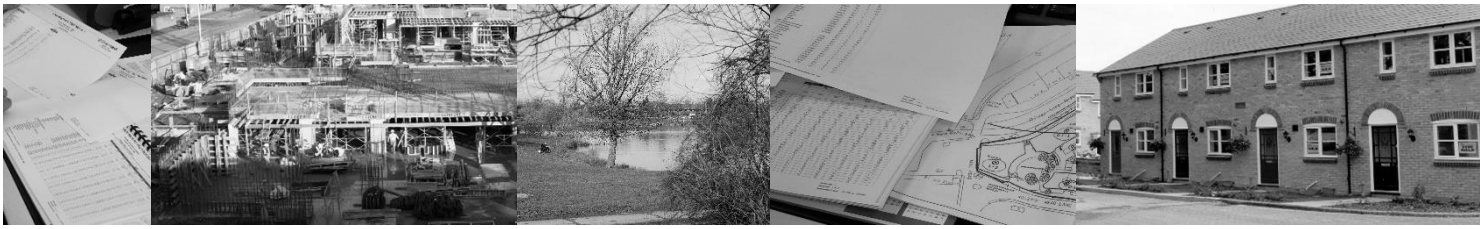


FURTHER ENVIRONMENTAL INFORMATION SOUGHT BY SECRETARY OF STATE UNDER REGULATION 25 OF THE TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017, IN RELATION TO THE ANGLIA SQUARE DEVELOPMENT, NORWICH (LPA REF APP/G2625/V/19/3225505) DRAFT CONSTRUCTION SITE WASTE MANAGEMENT PLAN

ANGLIA SQUARE, NORWICH

Project Reference:
ENV001-ANGL-049

Site Address:
Anglia Square
Norwich
Norfolk
NR13 1DZ

Report Date:
12th November 2019

Version Number:
Version 2

Customer:
Weston Homes Plc
Weston Group Business Centre
Parsonage Road
Takeley
Essex CM22 6PU

Prepared By:
Stansted Environmental Services Ltd
The Stansted Centre
Parsonage Road
Takeley
Essex CM22 6PU

DOCUMENT CONTROL

Project Reference:	ENV001-ANGL-049
Project Name:	Anglia Square, Norwich
Report Reference:	ENV001-ANGL-049; Construction Site Waste Management Plan
Version:	Version 2
Date:	12th November 2019

	Name	Postion	Signature
Prepared By	**George Booth**	Assistant Environmental Consultant	
Approved By	**Silvio Petrasso**	Associate Director (Environment)	
For and on behalf of Stansted Environmental Services Ltd			

Revision	Date	Description	Prepared	Approved
1	01/08/19	Draft	GB	SP
2	12/11/19	Version 2	--	SP

Declaration

The Developer will take all reasonable steps to ensure that:

a) 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 and the Environmental Protection (Duty of Care) Regulations 1991; and **b) Materials will be handled efficiently and waste managed appropriately.**	
Signature (Developer)	

CONTENTS

1. INTRODUCTION

1.1 General

Stansted Environmental Services Ltd (SES) has been commissioned by Weston Homes Plc, to prepare a draft Construction Site Waste Management Plan (SWMP) for the proposed project located at Anglia Square, Norwich, which is the subject of a hybrid planning application to Norwich City Council, (Ref 18/0033/F) and PINS Ref APP/G2625/V/19/3225505).

This draft Construction Site Waste Management Plan (SWMP) will be updated to reflect the Anglia Square construction plan and the associated quantities for waste anticipated by the project during the construction phase. The intention of this document is to enable better control over materials and waste throughout the duration of the project. The document has been prepared in accordance with The Site Waste Management Plan Regulations. The Regulations were revoked in December 2013; it is however still considered good practice to complete a SWMP. This document will be developed to summarise high level estimates of how much waste is anticipated to be generated and how much is estimated to be reused, recycled, recovered or disposed of to Landfill.

1.2 Planning Status

Norwich City Council resolved to approve the planning application for the proposed development on 6th December 2018, subject to referral to the Secretary of State. The application was subsequently 'called in' by the Secretary of State, and a local inquiry into the application is scheduled to commence on 28th January 2020.

1.3 Report Objectives and Limitations

The purpose of this draft Construction Site Waste Management Plan is to:

a) Identify relevant policy and guidance the proposed development needs to consider and support;
b) set the waste management principles and aspirations for the proposed development;
c) identify the waste expected to arise during the demolition, enabling and construction phases,
d) identify and implement roles and responsibilities of all parties involved in the waste management;
e) monitor and review waste minimisation and waste management on a quarterly basis; and,
f) to provide a completion summary statement (debrief) for the end of the construction project.

The Site Waste Management Plan includes, as a minimum, details of:

a) The anticipated nature and volumes of waste;
b) measures to ensure the maximisation of the reuse of waste;
c) measures to ensure effective segregation of waste at source including waste sorting, storage, recovery and recycling facilities to ensure the maximisation of waste materials both for use within and outside the site;
d) any other steps to ensure the minimisation of waste during construction;
e) proposed monitoring and timing of submission of monitoring reports; and,
f) the proposed timing of submission of a completion summary statement to demonstrate the effective implementation, management and monitoring of construction waste during the construction of the development.

This SWMP is based upon a defined programme of work and terms and conditions agreed with the Client. In preparing this report, all reasonable skill and care has been taken, accounting for project objectives, agreed scope of work and prevailing site conditions. SES accepts no liability to any parties whatsoever, following the issue of this report, for any matters arising outside the agreed scope of the work. It should be noted that this report is issued in confidence to the Client and that SES has no responsibility to any third parties to whom this report may be circulated, in part or in full, and any such parties cannot rely on the contents of the report. Unless specifically assigned or transferred within the terms of the agreement, SES asserts and retains all Copyright, and other Intellectual Property Rights, in and over the report and its contents.

2. SITE DESCRIPTION AND SETTING

2.1 Site Location

The site is located at Anglia Square, Norwich and may be located by NGR 23068, 09375. The site location is shown in Figure 1.

