# 152-156 Kentish Town Road

## Site Waste Management Plan

## For: AHIG Ltd

Job No: 1012395

Latest Revision: A

Date: 03/06/2016

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# Contents

# 1. Introduction

Site Waste Management Plans (SWMP) have been developed to ensure that waste which is produced on site during different phases of development Is managed more efficiently through the course of demolition and construction through to their operational use. By virtue of managing and controlling the amount of waste produced, it will help reduce the potential harm to both the environment and to human health.

The report is structured to ensure it can perform two important roles:

1) To set out the importance of effective waste management, reviewing the existing North London joint waste documents, and summarising those that are most important and relevant to the scheme; and

2) Identify the baseline conditions and set out waste management issues at each of the three main stages; design, construction and operation, and establish a framework for further development of a Site Waste Management Plan which will be a live document throughout the process.

This report has been developed at the planning stage for the construction of a new mixed use development at 152-156 Kentish Town Road, London. The development will comprise of 5 storeys, with A1 use classes on the Lower Ground and Ground Floors, B1 use on the First Floor and residential apartments on the Second, Third and Fourth floors.

# 2. Policy Context and Planning History

As part of the assessment, a review of the applicable European, national, regional and local legislation policy has been undertaken.

## European Legislation

### The Waste Framework Directive (2008/98/EC)

The Waste Framework Directive is significant for this waste chapter and the SWMP. It establishes a framework for the management of waste across the European Community and defines certain terms as 'Waste. Waste management, recovery and disposal', to ensure that there is a 'uniform approach taken across the EU'.

1) Waste – 'Waste' means any substance or object which the holder discards or intends or is required to discard;

2) Waste Management – 'Waste Management' means collection, transport, recovery and disposal of waste, including the supervision of such operations and the aftercare of disposal sites and including actions taken as a dealer or a broker;

3) Recovery – 'Recovery' means any operation whereby the principle result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular fashion, or waste being prepared to fulfil a particular function, in the plant or in the wider economy;

4) Disposal – 'Disposal' means any operation which is not recovery, even where the operation has a secondary consequence such as the reclamation of substances or energy.

One of the key objectives to come from this directive is that waste policy should aim to minimise the negative effects of the generation and management of waste on human health and the environment. The directive establishes the fundamental principles for waste management in Europe which must be subsequently reflected in national, regional and local strategies.

### The Landfill Directive (1999/31/EC)

The Landfill Directive requires improvements to landfill management and places a ban on specified hazardous, corrosive and clinical materials from being placed into landfill. Together with 'other waste', the directive requires the pre-treatment of all waste before being landfilled and sets 'progressively tighter limits to restrict the amount of biodegradable waste that can be sent to landfill.

Using the 1995 baseline levels as an indicator, the Landfill Directive states that the amount of biodegradable waste sent to landfill should be reduced to 75% by July 2010, 50% by July 2013 and 35% by July 2020. The National Government has implemented this requirement through the Waste and Emissions Trading Act (2003) which sets the annual allowances limiting how much biodegradable municipal waste can be sent to landfill per year.

## National Legislation

### Environmental Protection Act 1990

With relation to this Site Waste Management report, the Environmental Protection Act 1990 defines waste as 'any substance or object which the holder discards or intends or is required to discard'. Controlled waste is defined as 'household, industrial and commercial waste or any such waste'.

### Site Waste Management Plan Regulations 2008

On the 1st December 2013, the Site Waste Management Plan Regulations 2008, were repealed, and are no longer in force. However Site Waste Management Plans are still a useful calculation and monitoring tool, and can be used to meet BREEAM Assessment criteria, and the 2008 regulations still provide relevant guidance.

The Site Waste Management Plan Regulations 2008 stated that Site Waste Management Plans must record details of the construction project, estimates of the types and quantities of waste that will be produced and confirmation of the actual waste types generated, and how they will be managed. For larger schemes, above £500,000 construction value, should contain details of the waste removed, identity of the person who removed the waste, where the waste was taken to and details of the environmental permit or exemption held by the site where material is taken. It is also recommended that the Site Waste Management Plans are reviewed every 6 months through the project.

### Landfill Tax

Landfill Tax was introduced by the Government in 1996 in response to the EU Landfill Directive that was introduced in 1993. It created a tax payable for each tonne of waste sent to landfill, and the Landfill Tax (Qualifying Material) Order 2011, as amended by the Landfill Tax (Qualifying Material) (Amendment) Order 2012 identifies wastes that can be charged a lower rate of Landfill tax, with all other wastes being charged as a standard rate.

The lower rate of tax covers inert waste and the standard tax covers active waste. Inert waste includes many materials used in the makeup of a building such as concrete, glass, brick and soil. Active waste includes material that can decay or contaminate land and includes materials such as wood and plastics.

The current rates for landfilling stand at £64 per tonne as a standard rate and £2.50 per tonne for inert waste. This standard rate increases to £72 per tonne on the 1st of April 2013. The direct cost of landfilling is currently increasing beyond the rate of inflation, and the rates for landfilling active waste will continue to increase year on year until at least 2014/15 when it will reach £80 per tonne.

