OTTERPOOL PARK

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DOCUMENTS SUBMITTED IN SUPPORT

OP5 APPENDIX 17.3 – **OUTLINE SITE WASTE MANAGEMENT PLAN**

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March 2022

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APPLICATION CONTENTS

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Environmental Statement Appendix 17.3: Outline Site Waste Management Plan

MARCH 2022

ABBREVIATIONS AND GLOSSARY

Term	Description
2019 Scheme	The Otterpool Park application proposals submitted in 2019
AADT	Annual Average Daily Traffic
AMR	Annual Monitoring Report
Baseline Environment	The environment as it appears (or would appear) immediately prior to the implementation of the proposed Development together with any known or foreseeable future changes that will take place before completion of the project.
BGS	British Geological Survey
BPEO	Best Practicable Environmental Option
BPM	Best Practice Measures
BRE	Building Research Establishment
BS	British Standard
C&D	Construction and Demolition
C&I	Commercial and Industrial Waste
CD&E	Construction, Demolition and Excavation
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment
Code of Construction Practice (CoCP)	The Code of Construction Practice contains a series of measures and standards of work to be applied to the construction of a project ensuring a consistent approach to the management of construction activities.
Construction Environmental Management Plan (CEMP)	A Construction Environmental Management Plan sets out the intended methods of the effective management of potential environmental impacts arising during the construction of a project.
DDC	Dover District Council
Defra	Department for the Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
Environmental Assessment, Environmental Impact Assessment (EIA), Environmental Statement (ES)	The method and process by which information about environmental effects is collected, assessed and used to inform decision-making.
EU	European Union
Future baseline	Baseline conditions in future years without the proposed Development in place

Term	Description
GIS	Geographical Information Systems
HDV	Heavy Duty Vehicle
HE	Historic England
Heavy Goods Vehicles	European Union term for any vehicle with a gross combination mass of over 3500kg
HGV	Heavy Goods Vehicles
HMSO	Her Majesty's Stationery Office
IAN	Interim Advice Note
LDV	Light Duty Vehicle
LPA	Local Planning Authority
MHW	Municipal Household Waste
NPPF	National Planning Policy Framework
F&HDC	Folkestone & Hythe District Council
Site Waste Management Plan (SWMP)	A document that outlines how the Scheme will reduce, manage, and dispose of its solid waste.
SMP	Soil Management Plan
SNRHW	Stable Non-Reactive Hazardous Wastes
Statutory Organisations	Any principal council for the area where the land is situated, Natural England, English Heritage, the Environment Agency; and any other public authority which has environmental responsibilities and which the Secretary of State considers likely to have an interest in the project.
WDA	Waste Disposal Authority
WEEE	Waste Electrical and Electronic Equipment
WTS	Waste Transfer Stations

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1 Introduction

1.1 Purpose

1.1.1 Otterpool Park LLP intends to develop approximately 589 hectares (ha) of land in the vicinity of Otterpool Park (hereafter referred to as the site) within the administrative area of Folkestone & Hythe District Council (F&HDC) in Kent to develop a new garden settlement. The new garden settlement (the 'proposed Development') is proposed as part of the UK government's nationwide initiative to deliver new housing stock across the country, including the Garden Cities, Towns and Villages programme and was announced by Ministry of Housing, Communities & Local Government in 2016. It should be noted that that F&HDC formally changed its name from Shepway District Council (SDC) on 01 April 2018. Whilst references may be used interchangeably, SDC and F&HDC are the same local authority.

1.1.2 The planning application seeks permission for a new garden settlement accommodating up to 8,500 homes (Use Classes C2 and C3) and Use Class E, F, B2, C1, Sui Generis development, including use of retained buildings as identified, with related infrastructure, highway works, green and blue infrastructure, with access, appearance, landscaping, layout and scale matters to be reserved.

1.1.3 The application for planning permission will be an EIA application and an Environmental Statement (ES) has been produced. This Outline Site Waste Management Plan (SMWP) has been developed by Arcadis (UK) Limited (herein referred to as 'Arcadis') to reflect the Otterpool Project and the associated quantities of waste that are anticipated to be generated by the Otterpool Project (herein referred to as the 'Project').

1.1.4 This report has been developed to reflect the Project's design and the associated quantities of waste that are anticipated to be generated by the Project. This report should be read in conjunction with the Environmental Statement and the Waste Strategy (ES Appendix 17.1).

1.2 Aims and Objectives of the SWMP

1.2.1 This SWMP has been developed in accordance with the WRAP's SWMP Template. Although SWMPs are no longer a statutory requirement, the Otterpool project has committed to develop and implement the SWMP on the Project to facilitate good industry practice, record of Duty of Care (DoC) information and by that preventing waste crime. Therefore, the SWMP has been prepared in accordance with the revoked SWMP Regulations 2008. This would demonstrate that the Project has given consideration to the potential impacts that construction, demolition and excavation (CD&E) waste arisings may have on the environment and where possible minimise waste and where not possible, to have in place systems which maximise the beneficial use and recycling of materials.

1.2.2 The intention of this SWMP is to reflect the Project's envisaged design, the associated quantities of waste arisings that are anticipated to be generated and enable better control over material resources and waste arisings throughout the duration of the CD&E phases of the Project.

1.2.3 This SWMP has also been developed to provide a consistent framework for managing and documenting material resources used and waste arisings during the CD&E phases, meeting regulatory control, reducing waste disposal costs and recording decisions that demonstrate good and best practice in materials use and waste minimisation and management.

1.2.4 This SWMP:

- Estimates material resources use and waste arisings during the CD&E phases and identify actions to reduce waste arisings and cost;
- Provide an initial indication as to whether material resources and waste arisings have the potential to be reused, recycled, recovered or disposed; and

- Propose end destinations for waste arisings.

1.2.5 The main phases for this SWMP include:

- The preparation stage – which is the responsibility of the Designer prior to construction; and
- The construction stage – which is the responsibility of the Contractor from when construction begins.

1.2.6 This SWMP is a live document that should be updated throughout the CD&E phases by the Contractor and has been utilised to record the information below that would be updated as the Project progresses:

- Information on the Project such as the Designer, Contractor and Project's start and end dates and approximate construction value;
- Estimate waste that is anticipated to be produced during the Project, recorded using the appropriate European List of Waste (LoW) Codes and waste description;
- Details on waste management actions; and
- Register of waste carriers and their carrier registration number and details of the site the waste would be taken to.

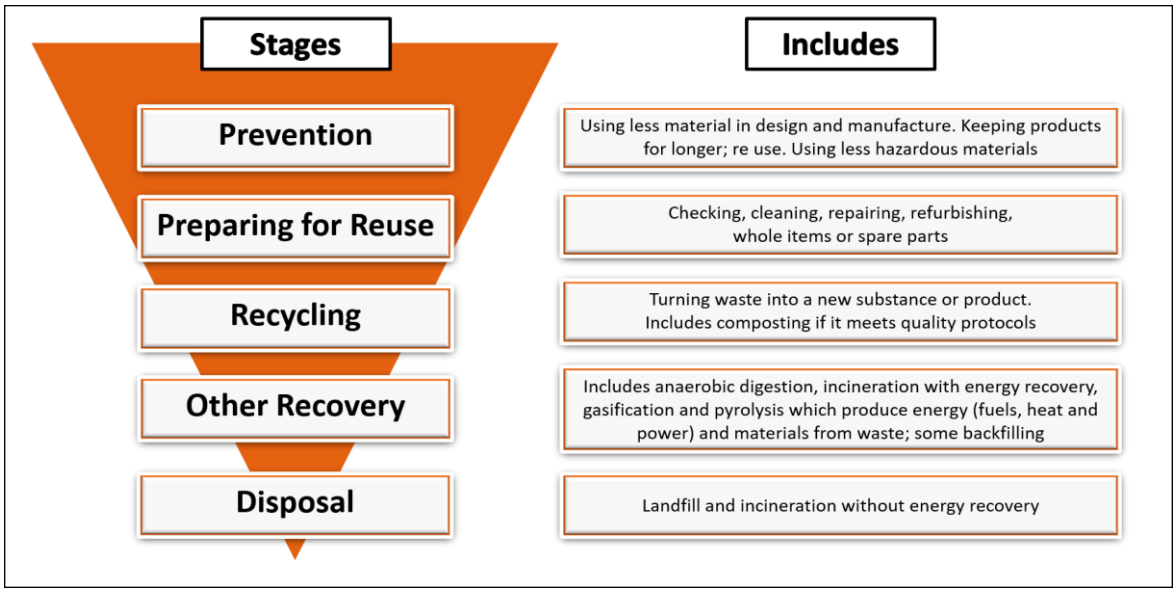
The impact of waste

1.2.7 Waste is defined in Article 3 of the European Framework Directive on waste (2008/98/EC) (Ref. 1) as "any substance or object which the holder discards or intends or is required to discard", where the term:

- 'Waste holder' is defined as the waste producer or the natural or legal person who is in possession of the waste; and
- 'Waste producer' is defined as anyone whose activities produce waste (original waste producer) or anyone who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of this waste.

1.2.8 Waste can cause harm to the environment through its treatment and final disposal, and therefore, effective waste management should follow the principles of the waste hierarchy shown on Figure 1-1 below.