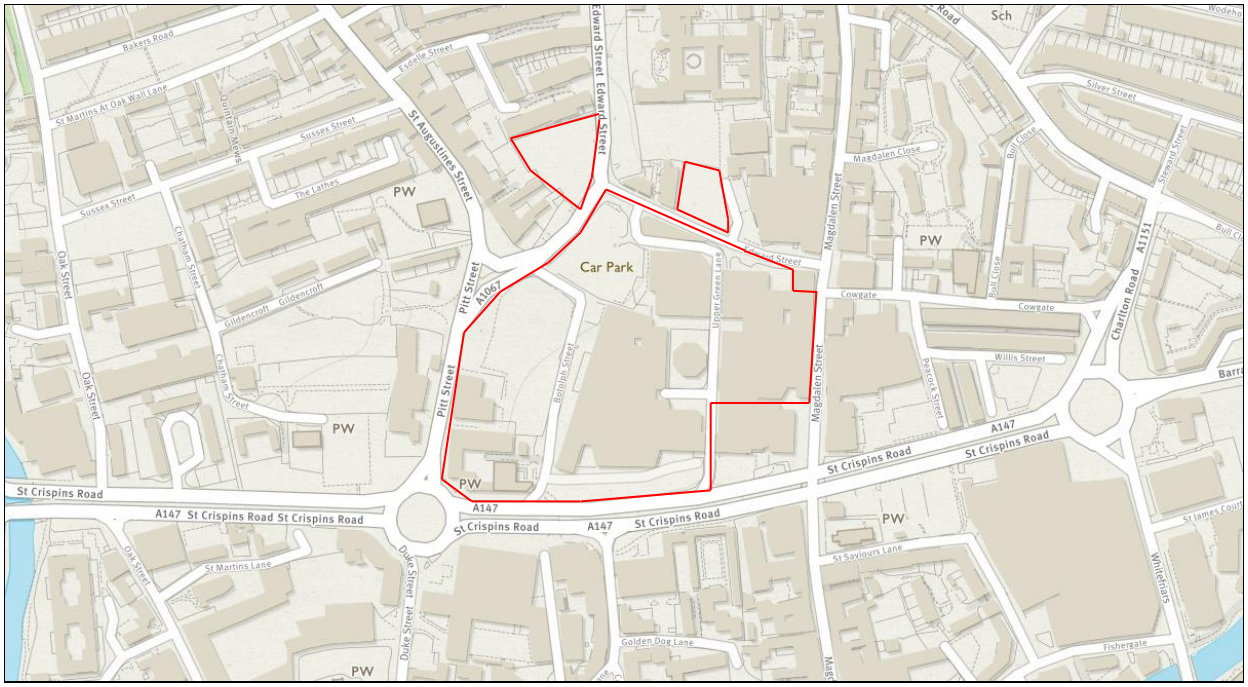


FIGURE 1: Site Location

2.2 Current Site Description and Use

The site is in three portions. To the north-west is a triangular shaped area which covers an approximate area of 0.21 hectares. To the north is an area which covers an approximate area of 0.13 hectares. The main portion of the site is to the south, which is square in shape except for two omissions on the eastern boundary and covers an approximate area of 4.38 hectares.

The surrounding area is primarily commercial, community, office and retail use to the western and eastern boundaries, residential housing to the parts of the western (over commercial), northern and eastern boundaries and the A147 (St Crispins Road) to the south.

2.3 Future Planned Site Use

The scheme forming the Hybrid application will comprise of up to 1,250 dwellings (predominantly apartments), retail and commercial premises, cinema, chapel, hotel, public and residential/commercial car parking and public amenity space.

3. WASTE MANAGEMENT REGULATION AND GUIDANCE

3.1 Introduction

According to the Department for the Environment, Food and Rural Affairs (DEFRA), the UK produces about 290 million tonnes of waste per year of which about 77 million tonnes come from construction sites. An average of 13% of all materials delivered to construction sites in the UK goes into skips without ever being used. The savings involved in implementing a SWMP in order to minimise and manage waste are therefore significant for the construction industry.

The Waste and Resources Action Programme (WRAP), set up in 2000, provides help, advice and guidance on improving recycling rates and currently believe that of the 600 million tonnes of materials and products that enter the UK every year, only 20% is recycled when disposed of.

With regards to construction sites, surplus or waste materials arise from the materials imported to site or from those generated on site. Imported materials are those which are brought to the project for inclusion into the permanent works. Generated materials are those which exist on the project such as topsoil, sub-soil, trees and materials from demolition or soft strip works and asbestos removal etc.

In addition to the monitoring and recording of waste quantities, other considerations to waste management include; waste reduction, segregation of waste, disposal of waste, financial impacts of waste disposal training and education and quarterly reviewing.

3.2 Definition of Waste

Waste is defined by the Council Directive on Waste (75/442/EEC) as *"any substance or object which the producer or person in possession of discards, intends to discard or is required to discard."*

Hazardous Waste is waste with one or more properties hazardous to health or the environment as defined by the Hazardous Waste (England and Wales) Regulations 2005 (HWR). Hazardous properties are listed H1 to H14 in Schedule 3 of the HWR.

Under the Hazardous Waste Regulations 2005, "*it is an offence to produce hazardous waste at premises, or remove that waste from premises, unless those premises are either registered with the Environment Agency or are exempt*."

Where subcontractors produce hazardous waste, it will be removed under the Hazardous Waste Premises Registration for that site. The Hazardous Waste (England and Wales) Regulations 2005 require a Hazardous Waste Consignment Note (HWCN) to be produced for each consignment of hazardous waste removed from site.

The following types of wastes are always classified as hazardous:

- Fluorescent tubes and other mercury-containing waste.
- Waste oils and acids.
- Solvents.
- Coal tar and tarred products.
- Lead, Ni-Cad and mercury-containing batteries.
- Construction materials containing asbestos.
- Insulation materials containing asbestos.
- Potentially contaminated soils

The definition of inert waste (including bricks, tiles and ceramics, concrete, soils and stones, glass), is set out in the Landfill Directive (99/31/EC). It states that:

"*Waste is considered inert if:*

1) It does not undergo any significant physical, chemical or biological transformations;

2) It does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and

3) Its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater."

Waste materials will be classified by reference to a six-digit code and associated description as required by the List of Wastes (England) Regulations 2005 (LoWR).

3.3 The Site Waste Management Plans Regulations 2008

The Site Waste Management Plans Regulations 2008 were revoked on 1st December 2013. The Regulations required that the Principal Contractor must provide waste estimates for every site with a SWMP. The Regulations stated that the SWMP must:
"(a) describe each waste type expected to be produced in the course of the project;
(b) estimate the quantity of each different waste type expected to be produced; and
(c) identify the waste management action proposed for each different waste type, including re-using, recycling, recovery and disposal."

