



Kier Property Ltd

Parcel R11 of Phase 2b, South Wokingham

Site Waste Management Plan

3020215 R01 (00)

RSK GENERAL NOTES

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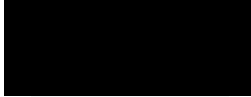
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1 INTRODUCTION

1.1 Background

This detailed Site Waste Management Plan (SWMP) has been prepared by RSK on behalf of Kier Property Ltd for the development of 343 residential units at Parcel R11 of Phase 2b, South Wokingham ("the Site"). The Site Layout Plan is shown in **Figure 1**.

This plan considers the potential overall impacts that may arise as part of the development from waste generated during site preparation and construction 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.

The report also outlines the opportunity for implementing waste mitigation measures for the potential impacts from the development, specifically site preparation (including any demolition) and construction, in order to assure such measures are consistent with both government and Local Authority waste policies and targets.

1.2 Summary of proposed development

A scheme is proposed to develop the site for residential use.

Once complete, the proposed development will comprise of 343 residential dwellings, with associated infrastructure and communal green space.

The purpose of this SWMP 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 and construction of the proposed development.

The SWMP will satisfy Condition 66 of the Wokingham Borough Council planning permission (Reference: 191068).

Condition 66 states that:

'Reserved matters for each phase shall be accompanied by a Site Waste Management Plan and development shall be carried out in accordance with the approved details.'

Reason: to minimise waste in accordance with Core Strategy policy CP1 and the Sustainable Design and Construction Supplementary Planning Document (2010).'

1.3 Assessment aims

The aim of this SWMP 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.
- Identifying opportunities for waste segregation and the transfer of waste to appropriate processing facilities.

1.4 Methodology

The development of this SWMP 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 Wokingham Borough 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.
- Identification of opportunities for waste minimisation, reuse and recycling during the site preparation (including demolition where required), and construction phase (including options for sustainable re-use and recycling of wastes such as Environmental Permit; Exemptions; the Contaminated Land: Applications in Real Environments Declaration of Waste Code of Practice (CL:AIRE DoWCoP) [for re-use of soils]; and Waste & Resources Action Programme (WRAP) Quality Protocol [for the reuse of demolition materials]).

1.5 Limitations

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

2.1 Introduction

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 in the context of waste management.

2.2 National Legislation

Waste Framework Directive

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's 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

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

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 1** has been considered in order to determine the most suitable waste management option for all waste arisings:

Table 1: The Waste Hierarchy (reproduced from Department for Environment, Food & Rural Affairs [DEFRA] website)¹

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.

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

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.
- Hazardous Waste (England and Wales) (Amendment) Regulations 2016 (SI 2016/336).

¹ <https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy>

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

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

This legislation was passed in November 2021 to provide a new framework for the UK to protect and enhance its natural environment for future generations. The Act aims to improve the UK's air quality, restore natural habitats, increase biodiversity, reduce waste and promote better use of resources. In respect of waste, the Act has far-reaching implications to the way in which waste is dealt with including 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 both waste collection and waste disposal authorities are required to consider including:

- Recyclable household waste must be collected separately from other household waste, for recycling or composting. The Secretary of State has discretion 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.
 - 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 2024

An update to the National Planning Policy Framework (NPPF) has been published in December 2024 to replace the previous version published in December 2023. 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 September 2023, July 2021, February 2019, July 2018 and March 2012.

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.

The revised NPPF maintains that plans and decisions should apply a presumption in favour of sustainable development, emphasising a balanced approach to economic growth, social well-being, and environmental protection. The revised framework places strong emphasis on tackling climate change by encouraging development that minimises carbon emissions and promotes renewable energy initiatives. 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.

The environmental objective refers to the importance of waste management and resource efficiency, considering this alongside other planning concerns like housing and transport. Waste reduction, reuse, and recycling through the waste hierarchy should be considered, ensuring new developments incorporate proper waste storage and collection facilities to facilitate effective waste management practices whilst considering local community engagement. The NPPF should be read in conjunction with the National Planning Policy for Waste (2014) including the Waste Management Plan for England (2021) and Planning Practice Guidance which are discussed in the following sections of this plan.

Planning Practice Guidance 2024

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”*.

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

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

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 and industrial waste).