The requirement to 'treat' waste before landfilling was introduced in October 2007 which has also increased costs for commercial and industrial waste, and thus there is more of an incentive for commercial and industrial sectors to recycle and reuse waste whenever possible, moving to alternative and more sustainable means of waste treatment.

There is extensive legislation and guidance relating to waste management and waste management activities. For the purposes of this report and SWMP, the most relevant policies have been reviewed as above, but the following policies and legislation are also relevant:

1) Environmental Permitting (England and Wales) (Amendment) Regulations 2013;

2) The Waste Regulations 2011 (England and Wales);

3) The Controlled Waste (England and Wales) Regulations 2012; and

4) Hazardous Waste (England and Wales) (Amendment) Regulations 2009.

## National Planning Policy

On the 27th March 2012, the Government published the National Planning Policy Framework (NPPF), a new document which sets out the Government's planning policies for England, and details how they should be applied. The NPPF does not contain any specific waste policies and the relevant Planning Policy Statement (PPS10) will remain in force until it is replaced by emerging policy. However Local Authorities should still take note of any relevant policies within the NPPF when making a decision on planning applications.

### National Planning Policy for Waste

In October 2014, the Government published the National Planning Policy For Waste, which supersedes the former waste policy document, Planning Policy Statement 10: Planning for Sustainable Waste Management.

The document sets out the Government's ambitions for a sustainable and efficient approach to resource use and aims to make efficient use of the waste hierarchy, elevate the importance of waste management as a consideration alongside issues such as housing and transportation, and looks to ensure the designs and layouts of residential and commercial development and infrastructure complements a sustainable waste management approach.

On site management of waste is actively encouraged and when determining planning applications Local Authorities must look at the likely impact non-waste related development will have on existing waste management facilities. Developments must make sufficient provision for waste management and promote good design to secure the integration of waste management facilities. The document also emphasises that the handling of waste arising from construction and operation of development must maximise the re-use/recovery opportunities in conformity with the waste hierarchy.

### National Waste Management Plan for England

The Waste Management Plan for England was published in December 2013, and replaced the former Waste Strategy for England from 2007, and should be read in conjunction with the National Planning Policy for Waste. The Waste Management Plan for England 2013 was published by the Department for Environment Food and Rural Affairs (Defra) and assesses the progression that has been made in waste management, and sets goals and targets for the future.

Its main recommendations include:

1) Ensuring that waste is optimally managed, so that the costs to society of dealing with waste are minimised;

2) Working towards a zero waste economy as part of the transition to a sustainable economy; and;

3) Encouraging the implementation of further waste management policies, including planned waste management technologies and methodologies and methods, or policies for waste posing specific management problems.

The Management Plan also confirms a commitment to the 'Waste Hierarchy', which is central in setting out the sustainable approach to waste management, and the ways waste should be used in its disposal:

1) Prevention – Using less material in design and manufacture. Keeping products for longer; re-use. Using less hazardous materials. Minimising waste from the outset of development;

2) Preparing for re-use – Checking, cleaning, repairing, refurbishing whole items or spare parts;

3) Recycling – Turning waste into a new substance or product. Includes composting if it meets quality control;

4) Other recovery – Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling options;

5) Disposal – Landfill and incineration without energy recovery

This approach maximises the re-use of the waste that has been generated and emphasises that all options must be sought to reduce the amount of waste disposed.

The strategy reaffirms commitment to meeting the targets set by the EU, which includes recycling 50% of household waste by 2020, and confirms that the UK is currently exceeding the 70% target for recovering construction and demolition waste by 2020.

### Strategy for Sustainable Construction 2008

The Strategy for Sustainable Construction document was a joint industry and Government Strategy in recognition of a need for radical change in the sustainability of construction. The overarching target in terms of waste was a 50% reduction of construction, demolition and excavation waste to landfill by 2012. Its overarching waste target was to halve the amount of construction, demolition and excavation waste that goes to landfill by 2012, in comparison to 2008 figures. Also included within the Strategy is an aim to reduce the amount of construction packaging waste by 20% by 2012, and to incorporate waste minimisation principles into building design and through the supply chain.

## Regional Planning Policy

### The Draft 2015 North London Waste Plan

Published in July 2015, the draft North London Waste Plan (NLWP) sets out the planning framework for waste management in the boroughs of Barnet, Hackney, Haringey, Enfield, Waltham Forest, Islington, and Camden. Upon adoption the plan will cover the period 2017 to 2032 and will form part of the statutory development plan for the boroughs, including Camden where the development to which this report relates is located.

- to ensure there will be adequate provision of suitable land to accommodate waste management facilities of the right type, in the right place and at the right time up to 2032 to manage waste generated in North London; and

- to provide policies against which planning applications for waste development will be assessed, alongside other relevant planning policies/guidance.