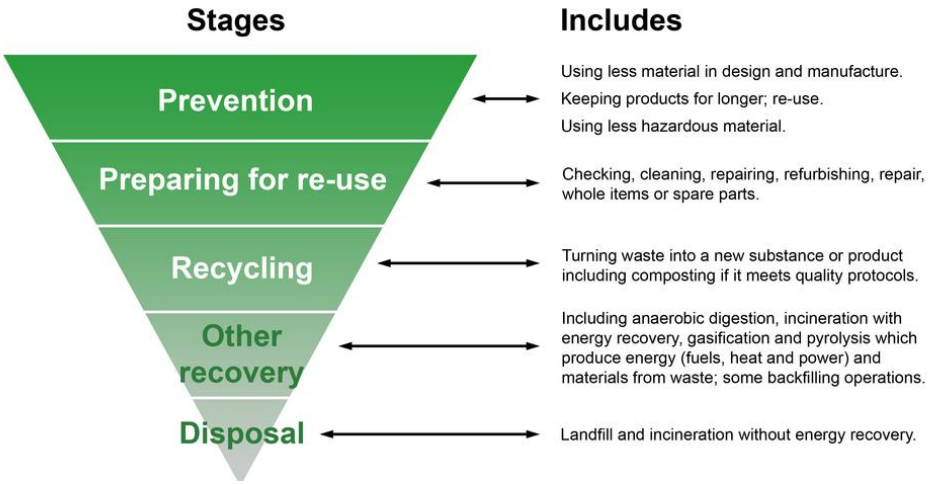
Whilst these Regulations no longer apply, the SWMPs can save money on a project through the reduction of waste, and the principles contained within the Regulations have been taken forward as part of this plan.

3.4 Waste Framework Directive

The revised EU Waste Framework Directive was adopted and published in the Official Journal of the European Union in November 2008 (L312/3) as Directive 2008/98/EC. The Directive has established a framework for the management of waste across the EU and aims to encourage reuse and recycling of waste, as well as simplifying current legislation. It also defines certain terms, such as 'waste', 'recovery' and 'disposal', to ensure that a uniform approach is taken across the EU.

Figure 3.1 shows a basic representation and description of the waste hierarchy, overleaf.

Figure 3.1: The Waste Hierarchy (Defra, 2013)



Furthermore, it is an instrument for driving waste up the hierarchy through waste minimisation and increased levels of recycling and recovery and sets out a number of procedures and criteria for construction, excavation and operational waste acceptance at landfills, including targets for the progressive reduction of biodegradable municipal waste (BMW) being sent for disposal in landfill.

The principles set up for the acceptance of hazardous and non-hazardous waste at relevant landfills include ensuring that the waste will not endanger human health and the environment and satisfies the Waste Acceptance Criteria (WAC). They also set strict requirements for the acceptance of certain stable, non-reactive hazardous waste into non-hazardous waste landfills.

The Directive ensures that a uniform approach is taken across the EU. It requires Member States to:

- Give priority to waste prevention and encourage reuse and recovery of waste;
- Ensure that waste is recovered or disposed of without endangering human health and without using processes which could harm the environment;
- Prohibit the uncontrolled disposal of waste, ensure that waste management activities are permitted (unless specifically exempt);
- Establish an integrated and adequate network of disposal installations;
- Prepare waste management plans;
- Ensure that the cost of disposal is borne by the waste holder in accordance with the polluter pays principle; and
- Ensure that waste carriers are registered.

3.5 Duty of Care

The Duty of Care is set out in section 34 (1) of the Environmental Protection Act 1990 and imposes a duty on any person who is the holder of controlled waste. Any persons who import, produce, carry, keep, treat or dispose of controlled waste, or as a broker has control of such waste, is subject to a Duty of Care whereby they must take all reasonable applicable measures:

- To prevent another person illegally treating, keeping, depositing or otherwise disposing of the waste;
- To prevent the escape of waste; and
- To ensure that transfer of the waste only occurs to an authorised person and that the transfer is accompanied by a written description of the waste.

DEFRA provides Guidance on duty of care in their published document; *"Waste Management, the Duty of Care, A Code of Practice"*. This gives the measures that need to be taken to ensure that legal requirements are met. Specific guidance is given on the identification of waste, safe storage, transfer to the right person and requirements for checking up.

3.6 Waste Transfer Notes (WTN)

The Environmental Protection (Duty of Care) Regulations 1991 require a Waste Transfer Note (WTN) to be provided on the transfer of waste between parties. The WTN will contain enough information about the waste to enable anyone coming into contact with it to handle it safely and either dispose of it or allow it to be recovered whilst maintaining compliance with law. Copies of WTNs must be retained for 2 years minimum and be available for inspection by the environmental regulator following the transfer of waste. The Regulations give specific requirements for the content of a WTN, which must:

- Contain a written description of the waste and the corresponding 6-digit EWC reference code;
- State the quantity of waste;
- State whether the waste is loose or in a container, and if in a container, the type of container used;
- State the time and place of the transfer;
- State the name and address of the transferor and transferee;
- State whether the transferor is the producer of the waste;
- State to which category of person the waste is transferred to e.g. a registered waste carrier, or a holder of a waste management licence; and
- Provide details of any waste carrier's registration or any waste management licence, where used.

3.7 Waste Carrier's Registration (WCR)

The Control of Pollution (Amendment) Act 1989 establishes the requirement for carriers of controlled waste to register with the Environment Agency. There are a number of exceptions to these requirements, including charities, waste collection authorities and emergency situations.

Waste will only be removed from site using a subcontractor or supplier holding a valid WCR. The Environmental Manager will verify the details on the WCR with the Environment Agency Public Register.

3.8 The Directive on the Landfill of Waste (Landfill Directive)

The Landfill Directive aims to improve standards of set waste to landfill across Europe, by setting specific requirements for the design, operation and aftercare of landfills, and for the types of waste that can be accepted at landfill sites.

It aims to reduce the pollution potential from landfilled waste that can impact on surface water, groundwater, soil, air and also contribute to climate change. In England and Wales the directive is applied under the Landfill (England and Wales) Regulations 2002 and must be fully implemented by July 2009.

This directive bans the landfilling of:

- Waste which is corrosive, oxidising, highly flammable, flammable or explosive;
- Liquid hazardous waste, infections hospital and other chemical wastes;
- Whole used tyres (from 2003); and
- Shredded tyres (from 2006).

The Directive classifies landfills as hazardous, non-hazardous, or inert waste and prevents the co-disposal of hazardous and non-hazardous waste after July 2004. It also requires that waste must be pre-treated before being landfilled and that landfill gas must be collected, treated and used to produce energy. This means that if the gas cannot be used, it must be flared.

4. ADMINISTRATION AND PLANNING

4.1 Project Information

Table 4.1 provides the general project information, including estimated cost, building footprint and Principal Contractor information.

