guidance that has relevance to this proposed development.

### 2.2 National Legislation

#### Waste Framework Directive

2.2.1 The key European legislation is the revised Waste Framework Directive (2008/98/EC) ('rWFD'), which consolidates a number of separate waste Directives and amendments. It establishes the basis for the management of wastes across the European Union (EU). It defines certain terms, such as "waste", "recovery" and "disposal", to ensure that a uniform approach is taken across the EU. Following the UK withdrawal from the EU, this directive still applies through the implementation of the European Union (Withdrawal) Act 2018 and the European Union (Withdrawal Agreement) Act 2020 (see Section 2.2.6).

#### Duty of Care

2.2.2 The waste duty of care is a legal requirement, originally implemented by Section 34 of the Environmental Protection Act 1990 and still applicable, to ensure that producers and holders handle their waste safely and in compliance with the appropriate regulations. One of the fundamental aspects of duty of care requires the holder of waste to make sure that anyone else dealing with their waste has the necessary authorisation to do so. If the holder does not do this and their waste is subsequently found to have been illegally disposed, the holder could be held responsible and may face prosecution. The duty of care provisions are contained in the Waste (England & Wales) Regulations 2011 SI 2011 No. 988.

#### The Waste Regulations

2.2.3 The Waste (England and Wales) Regulations 2011 SI 2011 No. 988, implement the rWFD in England and Wales. The waste hierarchy is set out at Article 4 of the rWFD. The waste hierarchy requires a demonstration by the producer/holder of a waste that the priority identified in **Table 2** has been considered in order to determine the most suitable waste management option for all waste arisings:



**Table 2: The Waste Hierarchy** (reproduced from Defra website)

Waste Hierarchy	Relevant Activity
Prevention	using less material in design and manufacture, keeping products for longer, re-use, using less hazardous materials
Preparing for re-use	the waste is capable of being recycled by existing local or regional waste management facilities without requiring adaptation
Recycling	turning waste into a new substance or product, includes composting if it meets quality protocols
Other recovery	includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat, and power) and materials from waste, some backfilling
Disposal	landfill and incineration without energy recovery

2.2.4 It is a legal requirement for waste producers/holders to follow the waste hierarchy when making decisions about waste management options for waste. Waste holders must choose the highest possible hierarchical option for their wastes. Lower hierarchical options cannot be justified by cost alone. They require environmental justification over available higher options, for example the location of a site may justify sending waste to a lower option (e.g. local landfill), rather than sending it hundreds of miles to the nearest facility that could provide a higher option.

### **Hazardous Waste Regulations**

2.2.5 The Hazardous Waste Regulations (HWR) provides the rules for assessing if a waste is hazardous or not as set out under the EU List of Wastes Decision 2000/532/EC. As part of the assessment of waste, Hazardous wastes are identified in the European Waste Catalogue (EWC) by an asterisk (\*). Some types are classed as hazardous outright (known as absolute entries in the EWC), others require separate assessment dependent upon the concentration of dangerous substances present above threshold concentrations (known as mirror entries in the EWC). The HWR refer to the List of Wastes for the relevant thresholds for some of the hazardous properties; and to assign the formal description and code for the waste. The regulatory framework to do this is contained in:

Hazardous Waste (England and Wales) Regulations 2005 SI 894;  
 Hazardous Waste (England and Wales) (Amendment) Regulations 2009 SI 507;  
 Hazardous Waste (Miscellaneous Amendments) Regulations SI 2015/1360; and  
 Hazardous Waste (England and Wales) (Amendment) Regulations 2016 (SI 2016/334).

Following the UK withdrawal from the EU, the implementation of the European Union (Withdrawal) Act 2018 and the European Union (Withdrawal Agreement) Act 2020 (see Section 2.2.6) means that this legislation is currently unaffected.

## **European Union (Withdrawal) Act 2018 and European Union (Withdrawal Agreement) Act 2020**

2.2.6 On 31 December 2020 the effect of the European Communities Act 1972 (ECA 1972) ceased and no longer serves as a conduit through which the EU can directly affect UK legislation. The European Union (Withdrawal) Act 2018 and European Union (Withdrawal Agreement) Act 2020 provide a framework to ensure the legal position that existed before 31 December 2020 will continue to be preserved by retaining EU law that applies to the UK at that point and bringing it within the UK's domestic legal framework as a new category of law – Retained EU Law. The acts also provide the government with the necessary powers to amend or disapply Retained EU Law where it is considered appropriate.

## **Environment Act 2021**

2.2.7 This legislation that was passed in November 2021 and is meant to protect and enhance our environment for future generations. It aims to clean up the country's air, restore natural habitats, increase biodiversity, reduce waste and make better use of our resources. To support the UK's transition to a more circular economy by incentivising people to recycle more. Encouraging businesses to create sustainable packaging, making household recycling easier and stopping the export of polluting plastics to developing countries. The Act contains several provisions relating to waste which waste collection and waste disposal authorities should be aware of.

Recyclable household waste must be collected separately from other household waste, for recycling or composting. The Secretary of State will have the power to add further recyclable waste streams.

Recyclable household waste must be collected as individual streams unless certain exceptions apply. To rely on these exceptions, a waste collection authority must provide a written assessment stating it considers that separate collection:

- Would not be technically or economically practicable; or
- Has no significant environmental benefit

Dry recyclable waste streams must never be mixed with food or garden waste streams.

Food waste collection must take place at least once a week.

It should also be noted that these requirements are applicable to commercial waste and industrial waste collections.

## **2.3 National Waste Policy and Guidance**

### **National Planning Policy Framework 2021**

2.3.1 An update to the National Planning Policy Framework (NPPF) has been published in July 2021 to replace the previous version published in February 2019. It sets out the Government planning policies for England and how these are expected to be applied. This NPPF also supersedes the previous NPPF published in July 2018 and March 2012.

- 2.3.2 Planning law requires that applications for planning permission be determined in accordance with the development plan unless material considerations indicate otherwise. The National Planning Policy Framework must be taken into account in preparing the development plan and is a material consideration in planning decisions.
- 2.3.3 The revised NPPF maintains that plans and decisions should apply a presumption in favour of sustainable development which should be delivered in accordance with three main objective areas: economic, social and environmental (Paragraph 8 of the Framework document). The revised NPPF aims to enable local people and their local authorities to produce their own distinctive local and neighbourhood development plans, which should be interpreted and applied to meet the needs and priorities of their communities.
- 2.3.4 The environmental objective refers to the importance of waste management and resource efficiency. The NPPF should be read in conjunction with the National Planning Policy for Waste (2014) including the Waste Management Plan for England (2013) and Planning Practice Guidance which are discussed in the following sections of this Audit.

#### **Planning Practice Guidance 2021**

- 2.3.5 The Planning Practice Guidance (PPG) comprises a web-based resource in support of the NPPF. The document referring to waste details 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 2018**

- 2.3.6 Defra has published a waste and resources strategy for England. The strategy sets out the government's plan to double resource productivity and eliminate avoidable waste of all kinds, including plastic by 2050. The government's 25-year environment plan published in 2018 pledges to leave the environment in a better condition for the next generation. The Resources and Waste Strategy is a key part of this commitment.

### **Government Review of Waste Policy in England 2011**

- 2.3.7 Defra conducted a review of the existing national waste policy in 2011 to set a direction towards a 'Zero Waste Economy'. This included promising increased focus on business waste from the present trend of setting policies for household waste (which at the time represented only 9% of the overall arisings, compared to 24% for commercial & industrial waste).

- 2.3.8 In 2009, 47.9 million tonnes (Mt) of waste were generated by businesses. The industrial sector accounted for 24.1Mt and the commercial sector 23.8Mt. Estimates show that 52% of C&I waste was recycled or re-used and 24% was sent to landfill. In terms of the total amount of packaging waste produced, half becomes waste in the commercial and industrial sector, which represents about 1/10 of all commercial and industrial waste arisings. The 2010 Defra survey of Commercial and Industrial Waste Arisings revealed an overall recycling rate (including re-use) of 52%, up from 42% in 2002/03, compared to a household waste recycling of 40% today, up from 11% in 2000/01.

### **National Planning Policy for Waste 2014**

- 2.3.9 The updated policy maintains the core principles of the 'plan led' approach, with a continued focus of moving waste up the waste hierarchy. The policy states that new, non-waste developments must make sufficient provision for waste management and promote good design; include provision of waste storage facilities at residential premises; and the waste arising from the construction and operation of new development should be managed to maximise reuse/recovery opportunities and minimise off-site disposal.

### **Waste Management Plan for England 2021**

- 2.3.10 Defra published a Waste Management Plan for England in January 2021. The plan aims to aid in embedding sustainable thinking around waste management and bring about a real change in how we consume resources.

- 2.3.11 The Waste Management Plan for England focuses on waste arisings and their management. It is a high-level, non-site specific document. It provides an analysis of the current waste management situation in England and evaluates how the Plan will support implementation of the objectives and provisions of the Waste (England and Wales) Regulations 2011. The Waste Management Plan includes the measures to be taken so that, by 2035:

the preparing for re-use and the recycling of municipal waste is increased to a minimum of 65% by weight.

the amount of municipal waste landfilled is reduced to 10% or less of the total amount of municipal waste generated (by weight).

### **CL:AIRE Code of Practice (CoP)**

2.3.12 The definition of waste and re-use of materials can be complex, CL:AIRE (Contaminated Land, Application in Real Environments) have produced a Definition of Waste Code of Practice (DoWCoP) that can be followed when reusing source segregated aggregate on the site of production. The DoWCoP covers:

Ground based infrastructure that is capable of reuse within earthworks projects e.g. road base, concrete floors;

Source segregated aggregate material arising from demolition activities, such as crushed brick and concrete, to be reused on the site of production within earthworks projects or as sub-base or drainage materials; and

Stockpiled excavated materials that include the above.