Figure 1-1 Waste Hierarchy



1.2.9 This SWMP considers the impact on the environment as a result of the generation of this waste and details measures to mitigate these impacts and implement best practice in the segregation, storage, collection, treatment and/or disposal of waste arisings. The proposed Development would result in the generation of solid waste from as follows:

- Demolition waste – The site is currently occupied by 102 buildings that comprise predominantly a mixture of farms and associated residential premises, as well as some commercial and industrial uses. Drawing OPM(P)1018_N YY (in support) within ES Appendix 4.15 illustrates the location and status of the buildings. Of the 102 buildings, six are to be retained, and 59 are to be demolished, and 37 that have the option to be retained or demolished.
- Excavation waste – waste from the excavation phases would consist of any materials not reused on site and would comprise of hard and inert materials, soils and subsoils, and rock.
- Construction waste – it is anticipated that material waste likely to arise from the construction, would be from bricks, concrete, metal, timber, plastics, packaging (wooden and plastic), insulation material and from canteen and office waste (as outlined in Table 6-2 below).

1.3 Structure of Report

1.3.1 This report provides the following Chapters:

- Chapter 1: Introduction and background to the proposed Development.
- Chapter 2: The Site and Surrounding area
- Chapter 3: Regulatory Framework – sets out the international, national and local policies, and guidance that would apply to the proposed Development.
- Chapter 4: Roles and Responsibilities
- Chapter 5: Types of waste. This section details the types of waste that is likely to be produced by the proposed development.
- Chapter 6: Waste Forecast: This section looks at what waste is likely to be produced by the proposed Development during the construction and operation phases.
- Chapter 7: Waste minimisation and management strategy. This section outlines the proposed strategy to minimise and successfully manage the waste arisings from the CD&E phases of the proposed Development. It provides guidance on issues relating to best practice for the management of waste which would allow the total waste production to be minimised without significantly impacting the cost of construction.
- Chapter 8: Monitoring. This section details how waste would be monitored during construction.
- Chapter 9: Summary and conclusions.
- Chapter 10: References.

2 The Site and Surrounding Area

2.1 Site Location

2.1.1 The site of the proposed Development is located on approximately 589ha of land directly south-west of Junction 11 of the M20 motorway, and south of the Channel Tunnel Rail Link (CTRL) in the administrative area of Folkestone & Hythe District Council in Kent (see Figure 2-1). The site is centred around National Grid Reference TR112 365 in the general area of Otterpool Manor buildings. Much of the site is greenfield in nature and is predominantly occupied by agricultural uses and associated farm holdings, as well as some residential and light commercial uses. A range of historic land uses associated with both rural and commercial/industrial activities have been present on the site.

Figure 2-1 Proposed Development Site Location

2.1.2 The site is located within an area that has been formed from the geological development of the Kent North Downs. The site topography generally slopes from the south toward the north-west where the East Stour River traverses the site from west to east, with variable undulating landforms present across the central parts. Site levels range from 57m above ordnance datum (AOD) in the north-west to 107m AOD in the south.

2.1.3 The site is linked off-site to the north-west and south-east via the A20 Ashford Road that traverses the central part of the site. The site is bounded by a section of Harringe Lane and farmland to the west and Harringe Brooks Woods and more farmland to the south-west. The southern boundary wraps around Lympne industrial estate and either side is surrounded by farmland. The south-eastern and eastern boundary is bordered by the settlements of Lympne and Newingreen and further north the eastern boundary runs parallel with the A20 before terminating at the intersection of the A20 (Ashford Rd) with the CTRL (HS1) line. The

northern site boundary runs largely parallel with and adjacent to the CTRL line, and the settlement of Sellindge. Within the main site area, the site boundary excludes parcels of land at Otterpool Manor and Upper Otterpool.

2.1.4 The site is characterised by the East Stour River that flows from east to west across the northern part of the site and to which a number of smaller tributaries and drainage channels are connected. The majority of these water courses flow from east and south to the north and west. The site has some associated flood risk associated with the East Stour River and its tributaries.

2.1.5 There are a number of existing land uses on the site although a large proportion of the site area is occupied by farmsteads and associated agricultural land for a mixture of arable and livestock breeding purposes. Westenhanger Castle, a Grade 1 listed scheduled monument with associated grounds is located within the northern site boundary. There are farmsteads located at Somerfield Court Farm (west of Barrow Hill, Sellindge), Farm (east of Barrow Hill Sellindge), Hillhurst Farm (east of Westenhanger) and several smaller practices located adjacent to the A20 in the area of Newingreen.

2.1.6 Land within the site that lies to the north of the A20 is mainly occupied by a mixture of agricultural land, the East Stour River watercourses and a man-made lake in the centre of the former Folkestone Racecourse which is now closed. Hillhurst Farm lies in the north-eastern corner of the site and Westenhanger Castle is designated as a Scheduled Monument lies at the north east end of the application site to the south of the M20 and becomes a focal point that helps define the character of the wider settlement. Barrow Hill Farm lies 50m east of the northern stretch of the A20 that runs through Barrow Hill, Sellindge. Close to the intersection of the A20 and Otterpool Lane is a café and small lorry parking area, beyond further north of which lies Barrow Hill Farm. At the eastern end of the A20 within the site lies Holiday Extras corporate office and a farm building.

2.1.7 To the south of the A20, the land east of Otterpool Lane is predominantly occupied by farmland and a number of small holdings along the A20 itself including a nursery. Part of the East Stour traverses the site from south to north, and disused quarry workings south of the A20 form a designated a geological Site of Special Scientific Interest.

2.1.8 Land to the west of Otterpool Lane and the northern stretch of the A20 is occupied mainly by agricultural land and the East Stour. Other features in the area include Park Wood and Somerfield Court Farm located west of Barrow Hill, Sellindge, and Springfield Wood located adjacent to the western site boundary.

2.2 Surrounding Area

2.2.1 The surrounding area is occupied by a mainly agricultural land uses and to a lesser extent, light industrial, commercial and residential uses. Much of the northern site boundary is bordered by the CTRL line, beyond which lies the M20 motorway that connects London with the Kent coast and ultimately Europe via the Channel Tunnel. The strip of land located between the CTRL line and the M20 consists of agricultural land, Westenhanger railway station and a motorway service station adjacent to junction 11 of the M20. Further to the north from the M20 lie the villages of Stanford and Sellindge, set within mainly agricultural land.

2.2.2 Land to the east of the site is occupied by predominantly agricultural uses and wooded areas in the north, and the settlements of Newingreen and Lympne further southward. The eastern site boundary is largely abutted by the Kent Downs Area of Outstanding Natural Beauty (AONB) which extends to areas north and south of the site.

2.2.3 To the south of the site, land uses comprise farmland with other notable features such as Lympne Industrial Estate, Port Lympne Wildlife Park and Harringe Brooks Woods, the latter being designated as ancient woodland. The Kent AONB boundary lies approximately 300m

from the southern boundary at its nearest point. The AONB is this area forms an E-W orientated south-facing escarpment and is occupied by farm land, a number of woodlands and Lympne Castle. Further south of this lie Romney Marsh and the town of West Hythe.

2.2.4 Land to the west of the site is mainly in agricultural use with some interspersed woodland areas. Harringe Court is present approximately 50m from the site on Harringe Lane and comprised of residential and farm buildings. Partridge Farm is present approximately 400m west of the site and a solar farm is located directly north-west of it. To the north of the solar farm between the CTRL and the M20 is a converter station and sewage works which are approximately 500m north-west of the site boundary.

3 Regulatory Framework

3.1.1 The regulatory framework is derived from a combination of national, regional and local waste policies and measures. The key elements relate to:

- Meet and exceed the Landfill Directive diversion targets for biodegradable municipal waste;
- Increase diversion from landfill of non-municipal waste; and
- Decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use.

3.2 Legislation & Policy Requirements

Table 3-1 Waste legislation & policy requirements

Legislation / Policy	Summary of Requirement
International and national legislation	
EU Landfill Directive (Directive 1999/31/EC on the landfill of waste) (Ref. 2)	Establishes a framework for the management of waste across the European Community. It also defines certain terms, such as 'waste', 'recovery' and 'disposal', to ensure that a uniform approach is taken across the EU.
EU Waste Framework Directive (Directive 2008/98/EC on waste) (Ref. 1)	The Waste Framework Directive contains the definition of waste. This definition is used to establish whether a material is a waste or not. It sets targets for recycling non-hazardous construction and demolition waste (70% by weight by 2020: Article 10). It also introduces the Waste Hierarchy (Figure 1-1)
Environment Act 2021 (Ref. 23)	For the first time this Act will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes an important new target to reverse the decline in species abundance by the end of 2030. The Act outlines new and ambitious requirements for waste management and reduction. This includes a need for full segregation of waste streams at source (i.e. household, commercial and industrial).
The Clean Neighbourhoods and Environment Act 2005 (Ref. 3)	It is the responsibility of everyone working in the construction industry to ensure that all waste is disposed of properly. All employees need to be made aware that if they are tasked with waste disposal this must be carried out in accordance with the law, or they risk being fined.
Environmental Permitting (England & Wales) Regulations (EPR) 2016 (Ref. 4)	The Environmental Permitting Regulations were created to standardise environmental permitting and compliance in England and Wales to protect human health and the environment.
The Hazardous Waste (England and Wales) Regulations 2005, Statutory Instrument 2005 No. 894 and 2009 amendment SI 507 and 2016 amendment SI 2016 No 336 (Ref. 5)	The Hazardous Waste Regulations 2005 Regulations require that a Hazardous Waste Consignment Note is produced for each consignment of hazardous waste removed from site, (from 1st April 2016 premises no longer need to register as hazardous waste producers).
Waste (England and Wales) Regulations 2011, and 2012 amendment (Ref. 6)	The Waste Regulations transpose the Waste Framework Directive into English law. The Regulations require businesses to confirm that they have applied the waste management hierarchy, introduce a new waste hierarchy permit condition and a two-tier system for waste carrier and broker registration.