Table 4.1; Project Information

Client	Weston Homes Plc					
Principal Contractor	Weston Homes Plc					
Principal Designer	Weston Homes Plc					
Name of person in charge of project	TBC, Regional Construction Director – Weston Homes Plc					
Author of SWMP	George Booth, Assistant Environmental Consultant – Stansted Environmental Services Ltd					
Site reference	ENV001-ANGL-049					
Site location	Anglia square, Norwich					
Project cost (estimated)	TBC					
Total Building(s) footprint (m^2)	TBC					
Start date	Day	TBC	Month	TBC	Year	TBC
Completion date	Day	TBC	Month	TBC	Year	TBC
Description of project scope	A mixed development comprising up to 1250 dwellings with associated car parking, a hotel, a multi storey car park a cinema and varied commercial and retail spaces.					
Waste Management Champion	TBC, Project Manager – Weston Homes Plc					
Person responsible for SWMP	TBC, Project Manager – Weston Homes Plc					
Document Controller	Stansted Environmental Services Ltd					
Location of SWMP	Electronic document – controlled by Stansted Environmental Services Ltd					
	Paper based document – Site Office					

4.2 Responsibilities

The Principal Contractor shall distribute copies of this plan to the Principal Designer, Client and Site Manager and each Subcontractor will be made aware of the plan. This will be undertaken every time the plan is updated.

The Site/ Project Manager is the environmental co-ordinator of the project and as such is responsible for instructing workers, overseeing and documenting results of the SWMP.

It is recommended that a 'reduce, reuse, recycle' "Waste Champion" is nominated on-site to be responsible for the daily management, monitoring and enforcing of waste and also co-ordinating pickup times with the waste management companies.

The waste champion should also ensure that any skip does not become contaminated by gypsum waste as the cost of disposal will be higher.

The Waste Champion for the site is to be confirmed.

Subcontractors are expected to ensure compliance, to adhere to the principles and site practices described in this SWMP, to attend training sessions and to contribute to the achievement of the SWMP targets as necessary.

Table 4.2 provides the nominated Sub-contractors, responsibilities and contact details.

Table 4.2; Project Information

Subcontractor Name	Responsibility	Contact Details
TBC	Piling	TBC
TBC	Substructure	TBC
TBC	Groundworks	TBC
TBC	Superstructure	TBC
TBC	Roofing	TBC
TBC	Brickwork/ Cladding	TBC
TBC	Carpentry	TBC
TBC	Electrical	TBC
TBC	Plumbing	TBC

The majority of the subcontractors have yet to be confirmed. This SWMP will be updated and revised as information becomes available.

The Waste Management contractors will be responsible for recording the amount of waste taken off-site. They will also provide suitable waste containers, equipment and personnel as necessary to meet the requirements set out in this SWMP as well as produce documents and keep records as required.

SES has produced hard copies of forms which should be used by the Site Manager to record information. SES will utilise an in-house database to record all project SWMP information before producing a summary report at the end of the project.

4.3 Key personnel contact details

Table 4.3 provides the detailed information on those who will take the SWMP forward, including the site waste champion and person responsible.

Table 4.3; Key Personnel Details

Position	Name	Contact Details			
		Address	Phone number	Fax number	Email address
Client	Weston Homes Plc	Weston Homes Plc Weston Group Business Centre Parsonage Road Takeley, Essex, CM22 6PU	--	--	--
Principal Contractor	Weston Homes Plc	Weston Homes Plc Weston Group Business Centre Parsonage Road Takeley, Essex, CM22 6PU	--	--	--
Principal Designer	Weston Homes Plc	Weston Homes Plc Weston Group Business Centre Parsonage Road Takeley, Essex, CM22 6PU	--	--	--
Name of person in charge of project	Regional Construction Director	Weston Homes Plc Weston Group Business Centre Parsonage Road Takeley, Essex, CM22 6PU	--	--	
Author of SWMP	George Booth Stansted Environmental Services	The Stansted Centre, Parsonage Road, Takeley, Essex CM22 6PU	01279 873380	01279 873381	george@sestesting.com
Waste Management Champion	TBC Project Manager	Site Office	TBC	TBC	TBC
Person responsible for SWMP	TBC Project Manager	Site Office	TBC	TBC	TBC
Document Controller	Stansted Environmental Services	The Stansted Centre, Parsonage Road, Takeley, Essex CM22 6PU	01279 873380	01279 873381	enquiries@stansted-environmental.com

5. WASTE QUANITIES AND DIVERSION FORECAST

5.1 Introduction

This section sets out the following:

a) Total target segregation and diversion rate from landfill to aid with monitoring; and,

b) Indicative types and quantities of waste materials expected to arise from the demolition, enabling and construction of the proposed development.

Once the detail of the design has been confirmed, waste estimates will need to be reviewed and recalculated.

Demolition of the existing structures will focus on maximising the re-use and recovery of materials, where practically possible.

Any material arising from the demolition, which can be reused on the construction phase, for example 'Site Won' hardcore, is to be stockpiled, tested and quantified by completion of a Waste Return Fax Back Form (Appendix 1).

The quantities of materials that would arise from demolition have been estimated, however prior to commencement of demolition a pre-demolition audit will be undertaken to identify quantities of individual waste types.

Some hazardous waste has been estimated, however a detailed Hazardous Waste Management Plan would need to be developed at the time of the pre-demolition audit. All hazardous waste would be dealt with in accordance with relevant policy with the completion of an Asbestos Risk Register and Control of Substances Hazardous to Health (COSSH) report.

The Building Research Establishment (BRE) has complied data on the likely percentage of wastage of certain materials entering a construction site in their Green Guide Materials Handbook. With this tool estimates for construction waste types have been made.

5.2 Segregation and Diversion Targets

Figure 5.1 shows the segregation and diversion targets for this development, and discussed below:

a) 95% of waste materials will be re-used, recovered or recycled, where practical of which;
   - 20% will be reused on site
   - 75% will be reused, recovered or recycled off-site

b) The remaining 5% will be sent to landfill.