The draft NLWP states that a current waste management capacity of 3.7 million tonnes per annum exists. The North London Waste Plan includes data on waste currently generated in North London. Table 1, below, sets out the proportion of each waste stream as a percentage of the total waste in North London;

*Table 1 Waste Streams Generated in North London 2013 (Source: North London Waste Data Study Update 2013)*

| Waste Stream | Tonnes Arising |
|---|---|
| Local Authority Collected (LACW excluding trade waste) | 739,351 |
| Commercial & Industrial (C&I including trade waste) | 908,051 |
| Construction and Demolition (C&D) | 272,004 |
| Excavation | 401,072 |
| Hazardous | 58,216 |
| Agricultural | 9,223 |
| Total | 2,387,917 |

Within the above waste streams, the proportion of waste is set out in table 2, below:

*Table 2 Proportion of North London Waste in Each Waste Stream 2013 (Source: Draft North London Waste Plan 2015)*

| Waste Type | Percentage of Total Waste Stream |
|---|---|
| Agricultural Waste | 1% |
| Hazardous Waste | 2% |
| Construction Demolition Waste | 12% |
| Excavation | 17% |
| Local Authority Collected Waste | 31% |

| | |
|---|---|
| Commercial and Industrial Waste | 38% |

In terms of provision for North London's Waste to 2032, the North London Waste Authorities are seeking to achieve a household waste recycling target of 50% by 2020, and will look to recycle the majority of construction and demolition waste either on site or through transfer facilities and opportunities to re-use CD&E waste locally will be supported.

## Local Planning Policy

This section will consider the emerging and adopted Local Planning Policy for the London Borough of Camden. The adopted Development Plan for the borough consists of the Core Strategy DPD, Site Allocations DPD, Development Policies DPD, Area Action Plans, and the North London Waste Plan as aforementioned.

### Camden Core Strategy (2010)

Adopted in November 2010, the Camden Core Strategy forms a key part of the borough's adopted development plan. Policy CS18 – Dealing with our waste and encouraging recycling, states the borough's ambition to make Camden a low waste borough. It aims to:

- Reduce the amount of waste provided in the borough and increase re-use of materials to meet targets of 50% by 2020
- Make sure development include facilities for storage and collection of waste and recycling
- Deal with North London's waste by working with partner boroughs in the North London Waste Authority to produce a North London Plan.

### Development Policies (2010)

Adopted in November 2010, the Development Policies DPD sets out detailed criteria against which planning applications are determined in Camden.

### Camden Planning Guidance 3: Sustainability (CPG3)

Originally adopted in April 2011 and updated in July 2015, CPG3 includes information on a waste hierarchy for material use and re-use. Chapter 8 of the document, entitled '*Sustainable use of Materials*' makes reference to the waste hierarchy (reduce, reuse, recycle, energy recovery, and finally, disposal) and includes an expectation for 15-20% of the total value of materials used in major developments to be derived from recycled and reused sources.

### Site Allocations Development Plan (2013)

Adopted in September 2013, the Camden Site Allocations DPD sets out guidelines for future development on a site-specific basis for future development on significant sites.

## Local Plan Submission Draft

The consultation period for the Submission Draft of the borough's emerging Local Plan has recently ended. The Local Plan will now be submitted for examination in public. In the meantime, policies within the Local Plan can be given (limited) consideration when determining planning applications.

Draft policy CC5 Waste states that the borough is striving to achieve 60% of household waste recycled by 2031, in addition to the 50% target by 2020.

# 3. Baseline Conditions

## Construction Waste in England

The Digest of Waste and Resource Statistics 2016 Report, published in March 2016, has a breakdown of the amount of waste arisings produced by the UK, separated up into sectors. The figures are only produced by Eurostat every two years, and the 2014 figures are yet to be published. Construction Waste was the largest waste producer of all the sectors. The construction waste figures can be found in table 3:

*Table 3: UK Waste Arisings for Construction Waste*

| Year | Construction Waste (tonnes) |
|---|---|
| 2004 | 99,234,124 |
| 2006 | 109,545,987 |
| 2008 | 100,999,493 |
| 2010 | 102,231,321 |
| 2012 | 100,230,495 |

Defra, as part of the Government Statistical Service, published a UK Statistics on Waste in December 2015 which have been used in the Digest of Waste and Resource Statistics 2016 Report. It details the waste from Households from 2010, and the waste from households figures can be found in table 4:

*Table 4: UK Waste Arisings from Household Waste*

| Year | Construction Waste (tonnes) |
|---|---|
| 2010 | 26,954 |
| 2011 | 26,793 |
| 2012 | 26,428 |
| 2013 | 25,929 |
| 2014 | 26,797 |

The UK Statistics on Waste report also states that the UK currently has a recycling rate of 44.9% in 2014, up from 40.4% in 2010, and is striving to meet the 50% target by 2020. The report also states that the UK has a 86.5% recovery rates of waste from non-hazardous Construction and Demolition Waste.