In 2009, 47.9 million tonnes (Mt) of waste were generated by businesses. The industrial sector accounted for 24.1 Mt and the commercial sector 23.8 Mt. Estimates show that 52% of Construction and Industry (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

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

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.

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 DoW CoP

The definition of waste and subsequent re-use of materials can often be a complex area. The CL:AIRE DoWCoP provides a framework that can be followed when reusing excavated soils and source segregated aggregate on the site of production, including:

- Soil, both top soil and sub-soil, parent material and underlying geology.
- Soil and mineral based dredgings.
- Ground based infrastructure that is capable of reuse within earthworks projects, e.g. road base, concrete floors.
- Made ground.
- 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.
- Stockpiled excavated materials that include the above.

A Materials Management Plan (MMP) must be developed to manage arisings from excavations and services as per the CL:AIRE DoWCoP. The MMP should include:

- A description of the materials in terms of chemical and physical quality, potential reuse options and relative quantities.
- Details of where and how these materials will be stored.
- Details of the intended final destination and use of these materials.
- Details of how these materials are to be tracked and moved.

2.4 Regional and local waste policy

Wokingham Borough Core Strategy Development Plan Document²

The Wokingham Borough Core Strategy Development Plan Document was adopted in on 29 January 2010 and sets out the vision for how the borough will develop in the period to 2026 and how the council aims to protect and enhance quality of life within the borough.

Core Strategy Policies form part of the Plan providing high level policies in order to achieve the objectives and vision. Proposals are required to comply with relevant policies, together with other parts of the Plan.

Policy CP1 relates to sustainable development and states that planning permission will be granted for development proposals that:

- *'Minimise the consumption and use of resources and provide for recycling'*

As well as other sustainable actions included within the policy.

² https://www.wokingham.gov.uk/sites/wokingham/files/2023-06/Final_adopted_Core_Strategy%5B1%5D.pdf

Wokingham Borough Local Development Framework – Sustainable Design and Construction Supplementary Planning Document³

The Wokingham Borough Local Development Framework – Sustainable Design and Construction Supplementary Planning Document (SPD) was adopted on 28 May 2010. The SPD provides a comprehensive approach to considering sustainable design and construction in new development and is a material planning consideration for all planning applications. The SPD promotes the use of sustainable techniques and materials in construction and forms part of the suite of documents guiding the Core Strategic Development Locations, one of which is South Wokingham.

Wokingham Borough Council requires all development to contribute towards reducing and recycling construction waste due to it being a valuable resource. Sustainability Issue 11 refers to Site Waste Management Plans and states that development/construction projects with an estimated cost greater than £300,000 excluding VAT will be expected to put in place a Site Waste Management Plan in order to minimise the production of construction waste and maximise reuse and recycling.

³ <https://www.wokingham.gov.uk/sites/wokingham/files/2023-06/CD13.10%20Sustainable%20Design%20Construction%20SPD.pdf>

3 PROJECT PLANNING AND DESIGN STAGE

3.1 Introduction

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

3.2 Designing Out Waste

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 either be prevented or minimised in the first place.

Decisions at this stage can also positively improve the recycled content and future recyclability of the development.

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.

At detailed 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 site's existing topographical levels to optimise the cut and fill operation. This will prevent/reduce the quantity of material that needs to be exported from the site.
- Use of prefabricated and standardised materials, wherever possible, will reduce waste on site. Many materials typically used for construction purposes can be produced to an exact specification and this can reduce the quantity of waste offcuts.
- The types of material to be used to construct the development should be considered, with priority given to use of recycled and/or reclaimed materials where feasible.
- The provision of accurate design specifications to subcontractors and supply chain teams.

3.3 Project Management

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.

The following are a number of steps that will be considered by the project manager:

- By undertaking work in the correct order, the likelihood that remedial action will be required can be reduced. As a result, the amount of waste produced will also be minimised.

- By determining how materials and waste will be moved/stored around the site the site manager can ensure that waste is disposed of appropriately and that effective segregation takes place.
- Ensuring that all site staff and sub-contractors undergo a suitable site induction that includes information covering the awareness of good waste management and the specific measures to be used on site.
- By delivering regular toolbox talks on good waste management practices to make sure that everyone who works on the development 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 is necessary and reduce the risk of inadvertent damage.
- Check contracts with suppliers and the supplier's haulier for return of packaging. It is often the case that a supplier contract will include a clause for return of packaging. However, this clause may not be included in the contract between the supplier and 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

4.1 Introduction

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

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.