Legislation / Policy	Summary of Requirement
Environmental Protection Act 1990 (Ref. 7)	The Act outlines the basic provisions for the management of all waste, which includes details on the definition of waste and outlines the Duty of Care placed on those involved in managing wastes.
National policies	
Waste Management Plan for England 2013 (Ref. 8)	The Waste Management Plan for England (WMPE) provides an analysis of the current waste management situation in England and fulfils the mandatory requirements of Article 28 of the revised Waste Framework Directive. The plan does not introduce new policies or change the landscape of how waste is managed in England. Its core aim is to bring current waste management policies under the umbrella of one national plan.
Our waste, our resources: a strategy for England 2018 (Ref. 9)	This document sets out the UK Government's strategy on how it will preserve the stock of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy, minimise the damage caused to our natural environment by reducing and managing waste safely and carefully, and deal with waste crime. It combines actions to be taken with firm commitments for the coming years and gives a clear longer-term policy direction in line with the UK Government's 25 Year Environment Plan.
National Planning Policy Framework (NPPF), Department for Communities and Local Government, 2021 (Ref. 10)	The NPPF sets out the Government's planning policies for England and how these should be applied and should be read in conjunction with the Government's planning policy for waste. The 12 core principles provide policies and guidance for a variety of areas and advocates that planning policies and decisions should apply a presumption in favour of sustainable development.
National Planning Policy for Waste, October 2014 (Ref. 11)	The National Planning Policy for waste sets out the Government's planning policies for England and how these should be applied and should be read in conjunction with the Government's planning policy for waste. The 12 core principles provide policies and guidance for a variety of areas and advocates that planning policies and decisions should apply a presumption in favour of sustainable development.
Local policies	
Kent Mineral and Waste Local Plan (KMWLP) 2013-2030 (Adopted July 2020 – as amended by Early Partial Review) (Ref. 12)	The KMWLP sets out the strategic vision and objectives and includes a suite of development control policies to guide waste development in the county. To deliver sustainable waste management solutions for Kent, proposals for waste management must demonstrate how the proposal will help drive waste to ascend the Waste Hierarchy whenever possible. All new development should minimise the production of construction, demolition and excavation waste. New developments should include detailed consideration of waste arising from the occupation of the development including consideration of how waste will be stored, collected and managed. Need to focus on principles of the circular economy going forward.
A Green Future: Our 25 Year Plan to Improve the Environment (2018)	i. Maximising resource efficiency and minimising environmental impacts at end of life. ii. Reducing food supply chain emissions and waste iii. Reducing litter and littering iv. Improving management of residual waste v. Cracking down on fly-tippers and waste criminals

Legislation / Policy	Summary of Requirement
The Places and Policies Local Plan (PPLP) 2020 Emerging Core Strategy Review 2020 Folkestone and Hythe District -Core Strategy Review (CSR) Adopted 2022	The Core Strategy sets out the vision, broad principles and spatial approach for development across the district to 2031. The Places and Policies Local Plan 2020 and the emerging Core Strategy Review (2020) and other Development Plan Documents take the lead from the Core Strategy to ensure that they are in conformity with its vision, spatial strategy and polices. The application shall be accompanied by a site-wide waste strategy that demonstrate how a significant reduction in household waste and an increase in recycling rates will be delivered in comparison with the average across the county. Internal and external storage for recycling and waste shall be provided for all homes and businesses.
Kent Mineral and Waste Local Plan (KMWLP) 2013-2030 (Adopted July 2020 – as amended by Early Partial Review) (Ref. 12) KCC- Minerals and Waste Local Plan 2013-30 Proposed Refresh (Regulation 18 Consultation) (December 2021)	The strategy for waste management capacity in Kent is to provide sufficient waste management capacity to manage at least the equivalent of the waste arising in Kent plus some residual non-hazardous waste from London. As a minimum it is to achieve the target of 40% of waste sent for recycling and composting and other forms of recovery.
Guidance	
The Definition of Waste: Development Industry Code of Practice, CL:AIRE, 2011 (Ref. 13)	This Code of Practice (CoP) provides best practice for the development industry to use when assessing if materials are classified as waste, or not, and determining when treated waste can cease to be waste for a particular use.
Repealed Site Waste Management Plan Regulations (SWMP) 2008 (Ref. 14)	Under the SWMP Regulations 2008 all construction projects in England with a capital cost of over £300,000 were required to have a SWMP in place. Even though this requirement (regulation) was repealed in 2013, many developments recognise the value of SWMP as a useful resource efficiency tool and the SWMPs continue to be prepared and implemented as best practice.
Waste Resources and Action Programme (WRAP) SWMP Template (Ref. 15)	WRAP is a charity that provides support and guidance to business, organisations and consumers to maximise the value of waste by increasing the quantity and quality of materials collected for reuse and recycling. WRAP's SWMP is a freely accessible online resource, that enables the generation of waste forecasts and to prioritise waste reduction and recovery actions.

4 Roles and Responsibilities

4.1.1 The Contractor shall be responsible for adopting, implementing and updating the SWMP to ensure the Works meet the following key objectives:

- Environmental Protection: SWMPs help to manage and reduce the amount of waste produced, and therefore disposed of at landfill. Additional environmental benefits include: less harm to the local environment, reduced energy consumption and greater opportunities for reusing and recycling materials.
- Cost Saving: Managing materials more efficiently will immediately cut costs. Better storage and handling of materials will reduce waste and enable better recovery. Reusing and recycling materials cuts disposal costs.
- Legal Requirements: the SWMP will support the Project to adhere to relevant waste related legislation including their Duty of Care obligations.

4.1.2 The key roles and associated responsibilities for delivery of the SWMP are summarised below. These roles and responsibilities are based on those required by the now revoked SWMP Regulations 2008. In addition, the Construction Design and Management (CDM) 2015 Regulations identify the legal duties, responsibilities and obligations of all the team members and are designed to improve health and safety and effectively plan for and manage risk on-site.

4.1.3 The client will:

- Appoint a Principal Contractor/s;
- Ensure that the SWMP is implemented;
- Provide necessary direction to contractors e.g. setting contractual obligations;
- Review, revise and refine the SWMP as necessary in liaison with the Contractors; and
- Be ultimately responsible for ensuring that all waste from the site is dealt with in accordance with the waste Duty of Care in Section 34 of the Environmental Protection Act 1990 (Ref. 7) and the Waste (England and Wales) Regulations 2011 (Ref. 14).

4.1.4 The Principal Contractor will:

- Regularly review this SWMP and the WRAP SWMP Template to ensure that it accurately reflects the progress of the Works and update it where necessary;
- Ensure all procedures within this SWMP are followed;
- Ensure all contractors are suitably qualified and experienced in dealing with SWMP and environmental issues, and that the SWMP tasks are contained within the terms of contracts to facilitate understanding and accountability;
- Ensure that all legal and contractual requirements relating to the SWMP and the environment are met by implementing adequate and realistic plans/procedures, and obtaining relevant licences/permits and certificates;
- Support the Project's commitments and targets and ensure subcontractors are required to:
  - Assist with required inputs, providing forecasts of waste to be produced through their activities as necessary;
  - Measure and report progress for waste and waste reused and recycled;
  - Report performance for construction waste streams separately, measured in tonnes/m^3;
  - Within three months of work being completed, confirm that this SWMP and the WRAP SWMP Template has been monitored (and updated) on a regular basis throughout the Works; compare the actual waste quantities against the forecasted

quantities of each waste type; and provide an explanation of any deviation from the plan;
  - Record any lessons learnt within the WRAP SWMP Template that can be incorporated into future SWMPs; and
  - Maintain all records relevant to WRAP SWMP Template.

4.1.5 Contractors / Subcontractors will:

- Carry out the relevant waste management tasks detailed in this SWMP and the WRAP SWMP Template;
- Assist with required inputs, providing forecasts of waste to be produced through their activities when requested;
- Measure and report progress for waste and waste reused and recycled in tonnes/m3; and
- Report performance for construction and excavation waste streams separately, measured in tonnes/m3.

4.1.6 The Principal Designer will:

- Support the Contractors to identify, prioritise and implement ways of meeting the Works targets for waste and specifically, through the Works of a commercially and technically viable design by:
  - identifying methods to reduce total waste;
  - identifying opportunities to increase reused and recycled content (where there is no impact on cost or performance); and
  - Reporting to the Contractors on the opportunities identified and the financial and practical implications of implementing the recommended actions.
- Work with the wider Project's team to ensure that design actions to reduce construction waste and increase reused / recycled content are implemented; and
- Support the development/implementation of the SWMP from an early design stage, including the provision of waste forecasts.