Figure 5.1: Segregation and Diversion Targets

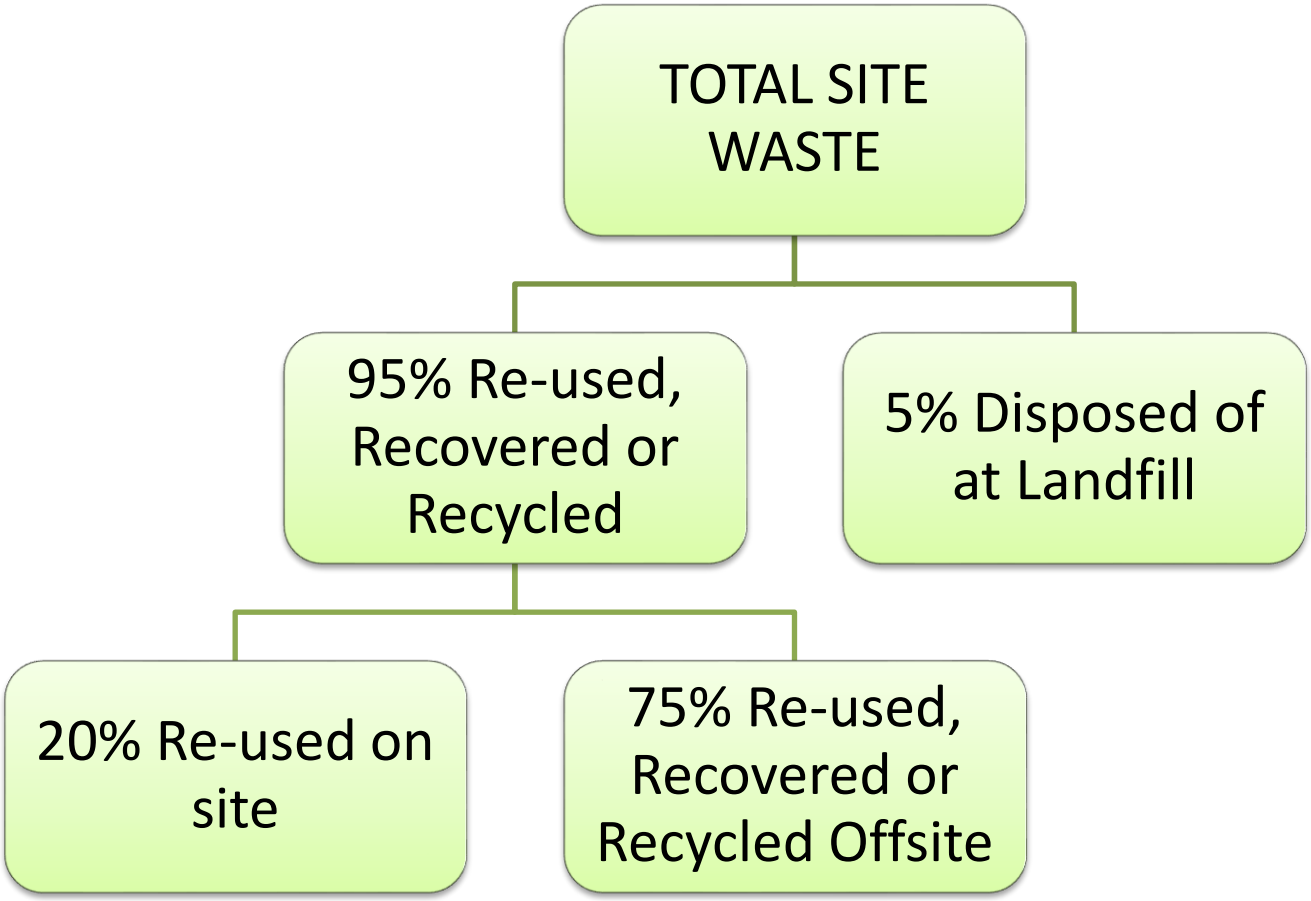


Table 5.2 overleaf will be populated to show the estimated waste per waste category for the development for each phase of the project once the project execution plan has been prepared by the Principal Contractor.

Table 5.2; Waste Forecasts

Work Package	Subcontractor	Type of waste	European Waste Catalogue Code (EWC)	Estimated amount of waste (T)
Construction	TBC	Mixtures of concrete, bricks, tiles and ceramics	17-01-07	TBC
Construction	TBC	Timber	17-02-01	TBC
Construction	TBC	Metal - Mixed	17-04-07	TBC
Construction	TBC	Gypsum-based construction materials	17-08-02	TBC
Construction	TBC	Soil and stones – Clean subsoil	17-05-04	TBC
Construction	TBC	Plastic	17-02-03	TBC
Construction	TBC	Packaging - Mixed	15-01-06	TBC

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6. WASTE MANAGEMENT PRINCIPLES

This plan outlines the procedures that have been put in place and demonstrate how they benefit the environment, how we can measure the effects and how these procedures and practices are sustainable.

6.2 Waste Hierarchy

The waste minimisation and management on site should follow the principles of the waste hierarchy where possible. Initially, this involves;

- Waste elimination, including;
  - Design the project to suit component sizes,
  - Reduce the need for temporary or false works,
  - Set the level of the building to reduce excavations and
  - Plan for the re-use of spoils to form landscape features.

- Waste reduction, including;
  - Order the correct materials, as specified,
  - Order the correct quantity of materials (requires accurate take-offs/estimates),
  - Store and handle materials correctly and
  - Ensure protection of finished works.

6.3 Surplus Wastes

Waste that cannot be eliminated or reduced will fall into the following categories of waste management as described below.

6.3.1.1 Re-use

- Where possible, surplus materials should be re-used on the site,

- Where materials are surplus to requirements onsite (such as soils), there may be a requirement for them to be recovered off-site at other projects. Materials can be sold on by the Principal Contractor, or donated.

6.3.2 Re-cycle

Surplus materials may be used in different forms on the site or removed from the site and recycled for other projects. The hierarchy can be put into action by following good practice on site:

6.3.3 Disposal at landfill sites

This is a last resort option. Landfill disposal is expensive. It is accompanied by high disposal costs in the Landfill Tax. At present, the cost of disposing of active waste is £91.35 per Tonne (standard rate).

For inert or inactive wastes, (such as building fabrics and excavated uncontaminated soils), the disposal cost is £2.90 per Tonne.

When assessing the cost-benefit of land-filling waste, the tax rates quoted above must also be considered against skip hire, labour costs and the waste contractors' costs.

6.4 Segregation

Wherever possible, waste will be segregated before being removed from site, with skips and bins clearly labelled. This prevents specific waste streams from becoming contaminated ready for recycling or re-use.

However due to the limited storage area on typical construction sites, a general waste skip may be used for all waste generated (other than Gypsum products) and separation will be carried out off site at a Waste Transfer Station.

Waste will either be diverted for reuse or recycling or disposed of at landfill.

It is critical that waste separation is relayed to the Site Manager by the operators of the waste transfer station in order to ensure that accurate data is recorded in the SWMP.

Where possible, smaller waste materials such as that from the canteen and the office should be segregated and recycled separately at the nearest Local Civic Amenity point or other recycling centre by the Site Manager. This is to include the recycling of plastic, paper, cardboard, cans and other waste.

The form for recording all waste information can be found in Appendix 1 of this document.