## Municipal Waste

Camden Borough Council's Authority Monitor Report 2014/15 provides a breakdown of the Municipal Waste Arisings of the Borough over the last 14 years. These figures can be found in Table 5:

*Table 5: LB Camden Municipal Waste Arisings*

| Year | Total Municipal Waste Arisings | Camden Household Waste | Camden Non-Household Waste | Camden Household Recycling | Camden non Household Recycling | %of Household Waste Recycled |
|---|---|---|---|---|---|---|
| 2001/02 | 134,503 | 83,668 | 36,921 | 12,533 | - | 14.46% |
| 2002/03 | 135,225 | 83,135 | 36,587 | 13,857 | - | 16.07% |
| 2003/04 | 132,105 | 78,868 | 34,955 | 16,486 | - | 19.17% |
| 2004/05 | 133,494 | 63,782 | 48,641 | 19,788 | - | 25.21% |
| 2005/06 | 134,914 | 55,990 | 58,108 | 19,580 | 305 | 27.14% |
| 2006/07 | 135,697 | 54,231 | 57,978 | 21,248 | 2,096 | 28.05% |
| 2007/08 | 131,426 | 51,753 | 57,010 | 19,607 | 2,902 | 27.12% |
| 2008/09 | 126,589 | 50,532 | 53,135 | 20,391 | 2,452 | 28.27% |
| 2009/10 | 122,606 | 48,516 | 50,649 | 20,875 | 2,511 | 29.75% |
| 2010/11 | 121,322 | 51,437 | 41,754 | 24,652 | 2,792 | 32.23% |
| 2011/12 | 117,582 | 50,688 | 38,481 | 25,124 | 2,793 | 32.97% |
| 2012/13 | 110,890 | 40,567 | 35,170 | 21,274 | 2,491 | 30.91% |
| 2013/14 | 110,465 | 44,403 | 32,159 | 21,327 | 1,677 | 29.32% |
| 2014/15 | 114,684 | 60,745 | 24,538 | 21,626 | 3,939 | 26.26% |

The Digest of Waste and Resource Statistics 2016 Report details the Waste from Households for England and calculates an estimated amount of municipal waste generated per person. The average over the past 5 years is 414kg per person. The figures can be found in Table 6:

*Table 6: Municipal waste generated per person in England*

| Year | Waste Generated (kg per person) |
|---|---|
| 2010 | 425 |
| 2011 | 419 |
| 2012 | 411 |
| 2013 | 403 |
| 2014 | 413 |

The Waste Resources and Action Programme (WRAP) published guidance on minimising waste and waste management. The Achieving good practice Waste Minimisation and Management document includes standard, good and best practice performance benchmarks for the recovery (listed in Table 7) of waste material during site preparation, structural build out, and internal and external works. These figures provide benchmark figures against which any new major development should aim to meet. The guidance also encourages development to try and achieve 'Quick Wins', which are improvements in waste recovery for a specific construction waste material, applicable on a range of construction projects, which will deliver a higher rate of recovery than standard practice, without increasing costs and preferably with a cost saving.

*Table 7: Standard, Good and Best Practice recovery rates by material*

| **Material** | **Standard Recovery %** | **Good Practice Quick Win %** | **Best Practice Recovery %** |
|---|---|---|---|
| Timber | 57 | 90 | 95 |
| Metals | 95 | 100 | 100 |
| Plasterboard | 30 | 90 | 95 |
| Packaging | 60 | 85 | 95 |
| Ceramics | 75 | 85 | 100 |
| Concrete | 75 | 95 | 100 |
| Inert | 75 | 95 | 100 |

| | | | |
|---|---|---|---|
| Plastics | 60 | 80 | 95 |
| Miscellaneous | 12 | 50 | 75 |
| Electrical Equipment | Limited Information | 70* | 95 |
| Furniture | 0-15 | 25 | 50 |
| Insulation | 12 | 50 | 75 |
| Cement | Limited Information | 75 | 95 |
| Liquids and Oils | 100 | 100 | 100 |
| Hazardous | 50 | Limited Information ** | Limited Information ** |

** This is a required recovery target for the type of Waste Electrical and Electronic Equipment likely to be produced from construction sites, eg. Lighting

** This cannot be 100% as much hazardous waste (eg. asbestos) must be landfilled

It is important that the developer and principal contractor assess the potential waste streams prior to development, to assess the most appropriate ways to minimise waste production, and maximise waste recovery. The circumstances will differ from development to development, and the use of the Site Waste Management Plan is a useful tool to record waste production and help promote best practice.

# 4. Potential Effects

This report will seek to quantify the levels of waste generated at each principle stage of the construction of 152-156 Kentish Town Road, distil these down into main waste streams, assess the potential to reduce or avoid the waste being produced and mitigate against the associated effects. The assessment will rely on a combination of benchmark data from industry sources such as the SMARTwaste, the Local Authority, and calculations based on the proposed development. The associated Site Waste Management Plan will be prepared in accordance with Defra guidance.

The assessment focuses on the effects in and around the development site, rather than at the point of disposal (if off-site), and it has been assumed that such off-site operations have already been through a rigorous assessment process. As a result, the sensitive receptors around the site will be the residential and commercial properties that are adjacent to the property, and Kentish Town Road.

The main sources of waste are as follows:

1) Demolition Waste – The assessment of likely demolition waste is set out in the Waste Audit Spreadsheet which takes account of the Demolition Recovery Index (DRI) to calculate the Total and Recovered Tonnage of materials.