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.

Different members of the construction team will have specific roles and responsibilities identified in **Table 2**.

Table 2: 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 which may result in the generation of excessive quantities of waste.	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 .	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.

Position	Roles	Responsibilities
	Ensure appropriate off-site transport of waste and confirm destination of all waste leaving site.	
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.

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 SWMP 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

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.

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, visual assessments and can include laboratory analysis. If this level of assessment is required, then further guidance will be sought.

4.4 Site Preparation

No demolition is currently anticipated at this site and so has not been considered.

In order to prepare the site, earthworks and ground preparation will take place as part of the development.

The presence of any invasive non-native plants will be identified prior to vegetation clearance commencing. 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.

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.

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.

Due to its previous use as agricultural land the risk of any contaminants being present is considered to be low. A Technical Note regarding Parcel R1 by Geo-Environmental Services Ltd (Ref.: GE23017-TN02-250303; dated: 3 Mar 2025) identified that historically the site comprised of open land with no notable changes occurring since 1898 and during the site investigation identified topsoil overlying River Terrace Deposits and London Clay Formation. No made ground was described within the findings.

In the event any contamination is discovered, this plan will be updated to outline how any potentially contaminated excavated material will be handled and managed.

Efforts will be made to ensure that all non-hazardous waste aggregate and soil from the excavation works is re-used on site. Some of this waste will be used to level out the ground in specified areas to prepare the ground for construction, to create the appropriate development platform and to aid in the construction of the required noise attenuation bunds. Some of this reuse may need to be undertaken in accordance with a suitable waste control mechanism (e.g., waste exemption, CL:AIRE DoWCoP MMP, environmental permit). Surplus material will be disposed of at an appropriately permitted site.

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.

Should any clean and uncontaminated 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:

- Reused on the site of origin (e.g., made ground, source segregated aggregate, ground-based infrastructure).
- Transferred between sites and reused directly without treatment (clean and natural soil only).
- Transferred between sites and reused following treatment, as part of a Cluster project.

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.

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 may require remediation, with any contaminated excavated material treated or disposed of at an appropriately permitted site.

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 (e.g., sign-posted) where necessary to reduce the possibility that different material streams will be mixed (e.g., topsoil and subsoil, hazardous and non-hazardous wastes).
- Temporary stockpiles will have side slopes of no greater than 1 in 3 and will not be higher than three metres.
- Any excavated materials will not be mixed with construction waste or contaminated material.
- 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.

4.5 Construction waste

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.

The quantities of waste generated during the construction phase can be estimated using information regarding the number and floor area of the residential units. This information can then be used in conjunction with Building Research Establishment (BRE) Benchmark Data (which is recognised within the construction industry). See **Appendix B**.

The BRE Benchmark Data details the generation of waste (tonnes/100 m²) for different types of development. This data can be used to estimate the waste arising during the construction phase of the development. For residential developments it is **15.21 tonnes/100 m²**.

The composition of the construction waste arisings will be dependent on the construction methods employed. However, they have been assumed to comprise of the wastes listed within **Table 3**.

The estimated figures of waste arising are based on BRE Waste Benchmark data for construction operations in the UK and the estimated quantities can be significantly reduced through good on-site waste management practices as detailed in the following sections.

Using information provided by the developer, the overall floor area of the residential development (Affordable housing and open market) has been calculated to be **32,408.95 m²**.

Therefore, according to the forecast, the overall quantity of construction waste generated at the development will be **4,929.40 tonnes** $[(32,408.95/100) \times 15.21]$.

The estimated quantities of the different waste types produced is shown in **Table 3**. These waste quantities exclude soil.