A diagram of the site layout showing waste and materials storage areas will be marked up and displayed in the site office by the Site Manager and a copy given to SES to keep on file as evidence of good waste management. A copy of the site plan can be found in Appendix 4 of this document.

Documentary evidence will be retrieved from Waste Transfer Notes to confirm the type and amount of waste removed from site.

6.5 Gypsum waste

As of 1st April 2009, the Environment Agency revised its Policy for disposing of gypsum waste to landfill. Previously, waste containing less than 10% gypsum could be sent to landfill. Now, in England and Wales, if waste containing any amount of gypsum is sent to landfill, it must go to a separate cell for high sulphate waste. Guidance is given as follows:

- A dry storage area should be set aside for bagged plaster mix. This will reduce wastage and may save money.
- Mixed or dry plaster should not be washed into drains or surface waters as this can cause water pollution.
- Clean, uncontaminated plasterboard can be recycled. The supplier will be able to provide more information on this.
- Wet, mixed plaster should be left to go off before disposal. Liquid wastes cannot be disposed of at landfill sites.
- Plaster, plasterboard and other gypsum products should be separated from general wastes, as they contain high levels of sulphate.

6.6 Waste Minimisation

Waste minimisation through the 'eliminate, reduce, reuse, recycle' hierarchy context also needs a holistic approach during the design, contractual and construction phases. This can involve the clients, partner, designers, architects and contractors.

Each party can take actions to reduce the amount of waste arising at different stages of a site development as indicated in Table 6.1, below.

Table 6.1: Waste Minimisation at Key Stages of the Project

Type	Waste minimisation decision taken	By whom	Intended results
Design	Reduce source wastage by specifying the correct resources	Developer	Reduces waste to be taken to landfill.
Materials	Suppliers to be encouraged to use less packaging. Correct material storage Re use of surplus materials e.g. Return to supplier or return to Plant Yard for re use on another project	Developer	Reduce waste materials leaving site. Encourage re-use where possible.
Construction methods	Awareness of SWMP and principles of waste Training, induction, inspections and meetings Minimise poor handling procedures Utilise reclaimed/recycled materials wherever possible	Developer	Reduce waste materials leaving site. Encourage re-use where possible. Good working practices

6.7 Forecasting and Planning the reduction, reuse and recycling of waste

Table 6.1 details the forecasting and planning for the reduction, reuse, recycling and recovery of materials.

Table 6.2 identifies the waste minimisation and management methods to be utilised within the project.

The Principal Contractor should ensure that the waste management procedures proposed in Table 6.2 are implemented and the results are subsequently recorded accurately.

6.8 Waste Controls and Handling

Site Security

The operation phase(s) of the site will be fully hoarded and accessed via locked gates to prevent unauthorised access. These site security measures should avoid the illegal disposal of waste at the site.

Deliveries and storage

It is recommended that the Site Manager keeps an inventory of used and ordered materials kept on site to avoid damage. The Site Manager will also be in charge of and manage the stores. The Site Manager will therefore:

- Be prepared for deliveries.
- Schedule the deliveries.
- Reject deliveries if incomplete or damaged.
- Record all deliveries using the supplies and materials form found in Appendix 4.

The Site Manager should separate all orders/deliveries into waste streams and file them for easy access/review.

It is important that any materials that subcontractors bring into site are also reported to the Site Manager for monitoring purposes.

With regards to the safe storage of materials and to avoid damage of materials, the Site Manager should:

- Follow the suppliers' storage instructions.
- Keep harmful chemicals in secure bunded areas.
- Protect lightweight materials from wind.
- Carry out good manual handling techniques.

Table 6.2: Waste Minimisation and Management

Waste type	Reduce (%)	Reuse (%)	Recycle (%)
Bricks, Tiles and Ceramics	Careful order placement. Planned call off/delivery. Better storage & handling to avoid breakage	Send surplus to other Weston Homes sites (Materials Management Plan (MMP) required)	Offsite segregation. Return to the supplier
Concrete	Careful order placement	'Site Won' material reused during enabling and piling activates, for example, piling mats and raising the land	Separation at waste transfer station, reprocessed and reused in construction industry
Insulation	Correct ordering. Planned call off/delivery. Store correctly to protect against weather damage	Re-use on other Weston Homes sites (Materials Management Plan (MMP) required)	Separation at waste transfer station, reprocessed and reused in construction industry
Packaging	Careful order placement. Planned call off/delivery. Better storage & handling. Consultation with Suppliers	Reuse sheets of plastic to protect excess material against rain damage for example. Reuse paper and cardboard	Separation at waste transfer station, reprocessed and reused in the appropriate industries
Timber	Pre-fabrication. Correct ordering. Planned call off/delivery. Store correctly	Reuse for temporary hoardings and general carpentry. Wooden pallets can be reused in storage areas to keep materials off wet surfaces. Store empty pallets neatly and remove from site once the number is sufficient to make collection economical	Separation at waste transfer station
Mixed Metals	Careful order placement. Pre-assembly and fabrication off-site	Reused in temporary works	Separation at waste transfer station, reprocessed and reused in construction industry

Gypsum	Correct ordering. Planned call off/delivery. Store correctly	Consultation with Dry-liner – for example, reuse of offcuts	Segregate and recycle to other Redrow Homes sites (Materials Management Plan (MMP) required)
Plastic	Careful order placement. Planned call off/delivery. Better storage & handling. Consultation with Suppliers	Reuse sheets of plastic to protect excess material against rain damage for example	Separation at waste transfer station, reprocessed and reused in the appropriate industries
Soil (Inert)	Careful order placement	'Site Won' material reused during enabling, for example, raising the land	Separation at waste transfer station, reprocessed and reused in construction industry
Hazardous	N/A	On-site remediation for reuse	Off-site remediation for reuse
Mixed	Pre-assembly and fabrication off-site. Reusable materials/ products. Consultation with Sub-contractors and Suppliers	Reuse paper, cardboard, cartridges, plastic bottles and cans	Nominated Waste Champion to provide segregation of canteen waste - take cans, plastic bottles etc to local civic amenity point or nearest recycling centre

7. IMPLEMPLEMENTATION, ROLES AND RESPONSIBILITIES

7.1 Waste Carriers

During the segregation process, the waste contractors will be responsible for the recording of the quantities of all wastes taken off-site. They should fill in a log of the exact amount of waste materials removed from site for each container that is removed. This log sheet should also identify the quantity of the materials that were sent to landfill and the quantity that are intended for recycling, reuse or recovery. The full address for the end destination of all waste material, be it recycled, reused or disposed, should be provided. The form in Appendix 1 can be used for this purpose. Waste amounts should always be recorded in tonnes for consistency.