2) Construction Waste – The assessment of likely construction waste will involve a combination of data derived from Industry Benchmark (via SMARTwaste) and emerging information on the principal construction components on this development proposal. This allows an assessment to be made of what waste would be generated by a development of this nature and then assess the potential ability to reduce levels of waste from that baseline position. The report will look at estimates of the volume of each type of waste generated, and ways of reducing the impact. The report will consider ways of dealing with waste in accordance with the established waste management hierarchy (Minimise, Re-use, Recycle, Recovery, and Disposal). The assessment will be confined to waste which is generated on site, rather than that associated with off-site pre-fabrication.

3) Operational Waste – The likely waste generation figures based on industry standard waste arising rates will allow for estimated calculation on the level of operational waste. The waste arising rates have been used to calculate the expected annual levels of waste generated as a result of the development in terms of waste generated.

## Demolition Waste

An assessment of the current site in the form of the appended Waste Audit Spreadsheet has revealed that 99.79% of the total tonnage in demolition can be recovered as summarised in the following table;

| Material | Volume | Density | Total Tonnage | Recovery Index | Recovered Tonnage |
|---|---|---|---|---|---|
| **Concrete Components** | 976.72 | | 1631.64 | | 1631.64 |
| **Non-Concrete Masonry Components** | 53.92 | | 15 | | 15 |
| **Metals** | 414.3 | | 0 | | 48.88 |
| **Wood** | 3.285 | | 1.64 | | 1.64 |
| **Glass** | 1.04 | | 4.16 | | 4.16 |
| **Composites** | 17.48 | | 52.44 | | 0 |
| **Plant** | 0 | | 0 | | 0 |
| **Architectural Features** | 0 | | 0 | | 0 |
| **Misc.** | 0 | | 0 | | 0 |
| **Hazardous Material/Potential Contamination** | 0 | | 0 | | 0 |
| **Total** | 1466.745 | | 1704.88 | | 1701.32 |
| Recovery Percentage: | | | | | 99.79% |

## Construction Waste

The Survey of Arisings and Use Alternatives to Primary Aggregates in England 2005: Construction, Demolition and Excavation Waste document was published in 2007 by the Department for Communities and Local Government, and sets out a baseline for the type and amount of construction, demolition and excavation waste for all regions of England and Wales. The figures for London were:

| **Region** | **Recycled aggregate and soil** | **Material used for landfill engineering or restoration*** | **Material used to backfill landfill quarry voids*** | **Material used at Paragraph 9 and 19 registered exempt sites** | **Material used at landfill** | **Total** |
|---|---|---|---|---|---|---|
| **London** | 6,153,000 | 55,000 | 288,000 | 575,000 | 175,000 | 7,247,000 |
| **Percentage of total** | 84.90 | 0.75 | 3.97 | 1.9 | 2.4 | 100% |

*There are no London figures within the 2007 document for material used for landfill engineering or restoration, and to backfill quarry voids. Therefore figures have been taken from the Surveys of Arisings and Use of Construction, Demolition and Excavation Waste as Aggregate in England in 2003 document, published by the ODPM in 2004

Although it is not possible to accurately quantify the amount of waste arising from excavation and construction at this stage, it is possible to provide an indicative table of the major types of waste material that will be produced as well as the potential for re-use and recycling. In relation to the materials that may be used for the construction of the development, these are likely to include:

1) Composite Metal;
2) Glass;
3) Masonry;
4) Ply, Timber and Cladding;
5) Reinforced Concrete; and
6) Steelwork.

The estimated amount of construction waste has been calculated using the Building Research Establishment (BRE) Waste Benchmarking Data (WBE), which was last issued in July 2012. The BRE WBD values for waste arising for construction are:

- Commercial Office - 19.8$m^3$ per 100$m^2$
- Commercial Retail – 20.9$m^3$ per 100$m^2$
- Residential – 18.1m3 per 100m2
- Healthcare – 19.1m3 per 100m2

Through using estimated floor area for the scheme, it is possible to work out the estimated waste arising and this can be summarised in the below table.

| **Type of Development** | **Estimated GEA ($m^2$)** | **Estimated amount of construction waste arising ($m^3$)** |
|---|---|---|
| Commercial Office | 601 | 118.9 |
| Commercial Retail | 1301 | 271.9 |
| Residential | 1044 | 188.9 |
| Dentistry Practice | 117 | 22.3 |
| Estimated Total | - | 602 |

In line with the above data, it can be estimated that the construction waste arising from the development will total 602$m^3$

There are some construction materials that will result in waste being generated due to the nature of the construction. These include:

- Concrete slab – A small amount of excess concrete may be generated daily as concrete tends to be ordered by quantity for particular elements of the structure. The amount of concrete ordered will be minimised due to the re-use of as much concrete as possible from the previous demolition on site. Any excess concrete can be used on smaller elements of development, such as hard standing, to minimise unnecessary waste.

- Steelwork – Generally, steel reinforcement is ordered off schedules to suit the structural elements of buildings resulting in only a small amount of excess waste steel. Some of the waste can be used in other elements of the structure and the remaining waste is stored in a lay-down area until a sufficient amount accumulates to fill a skip which is then sent to a recycling station.

- Ply, Timber and Cladding – These materials are generally re-used as often as possible for concrete firming or are sent to a timber recycling centre.

