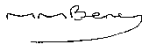
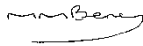
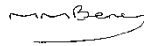








10. Waste Management

Prepared by WSP Environmental Ltd.

QUALITY MANAGEMENT

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Appendix A – Framework Site Waste Management Plan

1. Introduction

1.1 Background

- 1.1.1 WSP Environmental Ltd. (WSPE) has been commissioned to develop the Waste Management Strategy for Surrey Canal: London's Sporting Village (the 'Proposed Development').
- 1.1.2 This report considers the potential impacts that may arise from waste generated during site preparation, construction and operational phases with the overall aim of developing a strategy for legislative compliance and good practice in the separation, storage, transfer and disposal of waste arisings.
- 1.1.3 The report also outlines the opportunities for implementing waste mitigation measures for the potential impacts arising during each phase of the Proposed Development in order to ensure that such measures are consistent with both Government and local authority waste policies and targets.

1.2 Application Site Description and the Proposed Development

The Application Site and its Setting

- 1.2.1 The Proposed Development is at the north western edge of the London Borough of Lewisham (LBL), at the boundary with the London Borough of Southwark and is the closest part of LBL to Central London.
- 1.2.2 There are four light industrial parks currently situated on the Application Site covering a large area. The areas to the north, west and south are immediately bounded by embankments.
- 1.2.3 The Application Site includes Millwall Football Club Stadium (the 'Stadium') which is to be retained and the Millwall Community Scheme (the facilities in which are to be relocated as part of the Proposed Development).

The Proposed Development

- 1.2.4 The application seeks approval for the development of up to 250,000 square metres (sqm) of development floor space on the Application Site.
- 1.2.5 This quantum of Proposed Development floor space is split by land use, as follows:

A1 / A2: Retail	Up to 3,600 sqm
A3-A4: Cafés / Restaurants and Drinking Establishments	Up to 3,500 sqm
A5: Hot Food Takeaway	Up to 300 sqm
B1: Business	10,000 sqm – 15,000 sqm
C1: Hotels	Up to 15,000 sqm
C3: Residential	150,000 sqm - 200,000 sqm (up to 2,500 units)
D1: Community	400 sqm - 10,000 sqm

D2: Leisure and Entertainment	4,120 sqm - 15,800 sqm
-------------------------------	------------------------

- 1.2.6 All floor space figures above are given in gross external area (GEA). The maximum total of the floor space by land use as set out in the table above is more than the total quantum of development floor space which is subject to the outline planning application, as specified in paragraph 1.2.4. This is in order to allow flexibility in the delivery of the Proposed Development as it comes forward over time, within the scope of the various maxima and minima land use floor areas.
- 1.2.7 That said, the total quantum by floor space of non-residential uses would always be no less than 37,000 sqm or 20% of the total floor space provided, whichever is lower, notwithstanding the minima quanta by land use specified in paragraph 1.2.5.

1.3 Strategy Aims

- 1.3.1 The aim of the Waste Management Strategy is to consider the key issues associated with sustainable management of waste at the Proposed Development (throughout the stages of site clearance, construction and operation) with particular reference to:
- Identifying opportunities to maximise the reduction, reuse, recycling and recovery of site clearance, construction and operational waste;
 - Identifying opportunities to minimise landfilling in line with government policy;
 - Identifying opportunities for waste segregation and the transfer of waste to appropriate processing facilities;
 - Setting out the measures required for attaining the Code for Sustainable Homes (CfSH) Level 4 and BREEAM 'Very Good' ratings; and
 - Producing a flexible waste strategy that can adapt to future recycling markets, new directives and legislation.

1.4 Methodology

- 1.4.1 The development of this strategy has involved a number of tasks including:
- A desk top review to collate existing Application Site information relating to waste generation, collection and disposal in the LBL's area of operations;
 - Review of LBL's waste management requirements and identify any forthcoming policy changes for developments in the area;
 - A review of available and accessible planning and policy guidance information;
 - A review of CfSH and BREEAM requirements for waste management;
 - Identifying opportunities for waste minimisation, reuse and recycling during the construction phase and subsequent operation of the Proposed Development; and
 - Setting out summary and conclusions.