The form should be used by the waste management contractors to show their waste management licenses, waste carrier licenses and exempt site licenses that have been checked and verified for use on this project, a copy of which should be provided to the Principal Contractor.

7.2 Site Manager

The Waste Carrier as mentioned above will complete their copy of the Waste Data Collection form, confirming the amounts of waste recycled, reused or disposed of each waste stream. A copy of this form should be provided to the Site Manager on a weekly basis.

The Site Manager will complete an Appendix 1 form for any material reused on site or material that they personally remove from site, such as office waste to the local recycling centre.

7.3 Training & Communication

The Site Manager will require an induction into the requirements of the SWMP, and ensure that they are able to effectively complete the Waste Data Forms.

The Site Manager will then provide on-site instruction of appropriate separation, handling, recycling, reuse and return methods to be used by all parties at all appropriate stages of the Project.

The following methods of communication will be used:

- Meetings: Pre-construction meetings will include discussions of the SWMP and will encourage key project representatives to contribute to waste predictions. All subcontractors will be expected to attend.

- Site inductions: At site inductions, the Site Management Team will ensure that all operatives working on site and associated works (deliveries etc) are made fully aware of their responsibility under the SWMP. Where present, site segregation zones will be noted, and the importance of not contaminating skips will be emphasized. All subcontractors will be provided with advice on waste reduction, reuse, recovery and recycling.

- Site briefings: Once the project is live, short meetings with key site personnel will be held as necessary to discuss problems and opportunities relating to waste on site

- Raising awareness: SWMP information will be included in the induction process.

- Suggestion scheme: All employees working on site should be made aware of the scheme to enable them to contribute ideas and suggestions for future improvements.

- Training: Training sessions should be provided for the Construction team involved with the project. Training content, structure and duration will vary depending on the job role and level of competence/knowledge required. Workers should also be informed of the cost implications involved in disposing non-hazardous waste with hazardous waste and of the savings which can be made from correctly implementing a SWMP. All training must be recorded on the Training Form in Appendix 2.

  Training must be provided to notify employees of any major changes to the plan following a revision and the version number of the SWMP document on which the training is based must be clearly recorded. Where problems are noted with Subcontractors not working to the requirements of the SWMP, Supervisors will be requested to carry out a toolbox talk in relation to site waste in general, and the SWMP that the Principal Contractor has implemented for the project.

7.4 Monitoring

It is recommended that the site is monitored on a monthly basis to confirm whether the requirements of the SWMP are being managed effectively. This will ensure;

- That the plan is up to date and that it is the correct version
- That the Orders File is being maintained
- That skip returns/waste data forms are being faxed/emailed back to the Client
- That subcontractors are complying with the Plan
- That waste carrier returns are being received and filed

7.5 Waste Records

Records have to be accurate so that the SWMP's progress is monitored correctly. An in-house database will be used to facilitate the SWMP and will be used to record all waste leaving the site. Records will be taken directly from the Appendix forms provided in this document, waste tickets and monthly waste reports from the nominated waste contractor.

7.6 Estimated versus actual waste quantities

Any deviations from the planned arrangements should be explained so that they can be taken into account during the reviewing process. For example, any waste amounts that are exceeded from that which was predicted to be generated, should be noted. Details should include the type of waste, the amount and the reasons for exceeding the forecast amount (e.g. over ordering, inadequate storage resulting in damage, not financially viable etc). Any issues with the implementation of the SWMP should also be mentioned.

7.7 SWMP Updates; Pre-completion

It is recommended that Waste Data Collection forms to be collected and recorded on a monthly basis. The electronic SWMP will be kept up to date following receipt of completed forms, and certainly at a period of not less than every 3 months to ensure that the plan accurately reflects the progress of the project.

A review of the data is required on a routine basis, recommended every 3 months, to ensure the compliance targets are being met and any exceedances in waste type and percentages reasoned and actions implemented.

SES can perform this role on behalf of the Client on request.

7.8 SWMP Updates; Post-completion

Once construction works are complete a report is required which will;

- Confirm that the plan has been monitored on a regular basis;
- Compare the estimated quantities and percentages of each waste type against the actual quantities of each waste type;
- Provide a short analysis and discussion;
- Make recommendations and conclusions; and
- Provide an analysis of cost savings.

SES can perform this role on behalf of the Client on request.

7.9 Summary

The chart in Appendix 3 summarises the roles and responsibilities of each party under this SWMP at Anglia Square, Norwich.

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APPENDICES

APPENDIX 1 – WASTE RETURN FAX BACK FORM

APPENDIX 2 – SWMP TRAINING AND TOOLBOX TALK RECORD

APPENDIX 3 – SUMMARY OF RESPONSIBILITIES

APPENDIX 4 – SITE PLAN

APPENDIX 5 – QUARTERLY REVIEWS AND COMPLETION STATEMENT

APPENDIX 6 – TOOLBOX TALK TEMPLATE

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Appendix 1 – Waste Return Fax Back Form

Site Name : ENV001-ANGL-049; Anglia Square, Norwich
Date:

Phase: Demolition □ Construction □ Excavation □

Waste Details

1. Waste Carrier ..... Licence.....

   Waste Transfer Note Number.....

2. Waste Destination

   Landfill □ Waste Transfer Station □ Recycling Centre □

   Off Site Use □ On Site Use □

3. Work Package

Remediation	□	Superstructure	□
Soft Strip	□	Groundworks & Excavation	□
Fixtures and Fitting	□	Asbestos Removal	□
Construction	□	Services	□
Demolition	□	Substructure	□
External and Site Works	□		

4. Address of Waste Destination
   .....
   .....

5. Type of waste / Show % if mixed Weight of Waste.....

Material	(Tick)	%/m^3		(Tick)	%/m^3
Bricks			Tiles and Ceramics		
Concrete			Inert		
Insulation			Metals		
Packaging			Gypsum		
Binder			Plastics		
Timber			Floor Coverings (soft)		
Electrical and Electronic Equipment			Furniture		
Canteen/Office/Adhoc			Liquids		
Oils			Soils		
Asphalt & Tar			Hazardous Materials		
Other			Mixed **		

Signed: ..... **Date returned to SES: .....**

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Appendix 2 – SWMP Training and Toolbox Talk Record