2.3.13 A Materials Management Plan (MMP) must be developed to manage arisings from excavations and services as per the CL:AIRE Code of Practice. It should include:

- i. a description of the materials in terms of potential use and relative quantities;
- ii. details of where and how these materials will be stored;
- iii. details of the intended final destination and use of these materials; and
- iv. details of how these materials are to be tracked and moved.

## **2.4 Regional and Local Waste Policy**

### **West Sussex County Council - Our Council Plan 2021-2025<sup>1</sup>**

2.4.1 Our Council Plan sets out the councils ambitions and what they intend to achieve by 2025. It is based around four priority outcomes:

1. Keeping people safe from vulnerable situations;
2. A sustainable and prosperous economy;
3. Helping people and communities fulfil their potential; and
4. Making best use of resources.

The fourth priority outcome outlines how the best use of limited resources will be achieved and how the council will both deploy their own resources and work with partners to deliver on their ambitions.

### **West Sussex Waste Local Plan (April 2014)<sup>2</sup>**

2.4.2 The Waste Local Plan covers the period to 2031. It is one of the key planning policy documents and is the most up to date statement of the County Council's land use planning policy for waste.

Policy W23: Waste Management within Development

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<sup>1</sup> [https://www.westsussex.gov.uk/media/18668/our\\_council\\_plan.pdf](https://www.westsussex.gov.uk/media/18668/our_council_plan.pdf)

<sup>2</sup> [https://www.westsussex.gov.uk/media/3241/waste\\_local\\_plan\\_april2014.pdf](https://www.westsussex.gov.uk/media/3241/waste_local_plan_april2014.pdf)



*“Proposals for development will be permitted provided that:*

*(a) the waste generated during construction, demolition and excavation is minimised and that opportunities for re-using and recycling of waste are maximised; and*

*(b) waste management facilities of an appropriate type and scale are an integral part of the development.”*

### **Chichester Local Plan: Key Policies 2014 – 2029<sup>3</sup>**

2.4.3 Provides the vision and framework to shape Chichester District. Provides guidance on how new developments can address the challenges faced and identifies where, when, how much and how development will take place.

#### *Policy 40 Sustainable Design and Construction*

*“For all new dwellings or for new non-domestic buildings, evidence will be required by the developer to demonstrate that all of the following criteria have been considered (proportionate to the scale of development):*

- 1. How the proposal aims to protect and enhance the environment, both built and natural. Where this is not possible, how any harm will be mitigated;*
- 2. The proposal achieves a minimum of 110 litres per person per day including external water use;*
- 3. New development complies with Building for Life Standards or equivalent replacement national minimum standards, whichever are higher by ensuring it is accessible to all, flexible towards future adaptation in response to changing life needs, easily accessible to facilities and services; and takes into account the need for on-site waste reduction and recycling;*
- 4. Where appropriate, the proposals apply sound sustainable design, good environmental practices, sustainable building techniques and technology, including the use of materials that reduce the embodied carbon of construction and the use of re-used or recycled materials;*
- 5. Energy consumption will be minimised and the amount of energy supplied from renewable resources will be maximised to meet the remaining requirement, including the use of energy efficient passive solar design principles where possible;*
- 6. The proposals include measures to adapt to climate change, such as the provision of green infrastructure, sustainable urban drainage systems, suitable shading of pedestrian routes and open spaces and drought resistant planting/landscaping;*
- 7. The historic and built environment, open space, and landscape character will be protected and enhanced;*

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<sup>3</sup> [https://www.chichester.gov.uk/media/24759/Chichester-Local-Plan-Key-Policies-2014-2029/pdf/printed\\_version.pdf?m=635738654368370000](https://www.chichester.gov.uk/media/24759/Chichester-Local-Plan-Key-Policies-2014-2029/pdf/printed_version.pdf?m=635738654368370000)

8. *The natural environment and biodiversity will be protected and/or where appropriate provision will be made for improvements to biodiversity areas and green infrastructure;*
9. *The development is appropriate and sympathetic in terms of scale, height, appearance, form, siting and layout and is sensitively designed to maintain the tranquillity and local character and identity of the area; and*
10. *The reduction of the impacts associated with traffic or pollution (including air, water, noise and light pollution) will be achieved, including but not limited to the promotion of car clubs and facilities for charging electric vehicles. “*

#### **Chichester Local Plan 2021 – 2039 (not yet adopted)<sup>4</sup>**

- 2.4.4 The council are required to produce a new local plan to replace the one adopted in 2015. The new plan will replace the policies in the current adopted Local Plan. It will form part of the Development Plan for the area, together with the Site Allocation Development Plan document, the adopted Waste Local Plan and the Minerals Local Plan.

##### Policy NE2 Natural Landscape

*“The impact of all development proposals will be carefully assessed to ensure the protection, conservation and enhancement of the plan area's natural landscape. Planning permission will be granted where it can be demonstrated that all the following criteria have been addressed:*

1. *There is no adverse impact on the openness of the views in and around the coast, designated environmental areas, including the setting of the Chichester Harbour AONB and South Downs National Park as well as the rural character of the plan area generally;*
2. *Development proposals in the plan area are designed to respect, and enhance nationally designated sites, distinctive local landscape character, and public amenity whilst sensitively contributing to their settings;*
3. *Development proposals maintain the identity of settlements and ensure the integrity of predominantly open and undeveloped land between settlements is not undermined;*
4. *Development of poorer quality agricultural land is fully considered in preference to best and most versatile land (Grades 1, 2 and 3a[17]). Where proposals would result in the significant loss of best and most versatile agricultural land, proposals will need to consider the economic impacts and the impacts on soil, air, water or noise pollution, or land instability;*
5. *Development proposals within the setting of Chichester Harbour AONB should recognise its status as a landscape of the highest quality and should be designed to reflect this with the scale and extent of development limited, sensitively located and designed to avoid or*

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<sup>4</sup> <https://chichester.oc2.uk/document/45>

*minimise adverse impacts on the AONB. Development proposals must comply with the Chichester Harbour AONB Management Plan and the Chichester Harbour AONB Joint SPD which are material planning considerations.*

*For larger schemes in identified character areas, Landscape and Visual Impact Assessments (LVIA) may be required. The LVIA should be used to identify and assess the significance of the effects of change resulting from the development on both the landscape as an environmental resource and on views and visual amenity. Further guidance should be sought from the relevant Strategy, Management Plan or SPD and/or general national guidance.*

*All development proposals affecting the natural landscape will be required to meet criteria contained in other relevant policies, especially: Landscape Gaps; Chichester Harbour AONB; Development around the Coast; Development in the Countryside; Biodiversity; Development and Disturbance of Birds; Trees, Hedgerows and Woodlands; Equestrian Development and the pollution policies.”*

#### Policy P4 Layout and Access

*“The layout and access of spaces and buildings shall be designed to ensure that developments:*

- 1. Provide safe, direct and attractive conditions for inclusive access, egress and active travel between all locations and provide good links to integrated public transport;*
- 2. Create pedestrian and cycle-priority environments which are not dominated by vehicles whether moving or parked;*
- 3. Where appropriate, use buildings to clearly define the spaces around them, including through the continuity of existing or proposed street frontages and consistent use of building lines;*
- 4. Locate principal frontages to face the most important public space or highway, whilst also providing a similar level of visual interest on other prominent frontages or visible facades;*
- 5. Are easy to navigate, using features to provide landmarks, vistas and wayfinding tools, and making use of the layout to protect and enhance views that are important for navigation;*
- 6. Are designed with well-considered fenestrations and entrances on principal elevations that ensure all entrances are attractive, safe and legible;*
- 7. Provide parking for both vehicles and bicycles that is designed to be safe and well-related to the users of the site and wider adjacent area. This must not prejudice active frontages, the provision of future electric vehicle charging points, or street enclosure and must minimise impact on amenity and be visually attractive;*
- 8. Provide servicing arrangements including access, drop off, loading and waste / recycling storage that is integrated and designed to be safe and well related to the users of the site and wider adjacent area whilst minimising impact on amenity and be visually attractive;*

9. *Do not prejudice the optimum future development of or access to, adjoining plots or development phases.*

**Chichester District Council Waste Storage and Collection Guidance for New Housing Developments within the Chichester District<sup>5</sup>**

- 2.4.5 Guidance to assist those involved with the design of buildings to produce waste management strategies to best facilitate the storage of waste and maximise the amount that can be sent for recycling. Used by planning officers to assess planning applications to ensure that waste management priorities are addressed.

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<sup>5</sup> [https://www.chichester.gov.uk/media/27637/CDC-Waste-Storage-and-Collection-Guidance-25Jan17/pdf/CDC\\_Waste\\_Storage\\_and\\_Collection\\_Guidance\\_25Jan17.pdf?m=636226804376270000](https://www.chichester.gov.uk/media/27637/CDC-Waste-Storage-and-Collection-Guidance-25Jan17/pdf/CDC_Waste_Storage_and_Collection_Guidance_25Jan17.pdf?m=636226804376270000)

## **3 PROJECT PLANNING AND DESIGN STAGE**

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### **3.1 Introduction**

- 3.1.1 The following section outlines how effective waste management will be considered during the design stage of the project.

### **3.2 Designing Out Waste**

- 3.2.1 The type and quantity of waste generated on the development will be significantly influenced at the design stage. By making design decisions at this stage the generation of waste can be prevented and minimised in the first place.
- 3.2.2 Decisions at this stage can also positively improve the recycled content and future recyclability of the development.
- 3.2.3 Design teams and Project Managers will be required to:
- Understand the waste streams that are produced on site;
  - Understand how materials will be reused and recycled;
  - Review at key stages how well design and specification is impacting upon waste management and identify any opportunities for improvement.
- 3.2.4 At design stage, in order to minimise waste, the following will be considered as a minimum:
- The design of the development will aim to utilise the existing site levels. Doing this will optimise the cut and fill operation and ensure that material exported from the site is prevented/minimised.
  - Use of prefabricated and standardised materials wherever possible will reduce waste on site. Many materials can be produced to a specific specification to reduce the quantity of offcuts.
  - The types of materials to be used on the development should be considered, with priority given to recycled and reclaimed materials wherever feasible.
  - The provision of accurate design specifications to subcontractors and supply chain teams.