- Glass – The waste from glazing will be extremely low as each panel is designed for installation onto the building. Any waste material can be recycled.

- Miscellaneous Blockwork – A relatively small amount of waste blocks and mortar will be cleared directly to a skip.

The amount and type of waste generated is to be monitored and recorded. In accordance with CIRIA C513: The reclaimed and recycled materials handbook, this should take the form of:

1) Skip Audits;

2) Accurate and up to date recording of materials brought on to the site and used as part of the work.

Other aspects of site waste management will also be audited. These are to include:

1) Delivery recording;

2) Materials storage;

3) Material handling on site;

4) Use of materials;

5) Use of surplus/off cut material;

6) Management of waste.

All skips and waste containers will, if segregation is to occur, typically be provided by and managed by the waste management contractor. Skips and containers should be labelled (according to waste type) and colour coded as per the national colour coding scheme:

**Table 11: National Colour Coding Scheme for Construction Waste**

| Type of Waste Material | Colour Scheme |
|---|---|
| Glass | Light Blue |
| Hazardous | Orange |
| Inert | Grey |
| Metal | Dark Blue |
| Mixed | Black |
| Packaging | Brown |
| Plastics | Purple |
| Plasterboard | White |
| Wood | Green |

A draft SWMP has been produced and this will provide a structure for waste management throughout the whole process. It will identify and monitor the type and amount of waste arisings and provide waste management option. It must be reviewed regularly by the Project Manager to ensure that it is up to date and where necessary, it must be revised and uploaded.

Any hazardous or liquid wastes generated on site (empty paint/solvent cans, mastic sealant etc.) will be taken from the site by the contractor or subcontractor responsible and taken to an authorised treatment centre for disposal.

The delivery of the majority of the construction materials will have to be made to the site by HGV. Care will be undertaken to ensure that materials are sourced as locally as possible, and that the deliveries are well organised to ensure the noise and air quality effects on the local environment are reduced as much as possible. A just-in-time ordering approach can also be adopted which will prevent over supply and minimise material losses due to damage caused by on-site storage. This can be managed alongside an effective scheduling programme calling vehicles to the site only when required.

## Operational Waste

Due to the nature of the development, there will be elements of waste produced once the development is operational. There are measures that can be implemented that will apply to the waste hierarchy, and these will help mitigate the amount of waste produced. The operators within the offices and potential commercial units will have their own specific operational requirements and waste management policies and these will assist in minimising the level of waste that is generated. The client design team will work with any proposed occupiers to ensure that the opportunities to minimise waste and maximise recycling and recovery are taken.

The estimated amount of weekly waste arising for non-residential waste has been calculated using the BS 5906:2005 code of practice for waste management in buildings. An average of the figures for

office use has been used as the exact use of the office floor space is unknown at this stage. The GEA has been used to calculate available floor area. An average figure for A1 retail has been used as the exact use of the retail floor space is unknown at this stage. HCA Employment Density Guide (2015, p29) has been used to calculate number of employees / kilograms of waste per week in line with the BS 5906:2005 code of practice. and calculates an estimated amount of municipal waste generated per person. The average figure of Waste from Households in England over the past 5 years of 414kg per person has been used for the residential calculation.

| Floor | Maximum Potential Floor Area ($m^2$) | Potential range of number of residents/ employees | Tonnes of waste per employee per annum | Tonnes per annum | Kg per week |
|---|---|---|---|---|---|
| Office | 601 | 50 (1 employee per 11.6sqm) | 0.65 | 32.5 | 625 |
| Residential | 1044 | 36 | - | - | 287 |
| Retail | 1301 | 72 (1 employee per 18sqm) | 2.54 | 182.88 | 3,519 |
| Estimated Total | | | | | 4,431 |

Overall, it can be seen that this creates an estimated total of 4,431 kilograms of operational waste per week. This equates to approximately 228.8 tonnes of waste per year. This figure should be taken as a minimum, as there are no figures available to be used for the Dentist studio. However the floor area for the Dentist Studio is likely to be below 100sqm and is therefore not anticipated to produce a significant amount of waste arising.

# 5. Summary and Conclusions

Due to the scale and nature of the development, it is inevitable that there will be amounts of waste produced through different stages of the scheme. Having looked at the potential effects of the development, it is possible to mitigate these effects through effective waste management. This will significantly reduce the amount of residual waste arising that will be produced throughout the scheme.

Through looking at the scheme from the outset and assessing responsibility for waste management, and effective approach to minimising the quantity of waste can be developed and this will ensure that waste is dealt with in accordance with the Waste Hierarchy, as set out and detailed in the Waste Management Plan for England 2013 and the Camden Planning Guidance 3: Sustainability (CPG3). This approach will look to prevent waste and ensure the reuse/recycling of waste where its production in unavoidable. The CPG3 includes a target for 15-20% of the total value of materials used to be derived from recycled and reused sources. This aim is intended to be met through the appropriate re-use of materials, and the sourcing of recycled materials where possible.