Table 3: Estimated breakdown of waste types generated by development

Description	Weight of Waste Generated by Development (tonnes)
Bricks	396.69
Tiles and Ceramics	28.52
Concrete	570.07
Inert	1496.00
Insulation materials	21.07
Metals	67.73
Packaging materials	136.12
Plasterboard/gypsum	155.24
Binders	5.83
Plastic (excluding packaging waste)	95.28
Timber	423.91
Floor coverings (soft)	2.59
Electrical and electronic equipment	2.27
Furniture	0.32
Canteen/Office/adhoc waste	45.05
Liquids	2.59
Oils	0.32
Bituminous mixtures	26.58
Hazardous waste	35.33
Other waste	130.61
Mixed construction and/or demolition waste	1286.96

These figures can be significantly reduced through the use of good waste management practices.

4.6 Raw materials and waste storage

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.
- Avoid the mixing of hazardous and non-hazardous materials.

Facilitating effective waste management will require communication with contractors, sub-contractors and site operatives.

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.

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.

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.

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.

No waste will be burnt on site.

4.7 Waste recycling and disposal facilities

The Principal Contractor will arrange for a suitable waste and recycling service. This will include the provision of a suitable number and size of storage containers, and their collection frequency.

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.

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.

4.8 Setting targets

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 4** provides a series of targets that have been set by Waste & Resources Action Programme (WRAP) for standard, good and best practice.

Table 4: 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

Material	Standard Recovery %	Good Practice Recovery (Quick Win) %	Best Practice Recovery %
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
Liquids and Oils	100	100	100
Hazardous	50	Limited information **	Limited information**
* 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). **This cannot be 100% as most hazardous waste streams (e.g., asbestos) must be landfilled.			

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.

4.9 Monitoring and reporting

Any work undertaken will be managed in accordance with the developer's internal environmental management procedures.

A Site Waste Management Matrix will be used on site which outlines how different waste types will be disposed by detailing relevant EWC codes, waste descriptions, carriers and destination sites. The Matrix should simplify some of the following processes and will be regularly checked and updated to ensure the information it contains is relevant. An example of a Site Waste Management Matrix can be found at **Appendix C**.

Any person or company working for, or on behalf of the main contractor that transports waste from the project site **MUST** be registered (licensed) as a waste carrier.

Any person or company employed to manage waste contracts/removals by other waste carriers on behalf of the main contractor **MUST** be registered as a 'Waste Broker'.

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., Parcel R11 of Phase 2b, South Wokingham).
- 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. name and address of transfer station or 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 first six letters or numbers of the name of the company producing the waste and then five numbers or letters to create a different code each time waste is consigned from that premises.
- 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 ensure is sent to the waste producer within three months.

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 registered waste carrier to a suitably permitted 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 three years if it is a HWCN.

All paper copies of 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.

Where electronic WTNs and HWCNs are issued the site manager and anyone else on site responsible for managing waste must have suitable online access to the required software so that copies of any notes required can be retrieved at any time they are required.

Any sampling reports undertaken to assess and classify waste will be retained for the duration of the development.

Waste Transfer Notes and Hazardous Waste Consignment Notes will be made available to the Local Authority and Environment Agency upon request.

The implementation of the SWMP will be monitored regularly and reviewed following any incident relating to the reuse and recycling of materials. Reports of these reviews will be retained. Should any review determine that the SWMP 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.

Should circumstances change during the course of the development, then the SWMP will be updated to ensure that it is still applicable and outlines efficient waste management on site.

5 SUMMARY AND CONCLUSION

5.1 Summary of the plan

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 Wokingham Borough Council are adhered to.

Waste from site preparation

A significant quantity of the potential waste generated on site could be reduced by specifying the reuse of certain materials generated during preparation works.

Where waste may not be immediately suitable for reuse, any treatment to make this waste suitable for reuse will be undertaken in accordance with the relevant waste exemption or environmental permit.

Waste from the construction phase

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.

It is estimated, using BRE Washmark Data, that approximately **4,929.40 tonnes** of waste will be generated from the development of 343 residential dwellings at Parcel R11 of Phase 2b, South Wokingham.

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.

5.2 Conclusion

This SWMP 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 phase only.

The proposals identify the requirements of relevant waste policy and follow applicable guidance.

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.