### **3.3 Project Management**

- 3.3.1 Efficient Project Management is key to reducing the quantity of waste produced on a site and ensuring that any waste produced is managed sustainably and appropriately wherever possible.
- 3.3.2 The following are a number of steps that will be considered by the project manager:
- By undertaking work in the correct order, the need for remedial actions will be reduced and as a result the amount of waste produced will also be reduced.



By determining how materials and waste will be moved around the site the site manager can ensure that waste is disposed of appropriately and that segregation takes place.

Ensure that all site staff and sub-contractors gain a suitable site induction that includes awareness of good waste management and the specific measures to be used on site.

Regular toolbox talks on good waste management can be used to make sure that everyone who comes to site knows how to reduce, re-use and recycle at the site.

'Just-in-time' delivery strategies can reduce waste created by improper storage and weather damage. Therefore, arrange deliveries of materials to align with project construction stages where practicable. This will help avoid materials being stored on-site longer than necessary and reduce the risk of damage.

Check contracts with suppliers and the supplier's haulier for return of packaging. It is often the case that the supplier contract will include a clause for return of packaging, but this is not included in the contract with their haulier. These issues should be identified and resolved as early as possible to prevent problems on-site.

Consider suppliers that offer reusable packaging schemes.

## 4 MANAGEMENT OF CONSTRUCTION WASTE

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### 4.1 Introduction

4.1.1 The following section details how overarching waste management practices would be undertaken during the site preparation phase and subsequent construction phases of the proposed scheme.

### 4.2 Waste Management

4.2.1 The main aims of managing waste should be to improve materials resource efficiency by promoting economic use of construction materials and methods to ensure that the waste hierarchy of reduce, reuse, recycle is followed before any disposal options are explored. In addition, opportunities for the illegal disposal of waste will be significantly reduced by ensuring compliance with existing legal controls and providing a full audit trail of waste removed from the construction site.

4.2.2 Records of all waste movements offsite will be retained by site management for the required time and these records will outline how waste was managed and demonstrate compliance with Duty of Care with respect to construction waste.

4.2.3 Different members of the construction team will have specific roles and responsibilities identified in **Table 3** below.

**Table 3: Roles and Responsibilities**

Position	Roles	Responsibilities
Applicant	Promote waste minimisation Drive good practice within team Ensure hazardous waste identified prior to construction	Duty of Care Best Practice Identification of waste reduction opportunities
Architect	Consider design options to reduce waste Promote use of reclaimed materials Reduce bespoke designs	Duty of Care Design out waste
Main Contractor – Site Manager	Develop, implement and communicate site specific waste plan/strategy Work with design team Ensure segregation of waste materials Designate and facilitate on site storage compounds / treatment areas Reduce waste being brought onto site (packaging) Ensure appropriate waste storage Keep proper records of all waste produced / re-used / sent off-site Ensure appropriate off-site transport of waste and confirm destination of all waste leaving site	Health and Safety Development of a site-specific waste plan/strategy Management of on-site processes and programme Hazardous waste identification and management Duty of Care record keeping
Sub-Contractors	Develop method statements for works on site Liaise with Main Contractor to ensure they understand and comply with the site waste plan/strategy	Duty of Care Production of method statements Appropriate management of activities under direct control Ensure that wastes are segregated

4.2.4 Regular inspection and audit of all waste management records and activities on site will be undertaken to ensure that the relevant legislation and any good practice measures outlined within this OWMP are complied with. Inspections and audits will be arranged by management teams at appropriate intervals and records of these inspections and audits will be retained.

## 4.3 Waste Classification

4.3.1 As part of waste duty of care, waste must be assessed and classified, and any hazardous properties identified. Classification must be done before the waste is moved, disposed of, or recovered. It will help determine any controls that need to be applied during movement of the waste and help identify where the waste needs to be sent.

4.3.2 In most cases classification of waste is straightforward, i.e. cardboards, plastics, metals, glass etc. However, for soils, liquids or other less clear waste types there

is a methodology by which waste should be classified and assessed - *Technical Guidance WM3 – Guidance on the Classification and Assessment of Waste*. This technical guidance outlines the steps to be taken and the information to be considered. The classification and assessment of waste should consider geographical factors, historical factors, online visual assessments and can include laboratory analysis. If this level of assessment is required, then further guidance will be sought.

## 4.4 Demolition

- 4.4.1 The proposed development includes the demolition of up to 308 existing lodges, stables, the “pink flamingo” building and associated areas of hardstanding on site. Most of these lodges were installed in the 1960s and 1970s. The lodges are single layer timber framed with minimal insulation. Demolition is to be undertaken in phases.
- 4.4.2 A pre-demolition survey will be undertaken prior to any demolition commencing to better understand the nature and quantity of the materials that will be produced and to determine what can be reused/recycled and what needs to be disposed of.
- 4.4.3 Options for the reuse of material generated from demolition will be explored by the site. For example:

Any asphalt lifted, treated and then reused on site is not regarded to be waste assuming certain conditions can be met (treatment can occur either on site or elsewhere). The Environment Agency also has a number of Regulatory Position Statements that refer to the storage treatment and use of asphalt waste. These include:

RPS 75 – Using treated asphalt waste . Applies to the use of treated asphalt waste containing coal tar in construction operations for hard paving structures such as roads, pavements, footways, car parks or airfields; and

RPS 157 – Storing and treating asphalt waste . Applies to storing and treating asphalt at the same site where it is to be cold mix coated, and where the treatment consists of crushing, grinding, screening, grading or mixing.

As long as the conditions of these Regulatory Positions Statements are complied with there is no requirement for an environmental permit. Any crushing, grinding, screening or grading should be undertaken by plant authorised by a local authority under Part B Section 3.5 (a) or (c) of the Environmental Permitting Regulations.

- 4.4.4 Some wood if deemed suitable can be salvaged and used for a variety of uses, such as burnt for bioenergy at an appropriately permitted site or reused in building structures.
- 4.4.5 Surplus bricks and blocks generated during demolition on site can potentially be used as hardstanding as long as it is inert and non-hazardous.
- 4.4.6 Asbestos surveys undertaken on the lodges (October 2021) and on the amusement building (September 2021) confirm the presence of asbestos containing materials. Including (but potentially not limited to):
- Chalets with stainless steel sink units with a bituminous pad to its under surface (where sinks have not been replaced).
  - Textured coatings to internal walls and ceilings containing chrysotile. Of the 60 + chalets entered during the survey only a couple had been replastered and the textured coating removed.
  - Not all chalet areas were accessible. Therefore, it was recognised that fuse boxes in buildings of that age may contain asbestos materials. Also, the internal workings of heating and cooking appliances, internal linings of fire doors and any area above 3m in height could not be checked.
  - Asbestos was found in the shop rear kitchen and in general externals associated with the amusement building.
- 4.4.7 Safe methods of working will be required when demolishing chalets or refurbishing site facilities, with further surveys required to identify asbestos containing materials in any areas not checked. A licensed asbestos removal contractor may be required in areas where asbestos containing materials are identified.
- 4.4.8 Any material generated during the demolition phase that has been contaminated with chemicals, asbestos and general rubbish will not be reusable. Disposal of these wastes will be required, and the pre-demolition audit will be used to ascertain the most appropriate route for disposal.

## 4.5 Site Preparation

- 4.5.1 In order to prepare the site, earthworks and ground preparation will take place as part of each phase of the development.
- 4.5.2 Vegetation removed from site will be reused where possible. Examples of reuse include the creation of habitats for wildlife and the chipping of any vegetation to create mulch. Such examples of reuse may require the registration of the appropriate waste exemption. If reuse is not possible then any green waste should be handled and transported from site by an appropriately registered contractor for reuse/recycling.
- 4.5.3 Prior to works commencing on any particular phase of the site and prior to any required vegetation clearance commencing, the presence of invasive non-native plants will be assessed. The removal, treatment and disposal of any identified



invasive non-native plants will be undertaken in accordance with the latest guidance to prevent further growth or spread beyond the site.

- 4.5.4 Excavation is expected to take place as part of the development, and this will produce an amount of aggregate and soil which has the potential for re-use on site or further processed off-site for recycling. Initial cut and fill balance assessments have been undertaken and currently indicate that all aggregate and soil (if deemed suitable) will be reused on site and that none will need to be sent offsite.
- 4.5.5 Site investigations will be undertaken to verify the condition of the ground and to identify the presence of any contamination within the underlying soils, should it be present. The site investigation results will be used to determine if any remediation of the ground is required and to determine if any excavated material can be reused.
- 4.5.6 Efforts will be made to ensure that all non-hazardous waste aggregate and soil from the excavation works is re-used on site. Much of this waste will be used to level out the ground in specified areas to prepare the ground for construction. Any other excavated waste that cannot be immediately recovered may need to be treated prior to reuse or disposed of responsibly. The reuse of any materials on site would be outlined within a DoWCoP Materials Management Plan (MMP).
- 4.5.7 Under the Waste Framework Directive, naturally occurring soils are not considered waste if they are reused on the site of origin for the purposes of development.
- 4.5.8 Should any excavated soils be considered surplus to requirements they may then be classified as waste unless removed to a suitable site in accordance with the Definition of Waste: Development Industry Code of Practice (CL:AIRE). As outlined in **Section 2.3.12**, DoWCoP is a voluntary framework for determining whether or not excavated material arising from site during land development works are waste. In this case the DoWCoP could apply to excavated materials that are:
- transferred between sites and reused directly without treatment (clean and natural material only); or
  - transferred between sites and reused following treatment, as part of a Cluster project
- 4.5.9 Where waste materials do not meet the suitable for use criteria under DoWCoP, it is sometimes possible to use or treat them under a low-risk waste exemption or an environmental permit.
- 4.5.10 Should, during the course of any excavation and ground preparatory works, any potentially contaminated land not already identified be observed, works in that area will cease until an appropriate assessment has been undertaken by specialists to determine if there is any risk present to either the environment or human health. Should contaminated ground be discovered then the affected area of land would require remediation, with any contaminated excavated material treated or disposed of at an appropriately permitted site.
- 4.5.11 A number of measures will be implemented to ensure that the excavation of materials and the subsequent management of it is undertaken in a manner that

does not impact upon the environment or local amenity. This includes, but may not be limited to:

Where possible any stripping, stockpiling or placing of soil will be carried out under dry weather conditions and where possible using tracked equipment to reduce compaction.