4.1.7 General Subcontractors and Material Suppliers will:

- Work with the Project Team to identify methods to eliminate, reuse, recycle and recover high volume wastes or those difficult to divert from landfill (including packaging waste), providing additional costs or savings achieved by these methods;
- Support the development/implementation of the SWMP and work in full compliance with the methods detailed within the SWMP – in particular complying with all actions to reduce and reuse waste and increase levels of recovery;
- Provide an accurate forecast of the types and tonnes/m3 of waste that will be produced by their elements of the contract (inclusive of packaging waste);
- Identify the wastage rate applied to each material, explaining the need for this level of wastage allowance;
- Participate in site briefings / toolbox for operatives on materials handling and waste disposal;
- Inform the Project Team (in advance) of deviations from the SWMP with justification;
- Identify additional ways to reduce and reuse waste and/or increase recovery and inform the Project Team;
- Comply with the site waste segregation strategy, including the avoidance of cross-contamination of segregated (non-mixed) skips;

- Ensure that materials and waste are stored in a safe and tidy manner and that waste is disposed of (in appropriate skip or other agreed receptacle) at the earliest opportunity;
- Contribute to the project review to identify what could be improved and what worked well;
- Ensure all necessary data is provided to the Project Team;
- Provide written evidence of the recycled content level of specified materials in the form of invoice / delivery notes along with datasheets for the materials;
- Keep to a minimum packaging of materials and, where practicable, use returnable packaging; and
- Comply with the specific requirements for waste management companies (see below) where the Subcontractor has responsibility for removal of construction waste.

4.1.8 Waste Management Contractors will:

- Provide a copy of their Waste Carrier's Licence to the Project Team before starting work;
- As necessary, provide permit or exemption notification authorising the use of mobile plant, i.e. crushing / screening plant, Waste Carriers Licence(s), Environmental Permit(s), Notification of Waste Exemption(s), copies of all Waste Transfer Notes (WTNs) (for inert and non-hazardous waste); and copies of all Hazardous Waste Consignment Notes (HWCNs);
- Identify ways to increase the recovery rate of materials by finding end destinations, diverting 100% of waste from landfill;
- Advise on the most appropriate waste management actions;
- Provide details of the end-destination of all waste removed from site, including the following information: name and address of destination, type of facility, Environmental Permit number and recovery rate for that material;
- Report on the different types of waste managed, and the split of each different type of waste according to the waste management method (reuse, recycling, recovery) and, in the case of reuse, recycling and recovery, whether this has taken place on or off site;
- Monitor and report monthly (within 2 weeks of the end of the reporting period) the quantities in tonnes/m3 and percentage recovery rates for construction and excavation waste streams separately; and
- Use a systematic process to record and check waste, recovery and recycling data and make available for inspection on request.

4.1.9 Table 4-1 summarises some of the roles and responsibilities detailed above which different team members would have to adopt as part of the SWMP implementation process.

Table 4-1 Roles and Responsibilities during CD&E Phases

Team Member	Key Role	Main Responsibility	Other Role
Client and Developer	Promote waste minimisation; Insist on good practice from all other team members; Ensure that all hazardous wastes have been identified prior to construction; and Review strategy over time.	Promote waste minimisation; Insistence of best practice; Exploration of innovative technologies as appropriate.	Identification of waste reduction opportunities.

Team Member	Key Role	Main Responsibility	Other Role
Designer	Consider design options; Promote use of reclaimed elements; and Reduce bespoke elements.	Duty of care; Reducing waste production by design.	Identification of waste reduction opportunities.
Principal contractor – Site Manager	Develop site specific Waste Strategy, implement and communicate to all parties; Monitor implementation; Work with design team; Drive segregation of waste arisings; Facilitate on-site storage compounds and treatment of segregated materials; Designation of working area for waste activities; Reduce waste being brought onto site such as packaging, etc.; Ensure appropriate waste storage and containers on-site; Keep proper records of all wastes; produced, reused and sent off-site; Ensure appropriate off-site transport in line with local regulatory requirements; and Identify and confirm all destinations for waste leaving the site.	Health and safety; Development of the Waste Strategy; Management of on-site processes and programmes; and Record keeping and duty of care.	Hazardous waste identification and management; and Assist in design process to reduce waste.
Subcontractor	Develop method statements for activities on-site; and Liaise with Main Contractor and agree way forward.	Duty of care; Production of method statements; and Ensure all activities under their direct control are managed appropriately.	Assist in ensuring onsite practices are safe and will not impact the environment; and Ensure that wastes are properly segregated.
Site workers	Question unsatisfactory practices on-site; and Follow instructions and waste management as provided.	Duty of care; and Ensure all activities under their direct control are managed appropriately.	Assist in ensuring onsite practices are safe and will not impact the environment; and Ensure that wastes are properly segregated.

5 Types of Waste

5.1 Overview

5.1.1 Waste streams categorised as either excavation (E) or demolition (D) are those which exist within the Project footprint already, such as topsoil, subsoil, vegetation and demolition materials etc.

5.1.2 Imported materials are those which are imported to site for inclusion into the temporary and permanent construction works (such as concrete, construction aggregates, asphalt and cabling etc.) which also produce a waste stream. Included within this waste stream is an estimated quantity of product packaging. This waste stream is produced from a range of potentially avoidable activities such as damaged materials and the over ordering of materials. This waste stream is described as construction (C) waste within the SWMP.

5.1.3 In order to assist the management and segregation of waste, estimations have been made of the types and quantities that will be generated during the construction phase of the Project. For this the WRAP SWMP Excel template has been utilised.

5.1.4 For all CD&E waste, there are several considerations to be implemented in terms of management; such as waste reduction, segregation of waste, disposal of waste, financial impacts of waste disposal and recording, monitoring, education and reviewing data (see Section 7).

5.1.5 The following sections discuss the main waste streams anticipated as a result of the Project construction phase (covering CD&E). This list is non-exhaustive; however, it forms a basis for the SWMP based on the design. Any additional streams will be included in the plan as part of the updates.

5.2 Construction and Demolition Wastes (C&D)

5.2.1 Construction and demolition wastes will largely consist of inert material and concrete. The approximate figures have been generated by calculating the percentage of imported material that will become a waste. These are calculated by using the WRAP industry standard wastage rates for imported material.

5.2.2 Currently the SWMP does not account for workforce waste streams, for example Waste Electrical and Electronic Equipment (WEEE) and organic waste or any operational waste. Once details of workforce are known such waste streams are to be incorporated into the SWMP.

5.2.3 Any waste produced through the importation of materials needs to be monitored and included in the SWMP as the Project progresses. Where possible, consideration will be given to the use of recycled imported material such as concrete or those with a higher recycled content.

5.2.4 Demolition figures are calculated based on the assumption that all materials generated as a result of the demolition works will be waste. Demolition works are anticipated to consist of the removal of a toilet block and creating openings from external walls.

5.3 Excavated Materials

5.3.1 In relation to materials removed from site it is anticipated the majority of the material would be excavated material, for which beneficial uses would be sought. Appropriately experienced staff, familiar with working on brownfield sites and with the contaminant groups anticipated will supervise the excavation works to manage the segregation of spoil materials. Site-derived materials of a similar nature will be stockpiled together and any changes in the physical and/or chemical properties will prompt further segregation.

5.3.2 Where possible alternatives have been exhausted there will be a requirement to dispose of excavated material, by licensed waste carriers to licensed landfill sites. The material will be handled in accordance with the Waste (England and Wales) Regulations 2011 (Ref. 14).

5.4 Hazardous Waste

5.4.1 It is anticipated that a small amount of hazardous material will be produced from CD&E activities. Hazardous waste including any contaminated excavated spoil and ballast will be identified, removed and kept separate and secure in receptacles in line with the Waste (England) Regulations 2011 (Ref. 14). Doing so will also act to reduce cross contamination. The waste will then be removed from site and treated in accordance with all applicable legislation.

5.4.2 During demolition and construction activities additional streams of hazardous waste are anticipated, including: oils and grease from equipment maintenance, batteries, waste paint and solvents. Quantities of this waste stream have not been estimated at this stage, once plant set up is established this waste stream should be accounted for.

6 Waste Forecast

6.1 Overview

6.1.1 One of the initial stages of completing the SWMP is to forecast anticipated waste arisings. This allows for early stages of designing out waste to be incorporated into the Project.

6.1.2 The waste estimates produced are formulated from available data for the Project including current envisaged design and cost estimates. Details used are consistent with other application documents.

6.1.3 The waste forecast tables set out the current estimates of waste types and quantities that are anticipated. This list is not exhaustive and additional waste streams shall be added when they occur.

6.1.4 The forecast waste table provides important information such as identifying the waste activity, the waste stream, description of waste, the List of Wastes (LOW) Code, quantity and the management methods.

6.1.5 This information is duplicated in subsequent tabs within the WRAP SWMP Template. Actual waste movements are completed by the Project's Team during construction, which feed into the key performance indicators (KPIs) tab.

6.1.6 Demolition waste and excavation materials quantities are calculated as a whole for an activity, i.e. assuming all of the material is classified as a waste and generally based on estimated volumes.