FIGURE 1

SITE LOCATION

[illegible]

APPENDIX A

SERVICE CONSTRAINTS

1. Service Constraints for all Reports

1.1. This Report (the "Report") and any study, inspection, investigation, sampling, testing and or interpretation carried out in connection with the Report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) trading as Carbon Zero Consulting, Leap Environmental or RSK Geosciences, for the Client named in the first paragraph of the Report (the "Client") in accordance with the terms of an RSK Fee Proposal including RSK Environment Standard Terms and Conditions (the "Appointment") between RSK and the Client, unless otherwise stated in the first paragraph of the Report. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by a geo-environmental consultant at the time the Services were performed. Nothing in this Report shall be construed as imposing any fitness for purpose obligation. 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.

1.2 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. RSK shall not be liable in respect of any action or proceedings arising out of or in connection with this Report whether in contract, in tort, for breach of statutory duty or otherwise after the expiry of six (6) years from either (i) the date of the Report or (ii) such earlier date as prescribed by law, unless varied in the terms of the Appointment.

1.3 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 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 geo-environmental consultant and/or lawyer.

1.4 The Client shall not, without the prior written consent of RSK, assign, transfer, charge, mortgage, subcontract, or deal in any other manner with all or any of the benefits provided in this Report. Unless specified in the Appointment, RSK shall not be obliged to assign the benefit of the Report whether by collateral warranty, third party rights pursuant to the Contracts (Rights of Third Parties) Act 1999, letter of reliance or otherwise. If RSK agrees to any assignment of the benefit of this Report, in whatever form, benefits to third parties through collateral warranties, third party rights or letters of reliance shall not be provided unless a fee for each right, warranty or letter is agreed. The form of wording used in the warranty or letter shall be provided by RSK for agreement by the Client. Any reasonable changes to the form of wording will be implemented by mutual agreement, however the terms in the warranty or letter cannot offer the third party any greater benefit than the Appointment offered to the Client.

1.5 It is the understanding of RSK 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 the review and advice of RSK shall be at the Client's sole and own risk. RSK shall not be liable for any use of this Report for any purpose other than that for which it was provided.

1.6 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.

1.7 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 Appointment 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 site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, fuel storage, persistent bio-accumulative or toxic chemicals (including PFAS and related compounds) or other radioactive or hazardous materials, unless specifically identified in the Services.

1.8 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 desk based publicly available 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 and the limitations below:

- 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.
- d. The Client has identified in writing to RSK, the information, reports, findings, surveys and preliminary works RSK may not rely upon when providing 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 Appointment between the Client and RSK.

1.9 Any site drawing(s) provided in this Report is (are) not meant to be an accurate base plan for scale measurement 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 accurate setting out and should be considered indicative only.

1.10 Should RSK be requested to review the Report after the date of issue of this Report, RSK shall be entitled to additional payment at the existing rates, or such other terms as agreed between RSK and the Client.

2. Service Constraints where the Report provides an intrusive assessment of ground conditions:

2.1 The intrusive environmental ground investigation aspects of the Services are a limited sampling of soil from 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 agreed 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 (not tested) are not present.

2.2 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. The extent of the exploratory holes, laboratory testing and monitoring undertaken may have been restricted due to a number of factors including accessibility, the presence of buried or overhead services, current development, site usage, timescales or the Client's specification. The exploratory holes only assess a small proportion of the site area with respect to the site as a whole, and as such may only provide an indicative assessment of ground conditions on site. 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. The presence of hotspots of undisclosed contamination or exceptional and unforeseen ground conditions cannot be discounted.

2.3 Where the Services include Investigation of an exploratory nature or relating to physical ground works, any costings and prices provided in the Report are estimated and provided for guidance purposes only. The actual cost and time quantities shall be remeasured and shall be dependent upon the ground or other conditions, constraints present, and number and depth of the investigation locations, which shall influence the number of samples and tests required, and the quantities of soil being classified.

2.4 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. However, this Report does not constitute an asbestos survey. On this basis, the presence of asbestos on site cannot be discounted and a full asbestos survey should be undertaken.

2.5 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. Eurocode 7 gives guidance on the type of sampling, sample quality, number and spacing of intrusive investigations, and number of laboratory tests required. It is intended that the Geotechnical Information section of this Report will fulfil the general requirements of the Ground Investigation Report as set out in section 6 of Eurocode7, although this is subject to the restrictions imposed on the investigation, as listed above. For geotechnical design, Eurocode 7 requires the Geotechnical Design Report to address both the geotechnical and structural aspects of the geotechnical design for both the limit and serviceability states. The Geotechnical Appraisal section of this Report will not meet the requirements of a Geotechnical Design Report (GDR) and should therefore be used for preliminary guidance only.