The implementation of the Waste Hierarchy in accordance with CPG3 is an important element throughout all stages of the proposal. It should be possible to limit the amount of waste produced during the construction phase, as well as limit the amount of material used for construction. Any construction waste will be segregated and sent to a local demolition and construction waste recycling centre to ensure 100% of the waste produced is recycled or re-used.

There are a number of ways to reduce the quantity of waste generated and a number of measures that will be used to ensure the residual impacts are as limited as possible. Delivery recording and sustainable delivery methods will ensure that only the amount of material needed will be delivered on-site at the right time. Construction materials will be stored in a safe and secure location and any excess will be reused elsewhere within the development or segregated and delivered to a local recycling centre.

During the operational phase it will be in the interests of the commercial occupiers to minimise the amount of waste generated. They will have their own specific operational requirements and waste management policies and these will assist in minimising the level of waste that is generated. Details of their specific requirements will be available at a later stage of the process.

# Appendix 1

# BRE SMARTWaste Plan: SWMP template

## Project information

| | | | | | | |
|---|---|---|---|---|---|---|
| Project name | 152 – 156 Kentish Town Road | | | | | |
| Project Location | | | | | | |
| Project cost (estimated)* | | | | | | |
| Floor area ($m^2$) | | | | | | |
| Project start date | Date | | Month | | Year | |
| Project end date | Date | | Month | | Year | |
| Site location description | | | | | | |
| Client | | | | | | |
| Principal Contractor | | | | | | |
| Version Number and Date | | | | | | |

** The cost should be the price of the accepted tender, if there is no tender then it should be the estimated cost of labour, plant, materials, overhead and profit but exclude VAT.*

# Preparing your plan

## 1. Responsibilities

| | Name | Company | Company Type (e.g. Client, Designer, Principal Contractor ) | Contact details |
|---|---|---|---|---|
| Who is responsible for drafting the SWMP? | | Cundall | Consultant | |
| Who is responsible for implementing the SWMP? | Project Manager | TBC | Principal Contractor | |
| Who is the waste champion? | Project Manager | TBC | Principal Contractor | |
| Who is the person in charge of the project? | | | Client | |

Where will this SWMP be kept? (a copy should be on site)

| | |
|---|---|
| Electronic based document | On Site |
| Paper based document | On Site |

**Declaration statement:** We agree that the 'Client' and the 'Principal contractor' will take reasonable steps to ensure waste duty of care is complied with, materials are handled efficiently and waste is managed appropriately.

| | |
|---|---|
| Signature | |
| Print name | |
| Date | |

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# Preparing your plan

## 2. Waste minimisation

Use the table below to record decisions taken before the plan was drafted on the nature of the project, design, construction methods and materials to plan waste minimisation i.e. reducing the amount of waste produced

| Type | Waste Minimisation decision taken | By whom | Intended results |
|---|---|---|---|
| Demolition Methods | Re-use of demolition material | | Reduces the amount of waste that is sent to landfill |
| Demolition Methods | Hazardous/Liquid waste taken to authorised treatment facility | | Ensures no contamination of waste and disposal in a safe manner |
| Construction/Demolition Methods | Waste Segregation | | Cheaper Disposal, easier recycling and avoid waste contamination |
| Construction Methods | Registered Waste Carrier used | | Ensures local waste management facilities are used |
| Construction Methods | Secure Storage provided | | Ensures materials are not damaged on site |
| Construction Methods | Packaging sent back to supplier or recycled | | Enables re-use of materials |
| Design | Pre Demolition Audit | | Identify opportunities to re-use materials |
| Design | Construction Environmental Management Plan | | Provide methods to overcome adverse environmental effects |
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# Preparing your plan

## 3. Forecast

Estimate the types and amounts of waste you expect to generate on this project.

| Work Package (if known) | Subcontractor (if known) | Type of waste (as a minimum this should be inert, non-hazardous) | Estimate amount ($m^3$ or tonnes) |
|---|---|---|---|
| Demolition | | | |
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| Construction | | | |
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If you do not know then you can use benchmarks to predict you waste; which are available on http://www.smartwaste.co.uk/page.jsp?id=37

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# Preparing your plan

## 4. Waste Management options

For each waste type identify what waste management action is proposed and if you have set any targets.

- *As a minimum this information should be split into inert, hazardous and non-hazardous waste (to comply with the SWMP Regulations)*
- *appropriate*
- *For SMARTWaste Plan waste needs to be recorded in the following categories Bricks, Tiles and Ceramics Concrete, Inert, Insulation, Metals, Packaging, Gypsum, Binders, Plastics, Timber, Floor coverings (soft), Electrical and electronic equipment, Furniture, Canteen/office/adhoc, Liquids, Oils, Soils, Asphalt and tar, Mixed, Hazardous & Other*
- *Reduction = reducing the quantity of the waste; reuse = reuse of materials/products for same process; recycle = processing of material ; recover =composting, energy recovery, remedial treatment of soil, physical sorting of waste (when one or more components of the waste is recovered)*

| Waste type | Reduce (%) | Reuse (%) | Recover (%) | Recycle (%) | Dispose (%) | Container/ Equipment required | Waste Management contractor | Any relevant exemptions/ licenses |
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| Overall target | | | | | | | | |

*Sections 1 -4 should be completed before construction work commences onsite; the client is responsible for the SWMP before construction work commences*

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# Implementing your plan

## 5. Duty of care

It is mandatory to include Duty of Care in your SWMP. The client and principal contractor must take reasonable steps to ensure waste duty of care and materials are handled efficiently, and waste is managed appropriately.