6.1.7 In addition, the following tools and data sets have been used to estimate the waste quantities that would be potentially generated from each of the components identified in the Bill of Quantities:

- Net Waste Tool, WRAP, 2015 (Ref. 17);
- Net Waste Tool, Demolition Bill of Quantities Estimator, 2015 (Ref. 18);
- Net Waste Tool Reference Guide, WRAP, May 2008 (Ref. 19); and
- Managing packaging waste on your construction site (GG606), Envirowise, 2006 (Ref. 20).

6.1.8 As well as determining where waste has been generated there are other considerations to waste management such as waste reduction, segregation of waste, disposal of waste and the financial impacts of waste disposal which are completed further into the Project and discussed in subsequent sections of the SWMP.

6.2 Estimated Waste Arisings

6.2.1 The potential waste types that could arise during the construction phase are summarised in Table 6-1 below:

Table 6-1 Potential waste sources during the construction phase

Construction phase	Potential wastes produced	Classification of waste
Excavation	Made ground, soil and sub-soils	Inert; and / or, Non-hazardous; and / or, Potentially hazardous if it contains sufficiently high levels of heavy metals or organic compounds.

Construction phase	Potential wastes produced	Classification of waste
Demolition	Ceramics, concrete, bricks, insulation, metals, plastics, timber, plasterboard, etc	Inert; and / or, Non-hazardous; and / or, Potentially hazardous if it contains asbestos or sufficiently high levels of heavy metals or organic compounds.
Construction	Construction materials, such as concrete, bricks, plastics, metals, plasterboard, timber, paint, etc.	Inert; and / or, Non-hazardous; and / or, Hazardous.
	Made ground, soil and sub-soils	Non-hazardous, and Hazardous if it contains sufficiently high levels of heavy metals.

Construction

6.2.2 Using waste benchmarking data from the BRE SmartWaste the estimated quantities of construction waste arising from the proposed Development have been presented in Table 6-2 below.

Table 6-2 Estimated construction waste arisings from the proposed Development and Framework Masterplan

Waste Stream	List of Waste (LOW) Code	Forecast volume of waste (m^3) for 8,500 homes including associated land-uses	Forecast volume of waste (m^3) for 10,000 homes Framework Masterplan including associated land-uses
Bricks	17 01 02	11801	13,552
Tiles and ceramics	17 01 03	785	909
Concrete	17 01 01	18769	21,244
Inert	17 05 04	44327	51,043
Insulation materials (non-hazardous)	17 06 04	783	887
Metals	17 04 07	2307	2,616
Packaging materials	15 01 06	3949	4,555
Plasterboard / gypsum	17 08 02	4911	5,625
Binders	17 01 01	163	189
Plastic (excluding packaging waste)	17 02 03	2631	3,049
Timber	17 02 01	12733	14,647
Floor coverings (soft)	20 01 11	123	134

Waste Stream	List of Waste (LOW) Code	Forecast volume of waste (m^3) for 8,500 homes including associated land-uses	Forecast volume of waste (m^3) for 10,000 homes Framework Masterplan including associated land-uses
Electrical and electronic equipment (Non-hazardous)	20 01 36	61	70
Furniture	20 03 07	29	31
Canteen / office / ad-hoc waste	20 03 01	1534	1,728
Liquids	16 10 01	124	136
Oils	13 01 13	10	12
Bituminous mixtures (Non-hazardous (e.g., asphalt))	17 03 02	1369	1,505
Hazardous waste	17 09 03	1063	1,215
Other waste	17 09 04	4121	4,708
Mixed construction and/or demolition waste	17 09 04	43299	49,497
TOTAL		**154893**	**177,356**

6.2.3 Mitigation measures would be implemented to reduce the impacts of waste arisings from the proposed Development. A Construction Environmental Management Plan (CEMP) would be in place prior to construction. This would provide a suite of mitigation measures of particular relevance to waste and would require the contractors to:

- Promote opportunities for the potential reusing and recycling of all material resources and waste;
- Sort and segregate waste into different waste streams (where technically and economically feasible); and
- Manage material use to maximise the environmental and proposed Development's benefits from the use of surplus materials.

Demolition

6.2.4 Demolition quantities have been estimated based on the provided demolition schedule. The site is currently occupied by 102 buildings that comprise predominantly a mixture of farms and associated residential premises, as well as some commercial and industrial uses. Drawing OPM(P)1018_N YY (in support) within ES Appendix 4.15 illustrates the location and status of the buildings. Of the 102 buildings, six are to be retained, and 59 are to be demolished, and 37 that have the option to be retained or demolished.

6.2.5 Anticipated volumes of demolition waste at the site are shown in Table 63 below. The volumes take into account the likely demolition waste arisings associated with the demolition of the residential, agricultural and former racecourse buildings based on market knowledge and professional judgement. The buildings to be demolished are those set out in

Chapter 4: The site and proposed Development as either demolished, or demolished or retained, to provide a worst-case assessment for this topic. Therefore, it assumes 96 of the 102 buildings will be demolished.

Table 6-3 Estimated demolition waste arisings from the proposed Development

Material Type	Estimated m3
Bricks	2,350
Tiles and Ceramics	324
Concrete	3,879
Inert	8,872
Insulation materials (non-hazardous)	747
Metals	1,291
Packaging materials	4,734
Plasterboard / Gypsum	3,672
Binders	34
Plastic (excluding packaging waste)	2,862
Timber	9,486
Floor coverings (soft)	191
Electrical and electronic equipment (non-hazardous)	66
Furniture	46
Canteen/Office/Ad hoc waste	1,513
Liquids	39
Oils	3
Bituminous mixtures (non-hazardous e.g. asphalt)	337
Hazardous waste	254
Other waste	5,392
Mixed construction and/or demolition waste	12,499
TOTAL	**58,591**

Excavation

6.2.6 The assumption has been made that if there are any significant earthworks required in the development parcels that these will have to achieve a cut/fill balance with parcel won material.

6.2.7 Excavated material arising from construction would be targeted for fill and landscaping where this is feasible, and the material is suitable. Excavated materials, such as soils, will be carefully stored in segregated piles for subsequent reuse on the site, where possible. If the material is contaminated then it will be kept separate from clean material and sent for either treatment, recycling or recovery, where appropriate, or disposal at appropriately permitted facilities.

6.2.8 Any surplus inert excavated materials (e.g. soils, stone, bricks, clay, rubble, rock) may be suitable for use in land reclamation projects. This would require compliance with the criteria and thresholds for an exemption or a permit under the Environmental Permitting Regulations 2010 (as amended) (Ref. 4). The CL:AIRE DoW CoCP (Ref. 13) may also be applicable for the reuse of this material.

7 Waste Minimisation and Management Strategy

7.1 Prior to Construction Works Commencing

7.1.1 Waste minimisation is at the pinnacle of the waste hierarchy and is essentially concerned with avoiding the production of waste in the first place. Whilst complete avoidance of waste is impossible, adopting certain waste minimisation practices would ensure that the overall quantity of materials not beneficially used onsite are kept to a minimum.

7.1.2 Designers can greatly influence the waste produced onsite and must be encouraged to consider the issue of waste in their design. For example, this can be achieved by:

- Designing to suit component sizes.
- Reducing the need for temporary work.
- Setting the level of the construction to reduce excavations.
- Reusing spoil to form landscaping features and for backfilling.

Targets and Objectives

7.1.3 The WFD on waste sets a five-step hierarchy of waste management options, with waste prevention as the preferred option, and then reuse, recycling, recovery (including energy recovery) and safe disposal, in descending order. It sets a 70% target for non-hazardous construction and demolition waste, to be reached by the UK by 2020. Targets are cascaded through national strategies.

7.1.4 KCC is responsible for planning for waste, and therefore has prepared a Minerals and Waste Local Plan (Ref. 12). The Plan was adopted in July 2016, and overarching strategy and planning policies for mineral extraction, importation and recycling, and the waste management of all waste streams that are generated or managed in Kent.

7.1.5 However, the Plan did not provide CD&E targets or objectives to reduce the quantities of CD&E waste sent to Landfill. The Waste needs Assessment referred to the South East Plan (also known as the Regional Spatial Strategy for the South East) (Ref. 21) which gave the following targets for CD&E waste (see Table 7-1). These will be applied, wherever possible, to the proposed Development.

Table 7-1 SE Plan CD&E targets (Ref.21)

Route	2020	2025
CD&E Recycling	60%	60%
CD&E Recovery (Recycling with exempt uses for soil)	88%	90%

Considerate Construction Scheme

7.1.6 It is recommended that the Principal Contractor registers with the Considerate Constructors Scheme (Ref. 22). This is a national initiative, set up by the construction industry. Developments that register with the scheme sign up and are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.

7.1.7 The scheme is concerned about any area of construction activity that may have a direct or indirect impact on the image of the industry as a whole. The main areas of concern fall into three main categories: the environment, the workforce and the general public. Waste management is a key area of focus and on-site considerations may include:

- How waste is avoided, reduced, reused and or recycled;

- Whether there is a SWMP and how is this monitored; and
- What type of feedback is received (if any) as to how much waste on-site is diverted from landfill.