Stripped soils should be stored for short periods of time only. This will ensure that the any detrimental impacts on the soils' physical, chemical and biological properties are minimised.

Stockpiles of different excavated materials will be clearly defined and labelled where necessary to avoid the mixing of topsoil and subsoil, and hazardous and non-hazardous.

Temporary stockpiles will have side slopes of no greater than 1 in 3 and will not be higher than 3 metres.

Any excavated materials will not be mixed with construction waste or contaminated materials.

Stripped soil will be utilised onsite where possible. If a contractor imports soil, they must use a reputable supplier, establish the source of the soil and ensure it is suitable for the intended use.

Stockpiles will be located away from any watercourses and drains and away from any occupied residential properties wherever possible. If drains are located near to any stockpiles, they will be blocked to ensure runoff does not enter them.

Runoff from stockpiles will be carefully monitored and managed where required to ensure there is no impact to the environment.

## 4.6 Construction Waste

- 4.6.1 During construction activities, waste will be produced from surplus materials such as oversupply, off-cuts or damaged quantities of timber, plasterboard, concrete, tiles, glass, steel reinforcement etc. Some packaging waste is also expected to be produced. Surplus soil / gravel is expected to be produced due to cut / fill activities.
- 4.6.2 The quantities of waste generated during the construction phase can usually be estimated using information regarding the number and floor area of the residential units. This information can then be used in conjunction with BRE Benchmark Data (which is recognised within the construction industry).
- 4.6.3 All of the 308 new lodges will be constructed offsite in a factory and transported to Medmerry Park in two parts for final assembly. At this stage it is anticipated that the foundations will comprise of a concrete pad. Utilities to each lodge will also be required. Construction of lodges offsite will significantly reduce the quantities of waste generated at the construction phase.
- 4.6.4 The construction of pre-fabricated buildings within a factory has the advantage of preserving materials by reducing exposure to weather. Also the factory is better able to ensure that materials are appropriately sized and fit for purpose and this results in a significant reduction of offcuts and damaged materials. It has been suggested by some sources that off-site production of buildings can reduce waste

by as much as 90% (*Modular and Portable Building Association*), though this will likely depend upon the factory and the nature and size of the building.

4.6.5 **Table 4** provides a summary of the 308 lodges to be built on site.

**Table 4. Breakdown of Lodges**

Zone	Total No. of Housing Units in Zone	Units	Floor Area/unit (m <sup>2</sup> )	Total Area (m <sup>2</sup> )
Orchard	40	10 x 2 bed (single storey)	62	620
		12 x 3 bed (single storey)	70	840
		8 x 2 bed semi detached (single storey)	62	496
		10 x 3 bed semi detached (single storey)	70	700
Woodland	113	17 x 2 bed (single storey)	62	1,054
		46 x 2 bed semi detached (single storey)	45	2,070
		50 x 2 bed terrace (2 storey)	55	2,750
Secret Garden	24	24 x 2 bed semi detached (single storey)	62	1,488
Wetlands & Rife	31	31 x 3 bed (single storey)	88	2,728
Lakeside	100	14 x 3 bed (single storey)	88	1,232
		7 x 2 bed (single storey)	62	434
		54 x 2 bed semi detached (single storey)	45	2,430
		25 x 2 bed terrace (two storey)	55	1,375
Total	308	-	-	18,217

4.6.6 The BRE Benchmark Data (Appendix B) details the generation of waste (tonnes/100 m<sup>2</sup>) for different types of development. This data can be used to estimate the waste arising during the construction phase of the development. The following generation figures will be used:

For residential developments it will be 15.2 tonnes/100 m<sup>2</sup>

For leisure use it will be 15.1 tonnes/100 m<sup>2</sup>

For Industrial buildings it will be 13.2 tonnes/10 m<sup>2</sup>

4.6.7 Using provided information regarding overall floor areas for the different uses of buildings at the proposed development, the overall quantity of construction waste generated can be calculated. **Table 5** provides a breakdown of the quantity of waste generated by each element of the development.

**Table 5. Quantity of Waste Generated on Site**

Type of Development	Area (m <sup>2</sup> )	BRE Benchmark Data (tonnes/100m <sup>2</sup> )	Quantity of waste (tonnes)
Residential (308 Lodges)	18,217	15.2	2,769
Leisure – Boathouse	175	15.1	26.4
Industrial - Facilities Building	475	13.2	62.7
Maintenance Building	285		37.6

4.6.8 As detailed above, the quantities of waste generated during final assembly of lodges on site is significantly reduced due to the nature of the construction method employed. In order to calculate the quantity of waste generated during construction of the 308 lodges, RSK has conservatively assumed that waste will be reduced by 60% (though expect it to be higher than this). Based on this the total quantity for residential waste in **Table 5** can be adjusted to 1,107.6 tonnes.

4.6.9 According to the information used, the total quantity of waste generated during the construction phase of the development will be 1,234.3 tonnes.

4.6.10 Other potentially significant construction works (not including required earthworks) on site will include the following:

Refurbishment and extension of the existing facilities to create the Central Village Hub (Phase 1a)

Refurbishment and extension of the swimming pool area (Phase 1a).

4.6.11 The composition of the construction waste arisings will be dependent on the construction methods employed. In this case as the lodges have been constructed offsite many of the waste materials generated in the construction of a normal house should not be present in significant quantities. Therefore, it has been assumed to comprise of the wastes listed below.

Tiles and Ceramics  
 Concrete  
 Packaging materials  
 Binders  
 Plastic (excluding packaging waste)  
 Timber  
 Floor coverings (soft)  
 Electrical and electronic equipment  
 Furniture  
 Canteen/Office/ *ad hoc* waste  
 Liquids  
 Oils  
 Bituminous mixtures  
 Hazardous waste

Other waste

Mixed construction and/or demolition waste

- 4.6.12 During the first phase of work, contractors will carefully monitor the quantities of waste generated during construction of lodges. Waste generation figures derived during this phase can be used to determine the quantities of waste to be generated in subsequent phases. This information can then be used to update the Waste Management Plan.
- 4.6.13 Waste quantities on site can be significantly reduced through the use of good waste management practices.

## **4.7 Raw Materials and Waste Storage**

- 4.7.1 Implementation of good practice measures in relation to on-site storage and security of raw materials and waste include the following:

Designated areas prepared for the storage of raw materials and waste. These areas will be clearly marked and provided for all phases of the construction process;

Storage areas for raw materials and waste should be located away from any sensitive receptors (i.e., any residents of the park, watercourses, boreholes etc);

Clearly labelled or colour coded skips or containers to allow segregation of waste for re-use and recycling will be made available;

Covered skips to prevent spread of wind-blown wastes will be used where appropriate;

Hazardous waste materials will be stored in a secure bunded compound in appropriate containers with clear signage;

Any fuels, oils or chemicals needed in the construction process will be stored in appropriate containers in a secure bunded compound;

Where practicable, surplus bricks/blocks and aggregates will be reused within hardstanding areas onsite;

Ensuring deliveries to the site are as far as practicable 'just in time' to minimise the generation of damaged goods becoming waste;

Provision of onsite security to ensure potential loss of material from damage, vandalism or theft is avoided; and

Avoid the mixing of hazardous and non-hazardous materials.

- 4.7.2 Facilitating effective waste management will require communication with contractors, sub-contractors and site operatives.
- 4.7.3 Waste and material storage areas will be set up before site works start as close to the site compound as possible and with adequate hard standing for waste containers.
- 4.7.4 The waste storage area will comprise of a number of waste containers. Different phases of the development may have different waste requirements. This will



dictate which waste containers may be on site at any one time. These will comprise of:

**Metal Waste Skip** – for all types of clean metal, including rebar offcuts, scrap metal etc.

**Packaging/Light Mixed Waste** - Cardboard, paper products etc (not polythene sheeting or ties as this should go in the “mixed” skip)

**Wood** - All types of clean untreated timber or wood products (treated timbers may contain hazardous preservatives and so may need to be placed in an additional separate skip)

**Inert** - Clean concrete, rubble, hardcore, brick and block etc (should not decompose or create a hazard when buried).

**Mixed General Waste Skip** - Any waste except contaminated waste that cannot be recycled in other skips on the site.

**Hazardous Waste** – Usually a three drum system for expanding foam, aerosols and mastics. More drums can be added for additional hazardous waste types.

Additional containers may be provided for paint cans and plasterboard offcuts in order for them to be stored separately. This will allow for them to be returned to the supplier as part of any takeback scheme, should it be available.

Used pallets will be stacked in a designated area so that they may be collected by a pallet repatriation company. This company should identify pallets that can be reused and arrange for the disposal of any that are unsuitable or damaged beyond repair.

- 4.7.5 Waste storage areas will be subject to daily checks by either a waste manager, or suitable personnel, designated by the site manager to ensure that the area remains clean and tidy, waste is segregated properly and that there are no impacts to the environment. This includes inspections of any stockpiles of material or waste present on site. Due to the compact nature of the development site and the presence of visitors on other parts of the site, good waste management will be very important in ensuring the site remains tidy and well ordered.
- 4.7.6 Take-back schemes will be utilised wherever available to promote the reuse of any offcuts or leftover materials, for example British Gypsum promote the return of any offcuts of plasterboard, and the Crown Paint Can-Back Recycling Scheme and Brewers Paint Can Recycling Service promote the reuse of leftover paint and paint cans.
- 4.7.7 No waste will be burnt on site.