2. Waste Legislation, Policy & Guidance

2.1 Introduction

2.1.1 This report of the report contains details of the national legislation and regional and local waste policy and guidance that are relevant to the Proposed Development.

2.2 National Legislation

2.2.1 An overview of the most relevant items of national waste legislation is outlined below in reverse chronological order:

- **The Environmental Permitting (England and Wales) Regulations 2010** - provided a consolidated system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also set out the powers, functions and duties of the regulators.
- **Revised Waste Framework Directive (2008)** - clarified the definition of 'waste' and of other concepts such as 'recycling' and 'recovery'. It applied a new waste hierarchy, expanded the 'polluter pays' principle by emphasising producer responsibility, applied more stringent waste reduction and waste management targets for Member States and required enhanced content in waste management plans. This Directive has to be included into UK legislation by December 2010.
- **The Site Waste Management Plans Regulations 2008** - aim is to reduce the amount of waste produced on construction sites and to prevent fly-tipping. There is also an aim to increase resource efficiency in construction by encouraging greater reuse and recycling of waste and designing to minimise the production of waste - (further details are provided in section 3.4 of this report).
- **The Hazardous Waste (England and Wales) Regulations 2005** - implemented the requirements of the European Hazardous Waste Directive and replaced the UK's 'Special Waste' regime.
- **The Landfill (England and Wales) Regulations 2002** - ensured that waste is treated before it is disposed of at non-hazardous and inert landfills. The Regulations defined treatment as physical, thermal, chemical or biological processes (including sorting) that change the characteristics of waste in order to reduce its volume or hazardous nature to facilitate its handling or enhance recovery.
- **The Environmental Protection (Duty of Care) Regulations (1991) (as amended)** - required the producer of waste to retain responsibility for that waste from production through to final legal disposal. As a result, the waste producer must therefore take responsibility for their own waste and ensure that they are satisfied with the measures used to dispose of that

waste. All links in the chain hold responsibility for ensuring that the waste is dealt with in a responsible and legal manner.

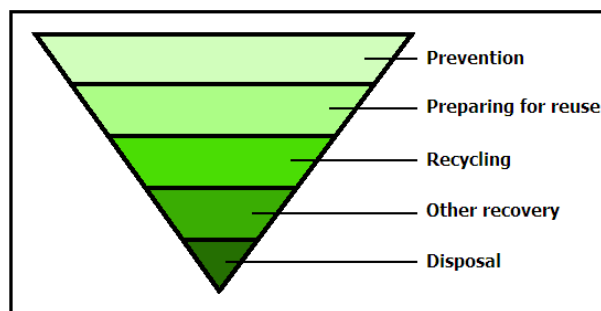
2.3 National Waste Policy & Guidance

Waste Hierarchy

2.3.1 The waste hierarchy requires avoidance of waste in the first instance and reducing as far as possible the volume of waste ultimately requiring disposal.

2.3.2 The waste hierarchy gives an order of preference for waste management options to minimise the volume for disposal, as shown in **Figure 2.1**.

Figure 2.1: The Waste Hierarchy



Source: Revised Waste Framework Directive

2.3.3 The main principles of the waste hierarchy are:

- Waste should be prevented or reduced at source as far as possible;
- Where waste cannot be prevented, waste materials or products should be reused directly or refurbished and then reused;
- Waste materials should be recycled or reprocessed into a form that allows them to be reclaimed as a secondary raw material;
- Where useful secondary materials cannot be reclaimed, the energy content of the waste should be recovered and used as a substitute for non-renewable energy resources; and
- Only if waste cannot be prevented, reclaimed or recovered, should it be disposed of into the environment and this should only be undertaken in a controlled manner.

Strategy for Sustainable Construction (2008)¹

2.3.4 The strategy sets out challenging but achievable targets to be delivered by the construction sector, focussing on productivity, efficiency and sustainability.