Adoption of best practice

7.1.8 Designers play an important role in reducing the impact of waste, particularly waste arising during construction. Detailed design and engineering solutions to reduce construction waste has led to the development of the WRAP five key principles for Designing out Waste that design teams can use during the design process to reduce the amount of waste arising on projects:

- Design for Reuse and Recovery;
- Design for Off-site Construction;
- Design for Material Optimisation;
- Design for Waste Efficient Procurement; and
- Design for Deconstruction.

7.1.9 Designers can adopt these principles to support the use of materials in a more efficient manner and to consider how reuse, recycling and recovery of materials can be incorporated into the design and ultimately reducing waste to landfill. Waste reduction would be addressed as part of the project sustainability agenda throughout the design process by the application of the five Designing out Waste (DoW) principles and the Design Team Guide for Buildings.

7.1.10 The principle of waste minimisation in design involves DoW and failure to think about waste at the design stage means that the contractor is often unable to reduce some of the wasteful elements which have been 'locked in' by the designer.

7.1.11 The key aspects of waste minimisation during design include:

- Building form – design building size and space to eliminate unnecessary elements, and to reduce off-cuts resulting from the construction process, and ensure compatibility between market supply and specification;
- Design flexibility – ensure flexibility in design for future building expansion, adaptation and dismantling;
- Designing for site conditions – the design shall accommodate strategies to manage particular constraints on-site which may impact on waste (such as a small footprint – consider off-site construction);
- Design complexity – reduce the complexity of the design to standardise the construction process and reduce the quantity of materials required; and
- Specifications – avoid over specification and minimise variation in components and joints; evaluate the reuse and recycling opportunities for the specified materials before specification.

7.1.12 To deliver effective waste minimisation after the design phase, the following topics would be considered as a waste minimisation strategy to support decisions taken to reduce waste and ensure actions are embedded into the SWMP:

- Establish the requirement for the SWMP to be in place for each phase of the proposed development;
- Provide standard PowerPoint slides for the site induction so that all staff and the supply chain are aware of the SWMP;
- Prepare for and deliver a series of SWMP workshops and/or toolbox talks to train all Project/Site Managers and other relevant staff working on the site;

- Colour coded skips required on-site to segregate waste streams using the National Colour Coding Scheme;
- All packages of work need to make arrangements with the Waste Champion to utilise the existing waste management services on-site as defined by the SWMP. The Waste Champion would be the person who would take responsibility for the SWMP, identifying waste arisings and disposal routes through forecasting and prioritising waste production; and
- All external contractors must sign up to the SWMP before the project starts. This also applies to contractors who provide their own waste services.

7.1.13 The key elements of waste management for consideration should be to:

- Allocate a person responsible for producing and implementing the SWMP. This person may also be responsible for ensuring compliance with Duty of Care regulations;
- Ensure training is tailored for personnel at each level of the waste supply chain to improve waste awareness;
- Identify target recovery rates for each waste type along with formal measurement;
- Identify the waste streams (for example, wood, brick/concrete, soils, plastics and so on) likely to be produced during construction and/or demolition, to establish the potential for reuse (on or off-site) and recycling;
- Identify the most significant opportunities to increase reuse and recycling rates (termed Waste Recovery Quick Wins) and the realistic recovery rates;
- Identify suitable waste management contractors and record appropriate licenses, permits, waste transfer notes and hazardous waste consignment notes;
- Consider appropriate site practices such as how waste materials should be segregated and the measures that should be used for raising site operatives' awareness of waste reduction, reuse and recycling; and
- Set out the method for measuring and auditing construction and demolition waste.

7.1.14 As part of the SWMP, the Principal Contractor should have to monitor waste arisings and management practices. Auditing and measurement should enable more effective management of waste through the setting of performance targets for recycling and segregation and monitoring subcontractors.

7.1.15 The phasing of the proposed development allows the opportunity for the CD&E wastes to be reused or recycled on-site in subsequent stages of the development. The SWMP would ensure such opportunities are maximised as the preferred option for dealing with waste arising from the site.

Promotion of Best Practice

7.1.16 As part of the encouragement of on-site best practice, the Principal Contractor would ensure that suppliers of raw materials are committed to reducing surplus packaging associated with materials deliveries. This includes the reduction of plastics, cardboard and wooden pallets. This may also involve improved procurement and consultation with preferred suppliers regarding commitments to waste minimisation, recycling and continuous improvement in environmental performance.

Table 7-2 Ordering, Delivery, Storage & Handling

Ordering	Delivery	Storage	Handling
Avoid:	Avoid:	Avoid:	Avoid:

Ordering	Delivery	Storage	Handling
Over ordering – order 'just in time'; Ordering standard lengths rather than lengths required; and Ordering for delivery at the wrong time – update the programme regularly.	Damage during unloading; Delivery to inappropriate site areas; and Accepting incorrect deliveries, specifications or quantities.	Damage to materials from inadequate storage; and Loss, theft or vandalism through secure storage and on-site security.	Damage or spillage through incorrect or repetitive handling.

Roles and Responsibilities

7.1.17 Responsibility for the management of waste during the CD&E phases of the proposed Development would be allocated to specified individuals to ensure that the project team 'buy in' to the waste reduction and minimisation. More importantly, it would encourage the developer and the eventual contractors and subcontractors to become more efficient in the use of resources, embed waste minimisation into the design and gain additional credits for BREEAM and Home Quality Mark (HQM) (where appropriate).

Site Preparation and Earthworks

7.1.18 A Code of Construction Practice (CoCP) would be prepared for the proposed Development which outlines a series of strategies, standards, best practice techniques and procedures that would be observed through the construction process in order to facilitate compliance with environmental legislation and regulations. This would ensure minimal disruption and nuisance from the construction process to the existing communities in the surrounding area and the new communities to be established within the proposed Development.

7.1.19 Waste arisings from the site clearance, demolition, infrastructure and earthworks are expected to comprise vegetation, topsoil, rubble, tarmac from former hard standings, gravel and clay material.

7.1.20 It is anticipated that where practicable, topsoil would be reused for landscaping. A neutral cut and fill balance is expected but any non- hazardous excavated materials that cannot be re-used on-site would be removed by licensed waste carriers and sent for re-use at other development sites or sent for disposal at adequate licensed facilities.

7.1.21 Any hazardous material that would require removal from the proposed Development would be collected by suitably licenced waste carriers and sent for disposal at adequate licensed hazardous waste facilities. Hazardous waste consignment notes must be held for 3 years.

7.1.22 During the site clearance and excavation works, consideration would be given, where practicable, to the re-use and recycling of excavated material generated. The earthworks strategy would be put in place prior to undertaking these works. The Remediation Strategy would be approved by all relevant parties including KCC.

Preparation for Re-use

7.1.23 By implementing a SWMP from design stage it is possible to reduce the amount of waste produced as part of the Project. The Principal Contractor would maximise opportunities for the potential for reuse and recycling of all waste streams onsite.

7.1.24 Over-purchasing can lead to significant wastage and will be avoided in the first place. Ensuring materials are ordered for delivery shortly before they are used on the Project would also avoid possible damage and therefore wastage. Construction waste, or waste arising from imported material may be minimised through careful product specification and use. A continual review of the type of surplus materials being generated onsite will aid in identifying approaches to reduce the amount produced.

7.1.25 Materials delivered to the Project would be received and controlled by the Principal Contractor. Materials will be stored to minimise the potential of damage or wastage. Measures will include off-ground storage e.g. on pallets, remaining in original packaging, protection from rain damage or collision by plant or vehicles. The materials storage area will be secured during out of hours to prevent unauthorised access.

7.1.26 Where avoidance of excess materials onsite is not feasible, all available materials would be recorded and considered for possible reuse onsite before recycling. Excess materials that cannot be reused onsite would be considered for reuse elsewhere – if they can still be used in their present form, they would be classified as materials which can be reused off-site. Materials such as timber, bricks, tiles, paving blocks and top soil would be stored separately onsite within the existing footprint and would all be considered for reuse elsewhere. The purpose of storing reuse materials in separate skips / areas is to reduce the potential for contamination and to encourage the reuse of materials by offering clean material streams from which to choose.

7.1.27 Options for reuse include:

- Use of reclaimed materials (where appropriate);
- Onsite reprocessing of materials; and
- Reuse of packaging materials in limited circumstances.

7.1.28 The use of a data-recording sheet would allow construction site managers to keep a record of all available materials onsite, hopefully reducing the need to over order and increase opportunities for reuse where possible.

Table 7-3 Waste Minimisation Measures

Type of Waste Action	Waste Minimisation Measures
Waste Management and Recovery Action	Monitor, audit and measure site waste through implementation of the SWMP.
	Investigate options for recovering site won materials for reuse onsite, e.g. through the use of a Materials Management Plan.
	Use the national colour coding scheme for waste containers to ensure waste is separated efficiently.
	Order materials in bulk where appropriate with minimal / reusable packaging, where possible.
Waste Prevention Action	Incorporate prefabricated elements where cost neutral/negative (e.g. footbridge superstructure).
	Use recycled aggregates (either onsite or off site) in concrete mix, as fill, etc.
	Embed all of the design options to be pursued into the Project's briefings and procurement.
	When incorporating requirements for waste reduction in procurement documents, refer to WRAP guidance on model wording.
	Put in place Materials Logistic Plan looking at supply routes, handling, storage and security for main construction phase of the Project.
	Supplier take back schemes to be set up with all pre-fabricated or unused materials.
	Use recycled material in sub-base.