## 4.8 Waste Recycling and Disposal Facilities

- 4.8.1 The Principal Contractor will arrange for a suitable waste and recycling service. This will include the provision of suitably sized and the number of storage containers, and their collection frequency.
- 4.8.2 In accordance with the waste hierarchy, disposal of waste will be the final option

for any waste removed from site. The Principal Contractor will ensure that all waste is managed sustainably wherever possible.

- 4.8.3 Prior to waste being sent to any waste sites, they (the waste sites) will be checked to ensure they are suitable and that they can accept waste from the development. These checks may be undertaken by any waste broker used, but records of checks will be made available upon request.

## 4.9 Setting Targets

- 4.9.1 Appropriate targets will be set in relation to the minimisation and recycling of any construction waste materials to be agreed at inaugural meetings of the project team. Suitable material specific targets for recovery (re-use or recycling) can then be set. **Table 6** provides a series of targets that have been set by WRAP for standard, good and best practice.

**Table 6: Standard, Good and Best Practice Recovery Rates by material (WRAP)**

Material	Standard Recovery %	Good Practice Recovery (Quick Win) %	Best Practice Recovery %
Timber	57	90	95
Metals	95	100	100
Plasterboard	30	90	95
Packaging	60	85	95
Ceramics	75	85	100
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical Equipment	Limited Information	70*	95
Furniture	0-15	25	50
Insulation	12	50	75
Cement	Limited information	75	95

Material	Standard Recovery %	Good Practice Recovery (Quick Win) %	Best Practice Recovery %
Liquids and Oils	100	100	100
Hazardous	50	Limited information **	Limited information**
<p>* This is required recovery target for the type of Waste Electrical and Electronic Equipment (WEEE) likely to be produced from construction sites, e.g., lighting (the WEEE Regulations)</p> <p>**This cannot be 100% as most hazardous waste streams (e.g., asbestos) must be landfilled.</p>			

- 4.9.2 To ensure that the system of waste minimisation reuse and recycling is effective, setting of onsite waste targets for the proposed development should be included within agreements with the proposed Principal Contractor.

## 4.10 Monitoring and Reporting

- 4.10.1 Any work undertaken will be managed in accordance with the developer’s internal environmental management procedures.
- 4.10.2 Any person working for or on behalf of the main contractor that transports waste from the project site MUST be registered (licensed) as a waste carrier.
- 4.10.3 Any person employed to manage waste contracts / removals by other waste carriers on behalf of the main contractor MUST be registered as a ‘Waste Broker’.
- 4.10.4 All movements of waste from site MUST be accompanied by a Waste Transfer Note (WTN) or Hazardous Waste Consignment Note (HWCN). WTNs and HWCNs must detail specific information regarding the type of waste produced. Common to both are:

- Date and time of movement;
- European Waste Catalogue (EWC) code;
- Description of waste;
- Address of the producing site (i.e., Medmerry Park, Earnley, Chichester);
- Standard Industrial Classification Code (SIC) 2007, which describes the producer of the waste (i.e., construction of residential and non-residential buildings - 41.20)
- Waste carrier’s details including waste carrier registration number
- Quantity of waste;
- How it is contained (e.g., RORO skip);
- Address of the receiving site (e.g., landfill);
- The Environmental Permit or Exemption Number associated with the receiving site;

Confirmation that the waste hierarchy has been applied.

In addition to the above information, a HWCN must contain the following:

Consignment note code that starts with the hazardous waste premises code (generated by the main contractor in England).

Chemical/biological component in the waste and their concentrations.

Physical form of the waste (i.e., solid, liquid, gas, sludge, powder or mixed).

Relevant Hazard Property Code (i.e., HP1- explosive, HP14- Ecotoxic etc).

A Part E that the receiving site will sign to acknowledge receipt and then sent to the waste producer within three months.

- 4.10.5 By signing a WTN or HWCN, a site representative is confirming that all the details are correct and that the material is to be sent by a licensed waste carrier to a suitably licensed receiving site, able to receive that type of waste. The signature is binding of this fact and completes the WTN or HWCN as a legal document, which must be retained for a minimum of two years if it is a WTN and 3 years if it is a HWCN.
- 4.10.6 All notes will be retained within the site office and then transferred to an agreed regional/head office after an appropriate period of time and/or upon completion of the project.
- 4.10.7 A suitable programme of monitoring will be put in place to:
- Quantify raw material wastage;
  - Quantify the generation of each waste stream;
  - Record any improvements in current working practices;
  - Record the methods by which the waste streams are being handled and stored; and
  - Record the available waste disposal routes used.
- 4.10.8 Any sampling reports undertaken to assess and classify waste will be retained for the duration of the development.
- 4.10.9 Waste Transfer Notes and Hazardous Waste Consignment Notes will be made available to the Local Authority and Environment Agency upon request.
- 4.10.10 The implementation of the OWMP will be monitored regularly and following any incident relating to the reuse and recycling of materials. Reports of these reviews will be retained. Should any review determine that the WA has not been followed then these failures will be recorded. If possible, action will be taken to rectify any failures and any learning points recorded for future reference.
- 4.10.11 Should circumstances change during the course of the development, then the WA will be updated to ensure that it is still applicable and outlines efficient waste management on site.

## 5 MANAGEMENT OF OPERATIONAL WASTE

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### 5.1 Introduction

- 5.1.1 This section outlines the plan which will be adopted to successfully manage the waste arisings from the proposed development once operational.
- 5.1.2 It should be noted that the site is only operational for ten months of the year. Currently from March to January of every year.
- 5.1.3 Currently there are both council and private waste collections of waste on site.
- 5.1.4 RSK have been informed that the council currently collect residents waste (most pay council tax) from seven waste storage areas (bin bays) each week. The council collect up to 21 x 1,100 litre bins of waste. Based on the size of the bins this equates to 23,100 litres of waste. No information on how this waste is segregated has been provided.
- 5.1.5 Commercial waste generated by facilities on site and some residential waste is collected by private waste contractors. These contractors collect 6 x 1,100 litre bins each week which equates to 6,600 litres of waste in total. These contractors will also be used to collect yard skips when required from the maintenance area.
- 5.1.6 Chichester District Council have prepared *Waste Storage and Collection Guidance for New Housing Developments within the Chichester District*. This guidance sets out how designs should incorporate waste management strategies that best facilitate the storage of waste and maximise the amount that can be sent for recycling.
- 5.1.7 Properties that share communal bins are required to segregate their waste and recycling in Chichester District. Waste should currently be segregated into two main types. These are:
- Household waste (i.e. waste which cannot be recycled, composted, or re-used – sometimes referred to as residual waste). Includes food waste.
  - Recycling (loose paper, cardboard, cans, plastic food packaging, plastic bottles, aerosols, drinks cartons, foil, glass bottles and jars, textiles).
- 5.1.8 Properties are allowed to present a maximum of 240 litres of residual waste per collection. There are no restrictions on the size or number of bins for recycling.
- 5.1.9 The council operate an alternate weekly waste and recycling collection service.
- 5.1.10 The location of the communal waste storage areas on the new development has yet to be determined. This will be decided at the detailed design phase and will

have due regard for the guidance provided in this Outline Waste Management Plan.

- 5.1.11 A chargeable garden waste collection service from domestic and business properties is available should it be required. The council would provide a green bin and 25 fortnightly collections throughout the year.

## 5.2 Generation of Household (Residential) Waste

- 5.2.1 In order to calculate the approximate quantities of household waste generated by the residents of Medmerry Park, the Council's yearly waste generation statistics can be used.

- 5.2.2 As a baseline the average household waste generation rate per residential unit has been established using Local Authority Collected Waste Statistics published by DEFRA as follows.

Total household waste collected by Chichester District Council 2020/21 (tonnes)<sup>6</sup> – **49,334**

Total household waste generated per household 2020/21 (kgs) – **466.3**

Percentage of household waste sent for reuse, recycling or composting – **44.5%**

- 5.2.3 The average household waste generation rate was then used to provide an estimate of the waste arisings from the future residents of the proposed development (see **Table 7**).

**Table 7. Estimated Household (Residential) Waste Arisings**

No. of Proposed Units	Average waste generation per household per annum (tonnes)	Tonnes / annum	Tonnes/10 months (44 weeks)	Tonnes / week	Tonnes / fortnight
308	0.466	143.53	121.45	2.76	5.52

- 5.2.4 As the site will only be open for 10 months of the year the annual tonnage is based on this. Therefore, at this stage, and using the councils reported waste generation figures, the residents of the proposed development could potentially generate up to 121.45 tonnes of household waste per annum (2.76 tonnes per week).
- 5.2.5 Current DEFRA waste statistics for Chichester District Council for 2020/21 show 44.5% of household waste is separated for recycling, composting or reuse.
- 5.2.6 At current recycling rates the residential element of the development is estimated to produce approximately 54.05 tonnes per annum recycled (recovered) material

<sup>6</sup> <https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables>



(1.23 tonnes per week) and 67.4 tonnes per annum residual material (1.53 tonnes per week).

- 5.2.7 Using a waste conversion figure of 0.26 (as detailed in guidance provided by SEPA for Mixed Municipal Waste), the volume of the waste generated by the development has been calculated to be:

207.88 m<sup>3</sup> per year (207,884.6 litres/year) of recycled waste

- 3,997.8 litres of recycled waste per week

259.23 m<sup>3</sup> per year (259,230.8 litres/year) of residual waste

- 4,985.2 litres of residual waste per week

- 5.2.8 It should be noted that there is a 65% household waste recycling target for England by 2035.

- 5.2.9 Initiatives to reduce overall waste generation have been implemented by both Chichester District Council and West Sussex County Council. These include offering residents discounted food waste composters, projects such as WRAP's "Love Food Hate Waste" campaign to raise awareness of the environmental and financial cost of food waste, promoting the reduction of packaging and encouraging the use of reusable nappies. Other initiatives are aimed at fly tipping, composting, reuse of unwanted items etc. All these campaigns are aimed at changing behaviour by helping residents understand the implications of waste generation.

### 5.3 Storage of Household (Residential) Waste

- 5.3.1 New developments are required to provide sufficient internal and external accommodation for storage of waste. This should also allow for additional recycling materials that may be collected in the future. The proposed development will utilise communal waste areas for the external storage of waste.