3. Service Constraints where the Report relates to Surface Water Management:

3.1 The Surface Water Management Inspection (SWMI) Report, documents provided, observations, actions, and recommendations, with respect to the management of potential pollution issues to surface waters, made during the site Inspection visit, are those present at the time of the visit, and may not represent those recorded by others on the same day.

3.2 The comments given in this Report and the opinions expressed are based on the weather, ground and ground water 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 inspection and therefore could not be taken into account. In addition, groundwater levels and flows, may vary from those Reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.

3.3 RSK places a degree of dependence upon oral information provided by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this Report was prepared.

3.4 This Report is a live document, to be continually reviewed and updated as the development progresses or other changes occur on site. RSK can only maintain the currency of this Report through the Client requesting support with supplementary site visits or attendance at meetings ahead of key stages of the development in relation to surface water management. Our risk rating assesses a number of risk factors in line with the source-pathway- receptor model and is therefore subject to constant change.

3.5 Standard design drawings are indicative. Material types, dimensions and construction details will need to be adjusted by the Client to suit the specific conditions / flows on Site.

3.6 The full responsibility for implementing the site-specific protection and maintenance measures to protect the surface water system as stated in this Report, remains with the Client and their site management team. Additional control measures may be required to achieve the objectives set out in the Surface Water Management Plan to be implemented and financed by the Client.

4. Service Constraints where the Report relates to Waste Management:

4.1 In accordance with the definition provided in the Waste Framework Directive (WFD), materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Naturally occurring soils are not considered waste if re-used on the site of origin for the purposes of development. Soils such as made ground that are not of clean and natural origin (irrespective of whether they are contaminated or not) and other materials such as recycled aggregate, do not necessarily become waste until the criteria above are met. Excavation arisings from the development may therefore be classified as waste if surplus to requirements and/or unsuitable for re-use.

4.2 It is the duty of the waste producer, to ensure that all waste is accurately classified prior to waste disposal. Technical Guidance WM3 (EA, 2018) sets out in its Appendix D requirements for waste sampling. It is a legal requirement to correctly assess and classify waste. The level of sampling should be proportionate to the volume of waste and its heterogeneity. Unless otherwise stated, the waste assessment presented in this Report should be considered as preliminary and further testing and assessment of the waste under the provisions of a Waste Sampling Plan may be required to obtain the necessary level of data required for basic characterisation of the waste in support of disposal.

4.3 Unless stated otherwise in the Report, information relating to historical operations at the site was not reviewed as part of the assessment by RSK. In addition, unless otherwise stated in the Services, RSK was not present during the collection of the samples nor had any input on the chemical testing suite. Therefore, the waste assessment and classification detailed in this Report are based solely on any information that were provided to RSK (e.g., laboratory chemical data, exploratory hole records) and were completed without prejudice for our Client.

4.4 RSK's assumes that any ground investigation data, chemical testing results etc., that were provided by the Client to inform the waste assessment and supporting review were carried out in accordance with current best practice and relevant guidance/ standards, where applicable. Thus, the comments given in this Report and the opinions expressed are based solely on the information provided by the Client. However, it is noted that there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account as part of the RSK assessment.

5. Service Constraints for Construction Environmental Management Plan Reports:

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.

5.2 The measures and comments outlined in this Report and any 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.

5.3 This CEMP is a live document and is subject to change throughout the project, as and when necessary, to ensure management of environmental aspects remains relevant, and to ensure continued compliance with legislation and commitments as they may change. RSK understands that this CEMP will be reviewed by the Client every six months and updated as and when necessary.

5.4 It is the full responsibility of the Principal Contractor/ Client to ensure that their works do not contravene legal requirements, and adherence to this CEMP alone cannot be a full defence regarding legal action against the Principal Contractor.

6. Service Constraints where the Report relates to Ground Gas Membrane Verification:

6.1 This Report is limited to the verification of the gas resistant membrane/vapour membrane/radon barrier after installation and no inspections were undertaken of the substrate (i.e. prepared ground). The Report therefore does not constitute as a full verification of ground gas protection system.