Type of Waste Action	Waste Minimisation Measures
	Specify biodegradable packaging where possible.
	Combine utilities in single trench.
Waste Reduction Action	Retain top soil, treat it onsite with compost (or other remediation) and use for soft landscaping, etc.
	Use existing soft landscape that can't be retained (trees, shrubs) as compost and soft landscape top mulch.
	Reuse packaging by returning to supplier/manufacturer or using it for other purposes (e.g. timber packaging pallets can be chipped and used for landscaping top mulch).
	Using existing earth bund to minimise the south ramp length.
	Specify the use of recycled steel within bridge / concrete reinforcement.
	Recover aggregates from excavated car park areas, e.g. in line with The Association of Directors of Environment, Economy, Planning and Transport (ADEPT) Guidance Note Managing Reclaimed Asphalt or Environment Agency (EA) Regulatory position statement 075 on the movement and use of treated asphalt waste containing coal tar.
	Ensuring plant and machinery are in good working order and are well maintained to reduce fuel wastage, and limiting the use of plant, machinery and vehicles in general to only necessary usage.
	Procure materials from sustainable sources. e.g. those with environmental credentials such as Forest Stewardship Council (FSC) and The Timber Research and Development Association (TRADA) timber, Green Products Guidance, WRAP's Quality Protocols, Supplier Ethical Data Exchange and the Sustainable Sourcing Code (Sedex) or Environmental Product Declarations.

7.2 Onsite Waste Management

7.2.1 Waste that cannot be eliminated or reduced would fall into one of the following four management categories:

- Reuse and recovery;
- Recycling;
- Other recovery; and
- Off Site Waste Management and Disposal.

7.2.2 For all CD&E waste, there are several considerations to be implemented in terms of management; such as waste reduction, segregation of waste, disposal of waste, financial impacts of waste disposal and recording, monitoring, education and reviewing data.

7.2.3 The management of separate waste streams onsite requires consideration of additional storage space for waste and recycling, usually in the form of skips. As a result of the waste generated onsite, labelled skips would be required for the following construction waste streams:

- Plastics;
- Mixed inert (e.g. concrete);
- Hazardous (e.g. machine oils);

- Mixed non-hazardous (welfare waste and general waste);
- Metal (e.g. steel);
- Wood (e.g. timber);
- Paper and cardboard (office waste); and
- WEEE (e.g. cables, disused electrical appliances and equipment)

7.2.4 For excavation waste, a clearly designated stockpile area would be required. Appropriately experienced staff, familiar with working on brownfield sites and with the contaminant groups anticipated, would supervise the excavation works to manage the segregation of spoil materials. Site derived materials of a similar nature would be stockpiled together and any changes in the physical and/or chemical properties would prompt further segregation.

7.2.5 Inert waste arisings from the demolition phase would also need to be stored in a designated stockpile area. Once verified by testing, the non-contaminated inert waste arisings would be reused or recycled following further processing (for example through crushing).

7.2.6 Where possible alternatives have been exhausted, there would be a requirement to dispose of excavated material, by licensed waste carriers to licensed landfill sites. The material would be handled in accordance with the Waste (England and Wales) Regulations 2011.

7.2.7 In developing the SWMP prior to commencement of construction, the Principal Contractor would need to consider the waste minimisation and waste recycling targets.

Material Reuse and Recovery

7.2.8 To ensure that waste minimisation, re-use and recycling is properly implemented, project specific targets and a suitable monitoring programme would be set to:

- Quantify raw material wastage;
- Quantify the generation of each waste stream;
- Record any improvements in current working practices;
- Record and improve construction methods by which the waste streams are being handled and stored; and
- Record and improve the waste disposal routes used.

7.2.9 The Principal Contractor would be responsible for the setting and review of waste targets from the outset to ensure that high standards are maintained with the emphasis being on continual improvement. Table 7-4 below provides an overview of WRAP's standard, good and best practice recovery rates by material.

Table 7-4 Standard, good and best practice recovery rates

Material	Recovery rates (%)		
	Standard practice	Good practice	Best practice
Timber	57	90	95
Metals	95	100	100
Plasterboard	30	90	95
Packaging	60	85	95
Ceramics	75	85	100
Concrete	75	95	100

Material	Recovery rates (%)		
	Standard practice	Good practice	Best practice
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

Storage Areas

7.2.10 Where space permits, a specific area would be laid out and labelled to facilitate the separation of materials for potential recycling, reuse and return. Recycling and waste bins are to be kept clean and clearly marked in order to avoid contamination of materials. The labelling systems for Waste Management & Recycling shall follow the Waste Awareness Colour Coding Scheme, as shown below.

Figure 7-1 Waste awareness colour coding scheme

7.2.11 If the skips are clearly identified, the bulk of the workforce would deposit the correct materials into the correct skip. Skips for segregation of waste currently include:

- Gypsum waste;
- Inert Waste;
- Mixed waste (e.g. canteen and office waste, general waste, etc.);
- Wood waste;
- Hazardous waste;

- Metal waste; and
- Packaging waste (e.g. plastic, paper, etc.).

7.2.12 As works progress and other trades come to site, the skips should be placed to enable the original waste types to be removed from site with ease.

7.2.13 Although every effort would be made to retain all suitable materials on-site, it is possible that some of these materials cannot be re-used or recycled during the construction process. In these situations, the Site Manager would work to identify suitably licensed waste facilities to redistribute materials and only send them to landfill as a last resort.

7.3 Recycling

7.3.1 If excess materials cannot be reused in their present form but could be used onsite in a different form they are classified as recycled onsite (provided they were processed onsite). If the material cannot be reused onsite in any form, it may be classified as recycled off-site, e.g. non-returnable pallets reprocessed off-site to make chipboard.

7.3.2 Successful recycling relies upon early planning, clear responsibility and space within a compound for segregation and storage. Shelter may be needed to prevent some materials such as cardboard and paper from deteriorating while being sorted or awaiting collection.

7.3.3 Enclosed and lockable skips prevent deterioration of waste and also stops unauthorised access to the skips. Recycling and waste receptacles (e.g. skips) are to be kept clean and clearly marked in order to avoid contamination of materials.

7.3.4 Differently coloured skips (or sufficiently clear labelling) would be used to ensure that workers are clear about where to put each type of waste. This would reduce the levels of contamination in the skips and increases the likelihood that a load would not subsequently be rejected once the waste stream has been sent off-site for reprocessing. In cases where the load is rejected, the likely destination would be landfill (which would increase the costs of the Project).

7.3.5 Typical segregated skip categories and management methods include:

- Wood (red/yellow);
- Plastic (orange);
- Cardboard/paper (no colour coding specified); and
- General waste (no colour coding specified).

7.3.6 Space within the compounds would need to be identified to accommodate skips and storage of reusable materials. Individual waste streams would be kept separate including the use of an excavated material only area.

7.3.7 For all waste management options within the Project, consideration would need to be given to identifying whether waste exemptions or permits are required to enable the storage and treatment of waste materials.

7.3.8 Waste management options would be supported by the identification of appropriately permitted waste management and recycling facilities within an acceptable proximity to the Project.

7.3.9 Audits would be undertaken of Waste Contractors (by the Principal Contractor) to ensure that waste from the Project is being managed in an appropriate manner.

Other Recovery

7.3.10 Where it is not possible to reuse or recycle materials, the residual fraction of waste would be taken to an appropriate residual treatment facility or landfill site. Recovery of waste, rather than disposal to landfill, would be prioritised where material types are suitable for recovery

and the Waste Management contractor has access to competitively priced recovery capacity. The same procedure would also apply to hazardous wastes onsite.

7.3.11 Recovery mainly refers to energy recovery (e.g. reuse as fuel) or biological recovery (e.g. composting).

7.4 Off-site Waste Management and Disposal

7.4.1 Disposal of waste is at the bottom of the waste hierarchy as this is the least sustainable method of waste management.

7.4.2 For excavated materials, suitable treatment, recycling and disposal facilities within a reasonable proximity of the Project would be identified by the Principal Contractor. For construction and demolition waste, suitable treatment, recycling and disposal facilities within a reasonable proximity of the Project would also be identified by the Principal Contractor.

7.4.3 The Landfill Directive requires that disposal sites are classified into one of three categories dependent on the chemical composition of the material; these are hazardous, non-hazardous or inert. The ability for waste to be deposited at these sites would be dependent on the available space and the conditions imposed on the Project through the relevant licence/permit.

7.4.4 For excavated materials that are confirmed to be non-hazardous or inert, there are a number of reuse and recycling options that could be explored, both on and off-site.

7.4.5 For any vegetation removed, consideration would be given to mulching and/or composting. Reuse of such materials would be considered where possible i.e. mulch or compost to be reused back in the Project for landscaping purposes.

7.4.6 The Principal Contractor would further identify and appoint appropriate Waste Carriers and Waste Management Facilities prior to the construction elements of the works commencing. For the purposes of the Project, the transportation of material resources and waste arisings would take place by road and rail.