- 5.3.2 Internal storage areas will be designed into all units to enable occupants to segregate their waste and store it temporarily prior to transferring it to the external communal waste areas.

- 5.3.3 When considering external storage requirements for waste the dimensions of any waste bins need to be considered. The dimensions for all council standard 1,100 litre waste and recycling bins are height 137cm, depth 100cm and width 128cm.

- 5.3.4 It is anticipated that several communal waste storage areas will be provided across the site to ensure that they are sited within the appropriate distance of each lodge. The size of each communal waste storage area will depend upon the number of lodges it services but will contain at least one x 1,100 litre bin for recyclable waste and 1 x 1,100 litre bin for residual waste.

- 5.3.1 Chichester District Council provided guidance on the number of containers required at new developments and this has been used to determine the number of container required at the proposed development. The number of containers required is based on the following calculation:

$$(\text{Number of properties} \times 240) / 1,100$$

- 5.3.2 The above calculation therefore means that 308 properties would require:
- 68 x 1,100 litre bins for residual waste and
  - 68 x 1,100 litre bins for recycling bins.
- 5.3.3 The totals outlined above are based on collections occurring on alternative weeks and are also based on properties being residential. The lodges in this case will be for users on holiday and it is anticipated that as a result significantly smaller quantities of waste will be generated. It is therefore proposed that weekly collections are undertaken at the site and as a result the site will have capacity for
- 34 x 1,100 litre bins for residual waste and
  - 34 x 1,100 litre bins for recycling bins.
- 5.3.4 Occupiers are responsible for moving waste from individual lodges to communal waste areas. Park staff will then collect containers once a week and replace them with empty ones. Used containers will be moved to the designated collection point on site. Following collection empty containers will be cleaned and made ready for use again.
- 5.3.5 The following should also be considered for the external storage of bins at communal waste areas:
- External storage spaces must be on hardstanding with adequate drainage.
  - Bins should be clearly labelled to encourage recycling. Instructions should also be provided to indicate what items are recyclable.
  - Bins should be stored in a convenient and accessible location, and away from any residential units to avoid any nuisance odours entering the property.
  - Waste storage areas will be well illuminated to allow residents to use the area in the evening and feel safe doing so.
  - Storage areas must be accessible to disabled people and, in particular, wheelchair users.
  - Residents should not have to move waste more than 30 metres to any designated collection point.
  - There should be a suitable route to the collection point that complies with carrying distances and is well surfaced and level.
  - Any doorways or gateways leading to the waste storage area should provide at least 1.3m clearance. A walkway of at least 1.5m will be provided within the waste area itself to allow access to individual bins.
  - An area for the collection of bulky waste may be required within the communal waste storage. Alternatively a collection service for bulky wastes may be provided by the site management.

External communal waste areas will require a clear turning circle area to allow containers to be manoeuvred when bins are being moved to and from the collection point.

#### **Cost and Communications with Council**

- 5.3.6 The landlord/developers/site management are responsible for communal facilities and the provision, exchange or replacement of household residual waste and recycling bins.
- 5.3.7 Weekly collection of waste is anticipated. The day of this collection will be determined through communication with the council. To ensure minimal disturbance to users on site it is hoped that the collection can be arranged for the day following any changeover (i.e. on a Tuesday).
- 5.3.8 All bins purchased should closely match those currently supplied by Chichester District Council, be the same colour, size and fully comply with British Standard EN840.

## **5.4 Collection of Household (Residential) Waste**

### **Collection of Waste from external collection points**

- 5.4.1 Communal waste storage facilities are deemed to be more appropriate for a development of this nature and will be located at strategic locations throughout the site.
- 5.4.2 Collections can be made from private/un-adopted roads where the following conditions are met:

Roads must be of sound construction and able to take heavy goods vehicles (26 tonnes). They must also be free of potholes and obstructions. Damage caused to the surface by reasonable use of council vehicles shall be the responsibility of the road owner.

The minimum road width to be not less than 3.2 metres.

The minimum height clearance should not be less than 4 metres with no obstruction from overhanging branches and cables etc.

Where a through road does not exist, a suitable turning area must be available to allow the vehicle to turn round. The turning area should be sufficient to allow the vehicle to turn with no more than three manoeuvres.

With agreement with the council.

- 5.4.3 The collection point must be on hardstanding and the gradient must not exceed 1:12. Surfaces will be smooth and continuous with dropped kerbs where necessary.
- 5.4.4 Collection points must be free from obstructions that would prevent waste collection from successfully taking place, i.e. bollards, hedges, parked cars, other waste etc.
- 5.4.5 The distance between the waste storage area and the collection vehicle must not exceed 10 metres.

5.4.6 The passage of wheeled containers must never be over steps, grass or other soft surfaces. Dropped kerbs must be provided where a collection lorry is on the highway. Paths must be 2.00 metres wide.

5.4.7 Any waste not within the designated containers will not be collected.

#### Vehicle Access

5.4.8 Health and Safety Executive guidance states that “Containers for waste and recyclables should be placed in locations that minimise the need for difficult vehicle manoeuvres”.

5.4.9 Access for vehicles will be designed in accordance with the requirements laid out by BS5906:2005 Waste Management in Buildings Code of Practice. This will be dealt with at the detailed design stage.

5.4.10 Waste collection points will be located so that there are no sightline issues for both pedestrians and other road users. The location of crossing points and junctions will be considered.

5.4.11 The following is a summary of specific guidance provided:

Designs will aim to eliminate (or minimise where not possible) the amount of reversing required by Refuse Collection Vehicles (RCVs). Collection routes will be designed to operate in forward gear.

At any collection point, space at the rear of the collection vehicle should be sufficient to allow efficient and safe operation. It is recommended a minimum working area of 3.50 m width and 4.00 m length, while sufficient vertical clearance should be allowed at all times.

Road surfaces (including manhole covers) at all parts of a development where RCVs are expected to operate must be able to bear the weight of a fully laden vehicle, which weighs up to approximately 26 tonnes.

5.4.12 **Table 8** provides dimensions for waste collection vehicles. These are taken from Chichester District Council’s *Waste Storage and Collection Guidance for New Developments*.

**Table 8: Waste Collection Vehicle Dimensions**

Aspect	Vehicle Dimensions
Width	3.0 metres
Height	3.76 metres
Length	11.0 metres
Weight (Max) – <i>fully laden</i>	26 tonnes
Turning Circle (wall to wall)	18 metres

- 5.4.13 Overhead service cables, pipes, archways and other potential obstacles must be at least 7 metres from ground level.

## 5.5 Generation of Non-Residential Waste

- 5.5.1 The volumes of waste produced will be dependent upon the activity and scale of the facility. The number and types of containers required will therefore be different for each non-residential activity. The amount of segregated material to be sent for recycling should be maximised.
- 5.5.2 Table 9 provides an estimate of the quantities of non-residential waste based upon values provided within BS5906:2005 Waste Management in Buildings Code of Practice. It should be noted that the calculations completed do not include the generation of waste from the existing village hub or any other building that is not to be rebuilt in full (i.e. swimming pool). It should also be noted that the waste arisings in non-residential areas will be mostly generated by the users and staff of the park. As a result, it is expected that this will lead to changes in the behaviour patterns of those disposing of waste, and as a result the calculations outlined in Table 9 are considered to be very conservative and well in excess of the quantities that will actually be generated.

**Table 9: Estimated Quantities of Non-Residential Waste**

Facility Type	Area (m <sup>2</sup> )	Weekly Arisings	Total Waste Generated per week (litres)
Boathouse	175	5 litres/m <sup>2</sup>	875
Facilities Building	475	5 litres/m <sup>2</sup>	2,375
Maintenance Building	285	5 litres/m <sup>2</sup>	1,425
Total	-	-	4,675

- 5.5.3 The waste storage space for the different facilities provided on-site will be developed once the detailed design stage is reached. At this stage due consideration will be given to the provision of sufficient internal and external space for the storage of separate waste streams.

## 5.6 Storage of Non-Residential Waste

- 5.6.1 It is expected that a single waste storage area will be provided for the storage of non-residential waste at each of the different facilities on site. Site staff will be responsible for collecting and bulking up the waste generated by the different facilities and activities on the park. Central storage of recycling and residual waste is most likely to be provided within the back of house compound to ensure that it is kept away from residents/users of the park.

## **5.7 Collection of Non-Residential Waste**

- 5.7.1 At this stage, it is assumed that the collection of non-residential waste will be undertaken by external waste management contractors. It will be the responsibility of the landlord/site management to arrange for refuse and recycling to be collected from their premises.
- 5.7.2 Waste collection frequency will be dependent upon the volume of waste generated, the storage method used (e.g. balers, bins, compactors etc) and the schedule agreed with the waste contractor.



## 6 SUMMARY AND CONCLUSION

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### 6.1 Summary of the Plan

- 6.1.1 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 Wiltshire Council are adhered to.

#### **Waste from Site Demolition and Preparation**

- 6.1.2 A pre-demolition audit will be required to determine the types and quantities of waste expected to be generated during the demolition of units during different phases of the development. This audit can be used to inform which wastes are reusable and which need to be disposed of at a suitable permitted (or exempt) site.
- 6.1.3 Asbestos containing materials have been identified on site. Therefore, appropriate safe methods of working will be required when demolishing chalets and a licensed asbestos removal contractor may be required.
- 6.1.4 A significant quantity of the potential waste generated on site could be reduced by specifying the reuse of certain materials generated during demolition and excavation works.
- 6.1.5 Where excavated and demolished waste may not be immediately suitable for reuse, any treatment to make this waste suitable for reuse will be undertaken through an appropriately permitted mobile plant waste processing facility that complies with the relevant environmental permitting legislation. Where on-site treatment is not feasible, wastes will be sent to an offsite treatment/recycling facility in preference to a landfill wherever possible.