6.2 The comments given in this Report and the opinions expressed, are based on the condition of the ground gas membrane as encountered at the time of inspection by suitably qualified personnel. RSK cannot accept liability for any subsequent change to the status of the gas membrane by follow-on trades or other construction activity.

6.3 Where not designed by RSK, the verification of protection measures is carried out with reference to the gas protection design provided by the Client. RSK assume the scope of gas protection measures as determined by third parties to be correct and to have achieved any required approval from authorities.

6.4 The Ground Gas Design Report/Remediation Strategy and Verification Plan contains details of the procedures to be adopted for inspection and validation of the works. However, it should be noted

that responsibility for the correct implementation of the strategy lies with the appointed contractor. RSK cannot be held responsible for any remedial works that are carried out without the agreed procedures involving either direct supervision by RSK, or inspection and validation of the works by a representative from RSK.

7. Service Constraints for Environmental Due Diligence (EDD) Reports:

7.1 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the site, therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information.

7.2 This Report describes the results of the EDD exercise. The scope of this EDD Report, where appropriate, covers legal or regulatory compliance with respect to UK or international regulations associated with environmental matters.

7.3 As with any EDD exercise, there is a certain degree of dependence upon information provided by the target company. The EDD does not include a site walkover / visit or liaison with site representatives unless identified in the Services. Therefore, the assessment is based on the available desk study information. Also, there is a certain degree of dependence upon oral information provided by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this EDD exercise was performed.

7.4 This Report, including all supporting data and notes (collectively referred to hereinafter as "information"), was prepared or collected by RSK for the benefit of its Client.

7.5 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment and the site inspection visit. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the Site therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information and observations collected during the site inspection visit.

8. Service Constraints for Ground source heat energy Reports:

8.1 It is understood that this is a desktop survey only and that there are no requirements for a site walkover, service utility survey, or provision of service plans. These services can be provided upon request if required.

8.2 At a later stage, it is possible that a thermal response test (TRT) will need to be completed, for which a test borehole will have to be drilled, and these would be costed at the time. RSK can provide all aspects of subsequent site work for a GSHP system if required.

9. Service Constraints for Water Abstraction Borehole Reports:

9.1 The Report aims principally to only identify and assess the suitability of the site for a water abstraction borehole. This Report should be considered in the light of any changes in legislation, statutory requirements, and industry practices, that have occurred subsequent to the date of the Report.

9.2 Unless stated in the Report, the opinions expressed in this Report including all comments and recommendations provided are on the basis of the information obtained from a desk-based assessment.

APPENDIX B

BRE WASTE BENCHMARK DATA

BRE SMARTWASTE

BRE Waste Benchmark Data

Issued 23rd 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 m².
- The waste volume must be more than 1 m³.
- The project value must be greater than £1.

The performance indicators of m³ waste per 100 m² floor area and m³ 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 5th percentile and the 95th 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 m².
- 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 m² 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 5th percentile and the 95th percentile would be used for further analysis.

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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.

The benchmarks shown in this document are as follows:

- Table 1 shows the average m³ of waste per 100m² of floor area and the average m³ 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 100m² 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 m³ of waste per 100m² of floor area for each waste product for the different project types.
- Table 4 shows the average tonnes of waste per 100m² of floor area for each waste product for the different project types.
- Table 5 shows the average m³ 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.

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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 ³ /100m ²	Number of projects data relates to	Average m ³ /£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
Total number of projects	2946		2932	

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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 ²	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
Total number of projects	1289		1301	

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Table 3: Waste Benchmark Data - m³/100m² 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
Total (ex soils)	20.16	18.01	15.98	21.03	18.39	13.71	16.31	24.78	18.84

Key: m³/100 m² - volume of waste in m³ / 100 m² of floor area

Table 4: Waste Benchmark Data - tonnes/100m² 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	0.935	0.060	0.002	0.130	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 m² - weight of waste in tonnes / 100 m² of floor area

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Table 5: Waste Benchmark Data - m³/£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	0.862	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: m³/£100K - volume of waste in m³ / £100K of project value

Key: tonnes/100 m² - weight of waste in tonnes / 100 m² of floor area

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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

APPENDIX C

SITE WASTE MANAGEMENT MATRIX

[illegible]