7.4.7 The Principal Contractor would be responsible for identifying and procuring one or more waste management companies to provide the containers (skips), collection, transportation and management of waste produced at the site. Skips would be collected using a standard skip vehicle or a roll-on roll-off vehicle for larger skips.

7.4.8 Table 7-5 below presents a non-exhaustive list identifying the Waste Management Facilities within the KCC that would possibly be used during construction. It should be noted that waste disposal options may be regional (south east region) as well as national (hazardous waste facilities are few within the UK).

Table 7-5 Landfill sites in Kent accepting CD&E waste the South east of England (Ref. 23)

Facility Name	Facility Type	Permit Number	Post Code	Distance from Site (km)	Remaining Capacity end of 2018 (m^3)
Allens Bank	Inert landfill	EA/EPR/BS6904IB/V002	TN29 9PU	18.74	709,000
Hermitage Quarry Inert Landfill	Inert landfill	EA/EPR/EB3601KU/V003	ME16 9NT	40.88	609,763
Arnolds Lodge Landfill	Inert landfill	EA/EPR/DB3604XQ/V003	TN12 5HL	43.62	20,000

8 Monitoring

8.1 Overview

8.1.1 Under the Waste (England and Wales) Regulations 2011 (Ref. 6) and in line with DoC, the Principal Contractor has a number of responsibilities which it would execute as follows:

- to ensure that suitable storage is made available, including correct signage;
- to check the waste carrier has the appropriate waste carrier licenses; and
- to retain Waste Transfer Notes / Consignment Notes for 2/3 years as appropriate.

8.1.2 Responsibility for waste management lies with the Principal Contractor unless a contractual agreement with subcontractors to manage their own waste arisings exists – the Principal Contractor would still ensure that the DoC process is in place when this situation occurs.

8.1.3 It would be a condition of the Principal Contractor contract to discuss and agree any recovery rates to be targeted at the kick-off meeting. A monitoring report would then be generated on a monthly basis which would include details of the progress made in diverting waste materials from landfill, against these pre-agreed targets.

8.2 Training

8.2.1 The Principal Contractor would provide training to employees on the Project on use of the SWMP, roles and responsibilities and DoC requirements.

8.2.2 Onsite instruction and training covering appropriate waste separation, handling, storage, recycling, and reuse and return methods to be used by all parties (e.g. subcontractors), at all appropriate stages of the Project would be provided by the Principal Contractor.

8.2.3 Training would consist of an initial toolbox talk that would form part of the site induction process that introduces and explains the requirements of the SWMP and the concept of the waste hierarchy, as well as regular toolbox talks that provide updates on wider environmental issues. Workshops and other forms of training may be utilised where appropriate. Appropriate staff would be identified to attend these.

8.2.4 Where possible, the Project would appoint a Waste Champion to act as a point of contact to deal with any waste queries from staff, promote best waste management practice and be responsible for the upkeep of the SWMP.

8.3 Waste Recording

8.3.1 DoC details are to be logged. Details are to include the waste management licenses, waste carrier licenses and exempt site licenses for waste management contractors employed on the Project. All waste management contractors' licences must be checked and verified before any waste movement occurs.

8.3.2 All WTN would be safely stored for two years. Consignment notes for the transport of hazardous waste would be held for three years. The Project may consider using electronic transfer notes rather than paper based. An example of such a system is Department for Environment Food & Rural Affair's Electronic DoC (Defra Edoc).

8.3.3 In addition to monitoring and recording the performance of contractors, waste management facilities may be monitored periodically through the lifespan of the contract. This would ensure that high standards of compliance and environmental performance are maintained throughout the supply chain, including accurate recording of waste types and the origin/destinations of wastes.

8.3.4 Waste monitoring would be included as an agenda item at construction progress meetings. In addition, this SWMP would be communicated to the whole Project's team at regular management meetings.

8.3.5 Throughout the duration of the works, the Principal Contractor would be responsible for reviewing the performance of all parties which are involved in the management of waste at the Project.

8.3.6 Progress towards the commitments contained in the SWMP would be reported regularly and performance would be reviewed and monitored in line with the SWMP guidance.

8.3.7 A comparison of forecast and actual waste streams with key associated notes should be documented. This information could consist of explanation for diversion, lessons learnt and revision of plans.

Actual Quantities

8.3.8 All waste collected from site by the employed waste carrier(s) must be recorded and monitored using the SWMP. The waste carrier(s) would provide Waste Transfer Notes on collection of the waste, and in due course, provide records of the quantities of waste recycled or sent to landfill. This procedure would apply whether the waste has been 'pre-treated' (sorted into separate waste streams); or sent 'untreated' as general mixed waste. The preference should always be to pre-treat waste, as this is generally a cheaper alternative to sending away untreated waste and provides greater confidence in the waste materials being reused or recycled.

8.3.9 However, if 'untreated' general mixed waste is sent for separation into the different waste streams at the waste transfer station, the waste management contractor carrying out this operation must be required to provide records of the quantities of each waste stream to allow tracking on the SWMP.

8.3.10 Skips shall be monitored to ensure that there is no contamination of the separate waste streams. The waste segregation arrangements must be clearly identified on each container and regularly reinforced to personnel through tool-box talks. The type of surplus materials being produced must be regularly reviewed so that the site set-up can be changed to maximise reuse or recycling of waste. Sub-contractors producing waste from their works should also record all waste movements and provide Waste Transfer Notes on collection of the waste and provide records of the quantities of waste recycled or sent to landfill.

8.3.11 Office/Welfare waste shall be sorted into a separate container, typically an 1100L Eurobin. The proposed Development may also be able to take advantage of the Local Authority's recycling scheme by obtaining separate receptacles in accordance with the local authorities waste and recycling strategy.

8.3.12 Within the SWMP a record of the types and quantities of waste actually being produced and including the eventual fate of the waste would be kept.

8.3.13 Maintaining these records would also help to identify which waste streams are not achieving anticipated recycling potentials so that alternative methods to handle that waste stream can be explored for the remainder of the Project.

8.3.14 The actual quantities table would be completed during construction phase and data taken from the amounts recorded on waste transfer notes and hazardous waste consignment notes.

8.3.15 This information can then feed into KPIs, which details key commitment information such as the amount of recycled, reused/beneficially reused and diverted from landfill quantities.

Review

8.3.16 The SWMP would be reviewed on a regular basis, with waste data being entered frequently i.e. fortnightly or monthly. Further reviews would take place where any significant changes occur. A log would be kept of when the plan has been reviewed and the outcomes.

8.3.17 An appropriate monitoring regime of the waste objectives and targets would be put in place.

Post Project Completion

8.3.18 At the end of the works, the Principal Contractor is responsible for reviewing, revising and refining the SWMP as necessary, to ensure best practice and to identify if lessons could be learned for the next time a similar project is undertaken. This review would aim to identify the following:

- Confirmation that the SWMP has been monitored and updated within the defined timescales;
- An explanation of any deviation from the original plan;
- A comparison of the estimated quantities of each waste type against the actual quantities generated; and
- An action plan to address the lessons that have been learnt from the Project that could be implemented for the next project.

9 Summary

9.1.1 Using waste benchmarking data from WasteDataFlow, BRE, WRAP and BS 5906, wastage rates and the amount of CD&E waste has been forecast. The total tonnage of waste arising from CD&E phases is 209,353 tonnes. However, this figure may be (substantially) reduced with good site management and implementation of the SWMP and the mitigation and management measures.

9.1.2 It is anticipated that any non-hazardous generated material may be reused on-site for landscaping or other purposes, therefore only minimal volumes of non-hazardous material may require disposal off-site. Hazardous materials, such as asbestos would be disposed off-site in an appropriate manner.

9.1.3 The alignment, location, level and grading of the development area should be designed to minimise unnecessary excavation volumes. It has also been designed to enable flexibility in the landscaping, so that it can accommodate the changes in spoil volumes that may arise when site conditions differ from those assumed during the design. Both these approaches should enable all excavation waste (including treated soils except where it remains hazardous) to be reused on-site where conditions allow. It is expected that only minimal volumes of material may require disposal off- site.

9.1.4 Waste management practices have been identified which can assist in minimising waste generation for the Project. Where waste is generated, the document identifies management methods to aid material reuse or recycling prior to waste disposal.

9.1.5 Provision of a suitable area onsite for the management and storage of waste would assist in reducing waste disposal and the environmental impacts of disposal.

9.1.6 This report outlines the proposed strategy to minimise and successfully manage the waste arisings from the CD&E phases of the proposed Development. It provides guidance on issues relating to best practice for the management of waste which, would minimise the total waste generated without impacting the cost of the proposed Development. It is recommended that the Principal Contractor:

- Registers with the Considerate construction Scheme;
- Implements and maintains a SWMP;
- Adopts best practice along with the designers; and
- Utilise modern methods of construction e.g. modular off-site construction.

9.1.7 There would be a requirement for the Principal Contractor to discuss and agree any recovery rates. Regular monitoring reports would include details of the progress made in diverting waste materials from landfill, against these pre-agreed targets.

9.1.8 It is recommended that the construction contractor monitors material delivery and waste generation onsite to identify opportunities for waste minimisation and reuse. Monitoring of waste activities would also help to ensure materials are recycled where viable and therefore the environmental impacts of the Project are minimised.

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