#### **Waste from the Construction Phase**

- 6.1.6 Good practice measures in relation to on-site storage and security of raw materials and waste should be implemented specifically for the segregation of waste to aid recycling, and for waste and materials to be safely and securely stored on site.
- 6.1.7 The use of pre-built lodges means that the quantities of waste generated during the construction phases will be significantly reduced. It has also resulted in uncertainty with regards to the quantity of different waste types that will be generated on site until further data has been produced to aid with calculations. RSK have assumed that waste generated during the construction of the pre-built lodges will be reduced by 60%.
- 6.1.8 It is estimated, using BRE Waste Benchmark Data and the assumption that the quantity of waste generated from the construction of the pre-built lodges can be reduced by 60%, that approximately 1,234.3 tonnes of waste will be generated from the construction of the 308 lodges and supporting buildings on the proposed development (does not include soils).
- 6.1.9 Appropriate targets should be set in relation to the minimisation and recycling of any construction waste materials to be agreed between the developer and

principal contractor with agreed methodologies for waste quantification and monitoring.

### **Waste from the Operational Phase**

- 6.1.10 Medmerry Park is currently made up of 308 lodges and according to site management it generates 21 x 1,100 litres of household waste each week. This has been calculated to be 23,100 litres of waste.
- 6.1.11 Using waste generation figures submitted to DEFRA by Chichester District Council it has been calculated that the proposed development could potentially generate up to 121.45 tonnes of household waste per annum (2.76 tonnes per week).
- 6.1.12 Waste generated by the development will be collected by Sussex County Council and is designed to be recovered or disposed of in accordance with Chichester District Council and West Sussex County Council's current waste management infrastructure.
- 6.1.13 According to council guidance, in order to store the waste generated by the 308 lodges on site it is anticipated that a total of 34 x 1,100 litre bins will be required for residual waste and 34 x 1,100 litre bins will be required for recyclable waste. Communal bins areas will be strategically located around the site and will be designed in accordance with council guidance.
- 6.1.14 This Outline Waste Management Plan demonstrates how the development will comply with West Sussex County Council and Chichester District Council's policies regarding waste collection and management to ensure central government policy is met.
- 6.1.15 The residential properties will, as a minimum, incorporate adequately sized internal and external waste and recycling storage areas for the necessary household waste, recycling and garden waste containers.
- 6.1.16 The waste storage space for non-residential waste will be developed once the detailed design stage is reached.

## **6.2 Conclusion**

- 6.2.1 This OWMP has taken into account the need to lessen the overall impact of waste generation through minimisation, reuse and recycling of materials from both the construction and operational phases.
- 6.2.2 The proposals identify the requirements of relevant waste policy and follow applicable guidance.
- 6.2.3 Opportunities to further reduce waste arisings and increase recycling rates from the proposed development have been identified to ensure it contributes to an improved waste management performance.

## APPENDIX A. SERVICE CONSTRAINTS

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1. This report and any site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Cove Communities Ltd (the "Client") in accordance with the terms of a contract between RSK and the Client (2023). The Services were performed by RSK with the reasonable skill and care ordinarily exercised by an environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.
2. Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.**
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the Client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials, unless specifically identified in the Services.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of information, including documentation, obtained from third parties and from the Client on the history and usage of the site, unless specifically identified in the Services or accreditation system (such as UKAS ISO 17020:2012 clause 7.1.6):
  - a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.
  - b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.

- c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the Client and RSK.

8. The intrusive environmental site investigation aspects of the Services are a limited sampling of the site at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope between the client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.
10. The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.
11. Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works.
12. Unless stated otherwise, only preliminary geotechnical recommendations are presented in this report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed.



# APPENDIX B. BRE WASTE BENCHMARK DATA

## BRE SMARTWASTE

### BRE Waste Benchmark Data

Issued 23<sup>rd</sup> November 2016

#### Background to benchmark data

The benchmarks shown in this document are derived from data from completed projects on the SMARTWaste Plan.

The benchmarks are based on completed *new build* construction projects. The benchmarks are also based on the construction phase only and do not include demolition, excavation or groundworks waste, i.e. waste entered on SMARTWaste Plan that arises from groundworks or excavation and all soil waste has been excluded. Benchmarks for refurbishment and demolition projects will be developed in the future as more of these projects are completed.

Data obtained from completed projects was subject to a number of logical and statistical tests, to ensure that the data used to produce the performance indicators (KPI) is valid.

#### Projects reporting waste arisings in volume

For projects reporting waste arisings in volume, all projects that meet the following criteria were selected for initial analysis.

- The floor area must be greater than 1 m<sup>2</sup>.
- The waste volume must be more than 1 m<sup>3</sup>.
- The project value must be greater than £1.

The performance indicators of m<sup>3</sup> waste per 100 m<sup>2</sup> floor area and m<sup>3</sup> waste per £100K project value were calculated for these projects based on actual volumes of waste arisings. For new build construction projects, the distribution of these two performance indicators was found to be not normal with a very large range. Therefore, in order to try and exclude projects that had very low or very high performance indicators which might not be reliable, it was decided that only projects with performance indicators that fall between the 5<sup>th</sup> percentile and the 95<sup>th</sup> percentile would be used for further analysis.

#### Projects reporting waste arisings in tonnes

For projects reporting waste arisings in tonnes, all projects that meet the following criteria were selected for initial analysis.

- The floor area must be greater than 1 m<sup>2</sup>.
- The waste arising must be more than 1 tonne
- The project value must be greater than £1.

The performance indicators of tonnes waste per 100 m<sup>2</sup> floor area and tonnes waste per £100K project value were calculated for these projects based on tonnes of waste arisings.

For new build construction projects, the distribution of these two performance indicators was found to be not normal with a very large range. Therefore, in order to try and exclude projects that had very low or very high performance indicators which might not be reliable, it was decided that only projects with performance indicators that fall between the 5<sup>th</sup> percentile and the 95<sup>th</sup> percentile would be used for further analysis.

## BRE SMARTWASTE

For projects that passed these logical tests, a count of the number of plausible results, the average, standard deviation and median of the results was obtained. This data analysis is carried out every three months and the results are published in this document which is available to SMARTWaste members by emailing [smartwaste@bre.co.uk](mailto:smartwaste@bre.co.uk).

The benchmarks shown in this document are as follows:

- Table 1 shows the average m<sup>3</sup> of waste per 100m<sup>2</sup> of floor area and the average m<sup>3</sup> of waste per £100K of project value for different project types. The number of projects used to calculate the benchmarks is also shown.
- Table 2 shows the average tonnes of waste per 100m<sup>2</sup> of floor area and the average tonnes of waste per £100K of project value for different project types. The number of projects used to calculate the benchmarks is also shown.
- Table 3 shows the average m<sup>3</sup> of waste per 100m<sup>2</sup> of floor area for each waste product for the different project types.
- Table 4 shows the average tonnes of waste per 100m<sup>2</sup> of floor area for each waste product for the different project types.
- Table 5 shows the average m<sup>3</sup> of waste per £100K of project value for each waste product for the different project types.
- Table 6 shows the average tonnes of waste per £100K of project value for each waste product for the different project types.



# BRE SMARTWASTE

**Table 1: Waste Benchmark Data by Project Type**  
(New Build Only, Volume projects, Projects completed by end August 2016)

Project Type	Number of projects data relates to	Average m <sup>3</sup> /100m <sup>2</sup>	Number of projects data relates to	Average m <sup>3</sup> /£100K
Residential	1472	18.8	1444	12.5
Public Buildings	107	24.8	110	10.8
Leisure	165	16.3	160	9.8
Industrial Buildings	113	13.7	121	9.3
Healthcare	169	18.4	167	9.1
Education	583	21.0	592	10.2
Commercial Other	19	16.0	20	9.6
Commercial Offices	123	18.0	118	8.8
Commercial Retail	195	20.2	200	13.4
<b>Total number of projects</b>	<b>2946</b>		<b>2932</b>	

# BRE SMARTWASTE

**Table 2: Waste Benchmark Data by Project Type**  
 (New Build Only, Tonnage projects, Projects completed by end August 2016)

Project Type	Number of projects data relates to	Average Tonnes/100m <sup>2</sup>	Number of projects data relates to	Average Tonnes/£100K
Residential	593	15.2	590	12.8
Public Buildings	38	14.5	40	9.4
Leisure	59	15.1	55	10.1
Industrial Buildings	64	13.2	63	7.5
Healthcare	73	13.2	71	8.7
Education	167	14.9	163	8.7
Commercial Other	8	22.6	7	7.2
Commercial Offices	55	13.1	51	7.7
Commercial Retail	232	11.0	261	8.5
<b>Total number of projects</b>	<b>1289</b>		<b>1301</b>	

## BRE SMARTWASTE

**Table 3: Waste Benchmark Data - m<sup>3</sup>/100m<sup>2</sup> by product for different project types**  
(New Build Only, Volume projects, Projects completed by end August 2016)