Please use the table to log relevant details:

| Waste Management Contractor Name | Waste Management Contractor Address | Waste carrier license number; date of issue and expiry | Waste management license number, date of issue and expiry | Waste Transfer notes storage location |
|---|---|---|---|---|
| | | | | |
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Have you registered with the Environment Agency as a hazardous waste producer? Yes ☐ No ☐

If yes, please provide your hazardous waste registration number; date of issue and expiry

*If further assistance is needed to find local waste management contractors use BRE's free online tool at www.bremap.co.uk*
*For more information on Duty of Care and Hazardous Waste go to: www.netregs.gov.uk*

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# Implementing your plan

## 6. Waste Records

It is mandatory to record the identity of the person removing the waste (i.e. waste management contractor), types of waste removed and where the waste is being taken to and if it has a waste management license or exemption and the waste carrier registration number. Links or references should be provided to waste transfer notes and hazardous waste consignment notes

Please use the table to log relevant details:

| Date waste removed | Type of waste | Who removed the waste | Site the waste has gone to | Does the site have a license or an exemption? | Waste Carrier License Number | Evidence e.g. waste transfer note location/reference |
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# Implementing your plan

## 7. Waste Log

It is mandatory to record at least every six months the type and quantities of waste produced and what has happened to this waste. You will need to obtain information from your waste management contractor It is recommended that you use a measurement system such as SMARTStart which is part of SMARTWaste Plan. Please use the same definitions as you have done in Step 4 (defining your waste management options)

You can use this table to update your records

| Date: | Quantity $m^3$ or tonnes (delete as appropriate) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Type of waste | Re-use on site | Re-use off site | Recycling on site | Recycling off site | Recovery on site | Recovery offsite | Sent to landfill | Other disposal |
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# Implementing your plan

## 8. Training / communication

### Training

**Everyone on site should receive relevant training which should include:**

- The SWMP
- Roles and responsibilities
- Waste procedures on site
- Hazardous waste
- Duty of care / responsibilities
- Materials storage
- Roles and responsibilities

**What forms of training are you using on site?** ***(please tick all that apply)***

- ☐ Induction
- ☐ Tool box talks
- ☐ Work shops
- ☐ Other (please state) _____

**Do you have a training log?** Yes ☐ No ☐ **If no, please use the attached table to create a training log**

**If yes where is it kept?** _____

### Communication

**How are you communicating the SWMP on site?** ***(Please tick all that apply)***

- ☐ Meetings
- ☐ Posters
- ☐ Feedback from staff
- ☐ Other (Please state) _____

# Implementing your plan

## 8. Training / communication continued

**Training log**

| Name | Company | Date | Who trained by | Type of training | Date next training due |
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# Reviewing your plan

## 9. Ongoing review of implementation

The SWMP should be checked regularly - use the table below to keep a log of when the plan was monitored and the outcomes. The plan must be reviewed not less than 6 months frequency.

| Date | Name | Summary / Action carried out |
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*Sections 5 -9 should be completed during the construction project, this is the responsibility of the principal contractor*

# Reviewing your plan

## 10. Actual versus forecast waste

It is mandatory to compare the estimated quantities with the actual quantities. Waste type and forecast amount will need to be copied from the forecasts in step 3 and the actual quantities will need to be calculated and entered (from step 7). You can also compare the waste management routes

You can use this table for the comparison

| Quantity $m^3$ or tonnes (delete as appropriate) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Type of waste** | **Total waste estimated** | Re-use on site | Re-use off site | Recycling on site | Recycling off site | Recovery on site | Recovery offsite | Sent to landfill | Other disposal |
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| Type of waste | Actual waste estimated | Re-use on site | Re-use off site | Recycling on site | Recycling off site | Recovery on site | Recovery offsite | Sent to landfill | Other disposal |
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| **Differences** | | | | | | | | | |

# Reviewing your plan

## 11. Completion review

**This section must be filled in within 3 months of the work being completed on this project (i.e. project finish) :**

We confirm that the plan has been monitored on a regular basis to ensure that work was progressing to the plan and the plan was updated

| | |
|---|---|
| Signature | |
| Print name | |
| Date | |

This stage is designed to help you evaluate the success of your SWMP, and to identify key 'lessons learnt' to use on your future projects, it is helping you strive for continual improvement.

**Please explain any deviation from the original plan**:

| |
|---|
| |

# Reviewing your plan

## 11. Completion review continued

**Please review how successful you believe the implementation of the SWMP was:**

| |
|---|
| |

**If project value in excess of £500,000 estimate of cost savings achieved:** £

**Actions planned for next project**:

| |
|---|
| |

*Sections 10 – 11 should be completed within 3 months of the project finishing, this it the responsibility of the principal contractor*

This plan should be kept at either the principal contractor's place of business or at the site of the project for 2 years