Trainee Name	Job Title	Company	Date	Trainer Name	Trainee Signature

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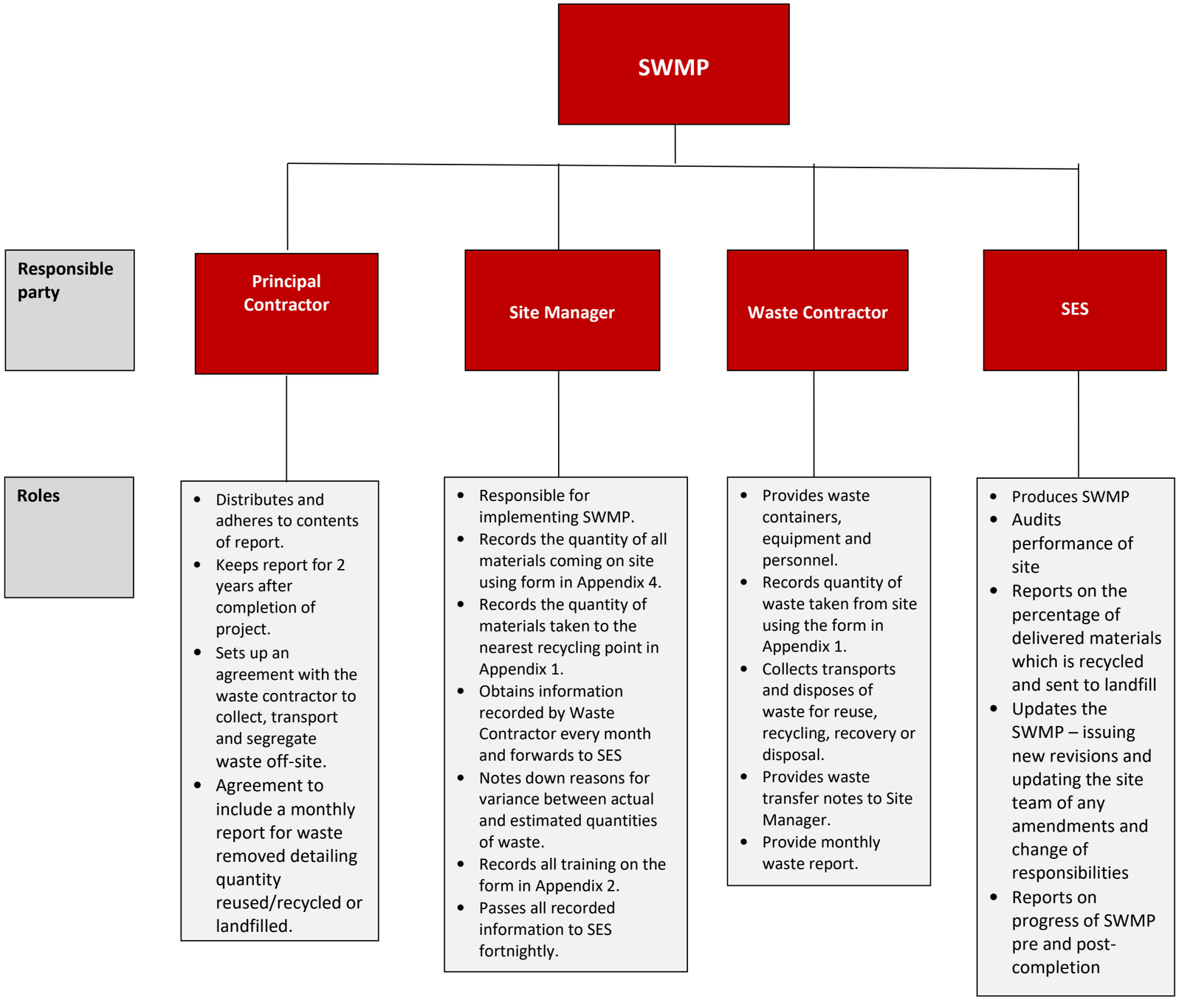
Appendix 3 – Summary of responsibilities as per the SWMP



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Appendix 4 – Site Plan

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B
D
A
E
H
F
G
J
Contractors and consultants are not to scale dimensions from this drawing
SITE BOUNDARY IS INDICATIVE AND SUBJECT TO REVISION FOLLOWING LEGAL ADVICE
WORK IN PROGRESS - NOT TO BE USED FOR CONSTRUCTION
INDICATIVE DESIGN
KEY
1 - 2 Storeys
3 - 4 Storeys
5 - 6 Storeys
7 - 8 Storeys
9 - 10 Storeys
11 - 12 Storeys
25 Storeys
To match Existing 7 Storey
3 - 4 Storey Courtyard
7 - 8 Storey Courtyard
No.
Description
Date
BroadwayMalyan
Weston Homes
Anglia Square
Norwich
01-Parameter Plans
Architecture
Proposed Building Heights
WORK IN PROGRESS

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Appendix 5 – Quarterly Reviews and Completion Statement

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Appendix 6 – Toolbox Talk Template

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Appendix 6 - Waste Toolbox Talk Template

Reason	Waste management and control is vital element in the construction industry. Every year millions of pounds are wasted by poor management of materials and resources.
Outline	This talk covers some important aspects of waste management and control.

Why talk about Site Waste and Segregation?

Avoid Environmental Harm	Incorrectly handling waste could cause water pollution and damage habitats
Avoid Prosecution	Incorrectly handling waste could result in a fine and imprisonment
Reduce Cost	Incorrectly handling waste could result in recyclable materials going to landfill

Waste Management Hierarchy

Prevent	Avoid producing waste in the first place
Reuse	Use items as many times as possible where reasonable practicable
Recycle	Recycle what you can only after you have reused it
Recover	Send what cannot be recycled to another form of energy recovery, to produce energy
Dispose	As a last resort, send the waste to landfill for disposal

Control Measures

1. Store materials properly and safely to prevent damage before use.
2. Keep significant off-cuts for reuse and know the correct place to stockpile and protect materials for reuse.
3. Consider the quantity of material to be used before ordering or opening a pack and use it all before opening a new pack.
4. Reuse materials such as formwork, shuttering and pallets where practical.
5. Inform your supervisor about instances in your work where you could reduce waste further.

Precautions

1. Do not place materials for reuse in areas where they could be damaged or be contaminated by other materials.
2. Do not use a new length of timber, pipe or cable without checking the reusable stock.
3. Do not dispose of contaminated waste, other than is designated areas.
4. Do not overfill skips. If a skip is full tell your supervisor.
5. Do not mix hazardous, non-hazardous and inert waste together because it prevents recycling and is more costly.

Discussion Points

1. Why is it important to segregate waste?
2. What is the site policy for recycling and waste management?
3. Waste wastes cannot be mixed?
4. What happens to waste when it leaves site?
5. What should be done with surplus material and off-cuts

Further information

Ensure a copy of the latest SWMP Review is on display in the site compound for all to view.

Once complete, ensure a toolbox talk sign-off form is completed (Appendix 2) and filed in the site SWMP. For further advise on SWMP toolbox talks please contact SES.

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