Description	Commercial Retail	Commercial Office	Commercial Other	Education	Healthcare	Industrial Buildings	Leisure	Public Buildings	Residential
Bricks	0.718	0.511	0.404	1.011	0.931	0.377	0.788	1.143	1.257
Tiles and Ceramics	0.122	0.040	0.107	0.051	0.050	0.011	0.108	0.140	0.118
Concrete	2.258	1.070	0.658	1.086	1.283	1.782	0.854	1.598	1.477
Inert	1.348	1.662	3.500	2.279	1.513	2.147	1.393	3.532	3.111
Insulation materials	0.314	0.561	0.516	0.651	0.718	0.326	0.455	0.644	0.553
Metals	1.379	0.616	0.990	0.842	0.729	0.737	0.431	1.357	0.328
Packaging materials	1.351	2.181	2.085	1.863	2.264	1.041	1.861	1.995	1.550
Plasterboard / Gypsum	0.592	0.771	0.748	0.929	1.342	0.379	0.899	0.844	1.237
Binders	0.036	0.052	0.022	0.052	0.109	0.022	0.107	0.055	0.089
Plastic	0.460	0.526	0.482	0.538	0.690	0.227	0.429	0.783	0.653
Timber	1.961	2.233	2.171	2.701	2.833	1.451	2.751	3.324	2.492
Floor coverings (soft)	0.031	0.021	0.016	0.075	0.079	0.012	0.075	0.062	0.054
Electrical and electronic equipment	0.073	0.018	0.054	0.036	0.051	0.010	0.029	0.039	0.041
Furniture	0.066	0.002	0.001	0.018	0.016	0.004	0.011	0.036	0.011
Canteen/Office/Adhoc waste	0.493	3.020	0.778	0.776	0.794	0.541	0.524	0.861	0.549
Liquids	0.067	0.009	0.000	0.034	0.015	0.043	0.076	0.061	0.040
Oils	0.002	0.000	0.004	0.005	0.000	0.000	0.000	0.109	0.002
Bituminous mixtures	0.547	0.144	0.229	0.656	0.233	0.626	0.322	0.235	0.139
Hazardous waste	0.192	0.554	0.174	0.207	0.176	0.234	0.039	0.420	0.129
Other waste	0.740	0.313	0.294	0.663	0.561	0.793	0.857	0.861	0.726
Mixed construction and/or demolition waste	7.406	3.709	2.751	6.556	4.003	2.948	4.304	6.683	4.278
<b>Total (ex soils)</b>	<b>20.16</b>	<b>18.01</b>	<b>15.98</b>	<b>21.03</b>	<b>18.39</b>	<b>13.71</b>	<b>16.31</b>	<b>24.78</b>	<b>18.84</b>

Key: m<sup>3</sup>/100 m<sup>2</sup> - volume of waste in m<sup>3</sup> / 100 m<sup>2</sup> of floor area

## BRE SMARTWASTE

**Table 4: Waste Benchmark Data - tonnes/100m<sup>2</sup> by product for different project types**  
(New Build Only, Tonnage projects, Projects completed by end August 2016)

Description	Commercial Retail	Commercial Offices	Commercial Other	Education	Healthcare	Industrial Buildings	Leisure	Public Buildings	Residential
Bricks	0.237	0.983	0.227	1.502	0.900	0.221	0.546	0.940	1.224
Tiles and Ceramics	0.015	0.006	0.000	0.130	0.080	0.002	0.013	0.003	0.088
Concrete	1.470	3.755	7.666	0.935	1.161	1.029	1.127	1.294	1.759
Inert	3.629	1.668	8.975	3.585	2.836	2.276	4.509	4.654	4.616
Insulation materials	0.025	0.091	0.007	0.148	0.225	0.003	0.056	0.183	0.065
Metals	0.312	0.192	0.214	0.386	0.246	1.214	0.186	0.233	0.209
Packaging materials	0.076	0.170	0.200	0.550	0.674	0.217	0.267	0.239	0.420
Plasterboard / Gypsum	0.135	0.492	0.080	0.608	0.537	0.109	0.220	0.361	0.479
Binders	0.006	0.007	0.000	0.014	0.012	0.017	0.016	0.003	0.018
Plastic (excluding packaging waste)	0.063	0.115	0.210	0.171	0.381	0.079	0.108	0.175	0.294
Timber	0.377	1.023	0.817	1.057	1.042	1.555	0.935	0.946	1.308
Floor coverings (soft)	0.003	0.006	0.000	0.032	0.023	0.001	0.013	0.002	0.008
Electrical and electronic equipment	0.002	0.001	0.000	0.008	0.015	0.000	0.013	0.002	0.007
Furniture	0.002	0.000	0.000	0.001	0.007	0.000	0.002	0.005	0.001
Canteen/Office/Adhoc waste	0.150	0.032	0.147	0.372	0.293	0.157	0.109	0.792	0.139
Liquids	0.015	0.053	0.000	0.003	0.000	0.000	0.000	0.000	0.008
Oils	0.000	0.001	0.000	0.000	0.003	0.000	0.000	0.000	0.001
Bituminous mixtures	0.050	0.093	0.547	0.609	0.146	0.268	0.316	0.000	0.082
Hazardous waste	0.097	0.014	0.000	0.178	1.577	0.026	0.016	0.013	0.109
Other waste	0.205	0.247	0.743	0.540	0.556	1.062	1.033	0.282	0.403
Mixed construction and/or demolition waste	4.163	4.147	2.768	4.038	2.510	5.003	5.627	4.399	3.971
Total (ex soils)	11.03	13.10	22.60	14.87	13.22	13.24	15.11	14.53	15.21

Key: tonnes/100 m<sup>2</sup> - weight of waste in tonnes / 100 m<sup>2</sup> of floor area



# BRE SMARTWASTE

**Table 5: Waste Benchmark Data - m<sup>3</sup>/£100K by product for different project types**  
(New Build Only, Volume projects, Projects completed by end August 2016)

Description	Commercial Retail	Commercial Offices	Commercial Other	Education	Healthcare	Industrial Buildings	Leisure	Public Buildings	Residential
Bricks	0.631	0.305	0.177	0.497	0.449	0.320	0.482	0.545	0.833
Tiles and Ceramics	0.074	0.023	0.021	0.027	0.029	0.002	0.060	0.080	0.075
Concrete	1.662	0.585	1.043	0.621	0.653	1.075	0.558	0.615	0.914
Inert	0.846	1.167	1.850	1.267	1.054	1.612	1.186	1.556	1.864
Insulation materials	0.179	0.294	0.190	0.299	0.298	0.238	0.262	0.254	0.375
Metals	0.991	0.275	0.448	0.412	0.316	0.423	0.256	0.458	0.214
Packaging materials	1.062	1.170	1.056	0.851	1.028	0.750	1.048	0.849	1.069
Plasterboard / Gypsum	0.560	0.427	0.173	0.421	0.601	0.224	0.581	0.359	0.800
Binders	0.028	0.028	0.023	0.025	0.060	0.012	0.081	0.025	0.063
Plastic (excluding packaging waste)	0.327	0.255	0.187	0.244	0.333	0.191	0.242	0.300	0.457
Timber	1.423	1.184	0.983	1.255	1.302	0.979	1.660	1.341	1.708
Floor coverings (soft)	0.026	0.009	0.021	0.034	0.038	0.009	0.052	0.035	0.036
Electrical and electronic equipment	0.042	0.011	0.003	0.015	0.024	0.005	0.017	0.030	0.028
Furniture	0.039	0.001	0.001	0.010	0.006	0.002	0.010	0.019	0.006
Canteen/Office/Adhoc waste	0.330	0.315	0.390	0.341	0.373	0.354	0.332	0.354	0.368
Liquids	0.017	0.006	0.000	0.010	0.010	0.224	0.038	0.024	0.029
Oils	0.006	0.000	0.008	0.002	0.000	0.000	0.000	0.015	0.002
Bituminous mixtures	0.443	0.089	0.238	0.287	0.131	0.367	0.138	0.134	0.080
Hazardous waste	0.204	0.217	0.079	0.120	0.061	0.250	0.025	0.162	0.085
Other waste	0.401	0.174	0.137	0.300	0.324	0.414	0.522	0.662	0.497
Mixed construction and/or demolition waste	4.155	2.256	2.544	3.169	2.009	1.889	2.219	2.969	2.944
Total (ex soils)	13.44	8.79	9.57	10.21	9.10	9.34	9.77	10.78	12.45

Key: m<sup>3</sup>/£100K - volume of waste in m<sup>3</sup> / £100K of project value

## BRE SMARTWASTE

**Table 6: Waste Benchmark Data - tonnes/£100K by product for different project types**  
(New Build Only, Tonnage projects, Projects completed by end August 2016)

Description	Commercial Retail	Commercial Office	Commercial Other	Education	Healthcare	Industrial Buildings	Leisure	Public Buildings	Residential
Bricks	0.118	0.496	0.083	0.623	0.691	0.294	0.423	0.435	1.143
Tiles and Ceramics	0.013	0.005	0.000	0.099	0.026	0.002	0.012	0.002	0.076
Concrete	1.197	2.325	2.476	0.518	0.614	0.188	0.942	0.849	1.321
Inert	1.912	1.741	2.928	2.474	1.459	2.074	5.034	4.673	4.219
Insulation materials	0.019	0.063	0.002	0.062	0.105	0.004	0.024	0.097	0.059
Metals	0.272	0.096	0.073	0.161	0.114	0.662	0.090	0.095	0.185
Packaging materials	0.099	0.102	0.071	0.194	0.455	0.139	0.153	0.115	0.429
Plasterboard / Gypsum	0.083	0.151	0.028	0.270	0.427	0.133	0.203	0.170	0.382
Binders	0.010	0.005	0.000	0.005	0.009	0.003	0.013	0.002	0.024
Plastic (excluding packaging waste)	0.051	0.064	0.076	0.100	0.160	0.043	0.096	0.101	0.256
Timber	0.254	0.298	0.293	0.499	0.746	1.056	0.747	0.412	1.441
Floor coverings (soft)	0.003	0.005	0.000	0.012	0.014	0.000	0.011	0.002	0.008
Electrical and electronic equipment	0.003	0.001	0.000	0.002	0.018	0.000	0.011	0.001	0.007
Furniture	0.000	0.000	0.000	0.000	0.003	0.000	0.001	0.003	0.001
Canteen/Office/Adhoc waste	0.051	0.025	0.051	0.119	0.172	0.150	0.068	0.226	0.089
Liquids	0.027	0.116	0.000	0.001	0.000	0.000	0.000	0.000	0.005
Oils	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000
Bituminous mixtures	0.087	0.053	0.213	0.650	0.132	0.063	0.235	0.000	0.070
Hazardous waste	0.035	0.009	0.000	0.100	0.541	0.027	0.001	0.044	0.071
Other waste	0.083	0.186	0.143	0.268	1.745	0.876	0.420	0.199	0.321
Mixed construction and/or demolition waste	4.164	1.908	0.747	2.494	1.260	1.737	1.599	1.989	2.644
Total (ex soils)	8.48	7.65	7.18	8.65	8.69	7.45	10.09	9.41	12.75

Key: tonnes/£100K - weight of waste in tonnes / £100K of project value