2.3.5 For waste management, these include commitments to:

¹ HM Government in association with Strategic Forum for Construction (2008) 'Strategy for Sustainable Construction' <http://www.bis.gov.uk/files/file46535.pdf>

- Achieve a 50% reduction in the amount of construction, demolition and excavation waste to landfill by 2012; and
- Ensure that 25% of materials used in construction projects are responsibly sourced by 2012.

Waste Strategy for England 2007²

- 2.3.6 Waste Strategy for England presented the previous Government's vision for managing waste and resources in a more sustainable manner.
- 2.3.7 Under the coalition Government, the Department for Environment, Food and Rural Affairs (DEFRA) has revealed that a new version of the waste strategy is set to be published in April 2011 and is expected to either replace or revise the existing strategy.
- 2.3.8 The coalition Government plans to review existing waste policy in order to become a 'zero waste' society and the department's draft Structural Reform Plan³ has the following aims:
- Agree goals for 2014/2020 and set the path towards a 'zero waste' economy through review of waste policies;
 - Explore voluntary responsibility deal on waste among businesses;
 - Repeal Climate Change Act powers for household waste charging; and
 - Set out steps to promote increased energy from waste through anaerobic digestion.
- 2.3.9 The coalition Government also intends to set a new national target for the reduction of commercial and industrial waste going to landfill once the results of a national waste audit of businesses, published in December 2010, has been fully analysed.

Planning Policy Statement 10 (PPS 10): Planning for Sustainable Waste Management (2005)⁴

- 2.3.10 PPS 10 sets out guidance on how the land-use planning system should contribute to sustainable waste management, including consideration of the local treatment and disposal of waste.
- 2.3.11 The following summarises the key principles on which the Government seeks future waste management decisions and developments to be made:
- Best Practicable Environmental Option (BPEO) - the process used in order to consider the relative benefits of various waste management options for a particular situation;
 - Waste Hierarchy - avoidance of waste in the first instance followed by reducing the volume that requires disposal after it has been generated;
 - Proximity Principle - waste should be managed as near as possible to its place of production to minimise environmental impacts associated with transportation; and

² DEFRA (2007) 'Waste Strategy for England 2007' <http://www.defra.gov.uk/environment/waste/strategy/strategy07/documents/waste07-strategy.pdf>

³ DEFRA (2010) 'Draft Structural Reform Plan' <http://www.defra.gov.uk/corporate/about/what/documents/defra-srp-100716.pdf>

⁴ Office of the Deputy Prime Minister (replaced by the Department of Communities and Local Government) 'Planning Policy Statement 10: Planning for Sustainable Waste Management' <http://www.communities.gov.uk/documents/planningandbuilding/pdf/147411.pdf>

- Regional Self-Sufficiency - waste should be treated and disposed of within the region in which it is produced and regions should provide facilities of sufficient capacity to manage predicted quantities in the area for at least 10 years.

2.4 Regional Waste Policy

The Mayor's Draft Municipal Waste Management Strategy (2010)⁵

- 2.4.1 The document, entitled '*London's Wasted Resource*' is currently under public consultation and is expected to be published in March 2011.
- 2.4.2 The consultation document maintains the main themes of the original draft, which was published in January 2010, such as:
- Zero municipal waste direct to landfill by 2025;
 - Recycling or composting 45% of municipal waste by 2015; 50% by 2020; and 60% by 2031;
 - Increasing reuse capacity from 6,000 tonnes each year in 2008 to 40,000 tonnes in 2012 and 120,000 tonnes in 2020;
 - Realising around £90 million a year in savings from efficient waste management; and
 - Revenue sharing arrangements between councils to foster development of waste infrastructure.
- 2.4.3 An emissions performance standard has been developed to benchmark the greenhouse gas emissions produced by how each London council manages its waste - from collection to disposal.
- 2.4.4 This is incorporated in the latest draft and means that London councils will be encouraged to consider the carbon savings of how they manage waste as opposed to just the weight of recycling.
- 2.4.5 For example, the Mayor hopes that more plastics and aluminium will be collected which, although not as heavy as other materials, will help save oil and energy. The collection of higher quality materials which have a higher economic value will also be encouraged, as will the diversion of food and garden waste from landfill - which produce methane.
- 2.4.6 This would mean London councils with relatively low recycling and composting rates could instead focus efforts on collecting carbon intensive materials, such as plastics, textiles and metals.

The Mayor's vision for London's waste (2010)⁶

- 2.4.7 The Mayor has recently unveiled London's first dedicated draft document aimed at tackling the 16 million tonnes of waste from sources such as the commercial and industrial, construction, demolition and excavation sectors.

⁵ Greater London Authority (2010) '*The Mayor's Draft Municipal Waste Management Strategy*'
<http://legacy.london.gov.uk/mayor/environment/waste/docs/draft-mun-waste-strategy-jan2010.pdf>

⁶ Greater London Authority (2010) '*The Mayor's vision for London's waste*'
<http://legacy.london.gov.uk/mayor/environment/waste/docs/vision-jan2010.pdf>

- 2.4.8 The document, which is a non-statutory strategy, particularly focuses on waste reduction and highlighting the economic benefits of businesses improving their waste management practices.
- 2.4.9 Outlining the current picture for business waste, the strategy identifies that arisings are set to rise to 17.6 million tonnes by 2030, with an estimated infrastructure capacity gap of 6.7 million tonnes by the same date.
- 2.4.10 Assessing the current landscape, the document states that there is currently a high proportion of mixed commercial and industrial; and construction, demolition and excavation waste being landfilled, with this material requiring further segregation at source.
- 2.4.11 The business waste strategy is intended as a practical guide for business to be able to meet targets outlined in the draft replacement London Plan, which targets 70% reuse, recycling and composting of commercial and industrial waste by 2020, along with 95% reuse, recycling and composting of construction, demolition and excavation waste at the same time.
- 2.4.12 The business waste strategy is currently under consultation, with feedback set to be used to inform the final document which is expected to be published in spring 2011.

The London Plan - Spatial Development Strategy for Greater London (2008)⁷

- 2.4.13 The London Plan is the 'strategic plan setting out an integrated social, economic and environmental framework for the future development of London'.
- 2.4.14 The strategy includes the following waste management policy that has influenced the development of more specific municipal and business waste guidance:

Policy 4A.21 Waste strategic and policy targets

The Mayor will work in partnership with the boroughs, the Environment Agency, statutory waste disposal authorities and operators to:

- *minimise the level of waste generated;*
- *increase reuse and recycling and composting of waste, and reduce landfill disposal;*
- *minimise the amount of energy used, and transport impacts from, the collection, treatment and disposal of waste in line with the Mayor's target of reducing carbon dioxide emissions;*
- *achieve recycling or composting levels in commercial and industrial waste of 70% by 2020;*
and
- *achieve recycling and reuse levels in construction, excavation and demolition waste of 95% by 2020.*

The London Plan: Spatial Development Strategy for Greater London (consultation draft replacement plan) (2009)⁸

⁷ Greater London Authority (2008) 'The London Plan' <http://www.london.gov.uk/thelondonplan/docs/londonplan08.pdf>

⁸ Greater London Authority (2009) 'The London Plan: Spatial Development Strategy for Greater London' <http://www.london.gov.uk/shaping-london/london-plan/docs/london-plan.pdf>

2.4.15 The draft replacement for The London Plan, which is currently at the Examination in Public stage, is the 'strategic plan setting out an integrated social, economic and environmental framework for the future development of London'. The strategy includes the following waste management policies that have influenced the development of more specific municipal and business waste guidance:

Policy 5.16 Waste self-sufficiency

The Mayor will work with London boroughs and waste authorities, the London Waste and Recycling Board (LWaRB), the Environment Agency, the private sector, third sector groups, and neighbouring regions and authorities to:

- *manage as much of London's waste within London as practicable;*
- *create positive environmental impacts from waste processing; and*
- *work towards zero waste to landfill by 2031.*

This will be achieved by:

- *minimising waste;*
- *encouraging the reuse of and reduction in the use of materials;*
- *exceeding recycling / composting levels in municipal solid waste (MSW) of 45% by 2015, 50% by 2020 and aspiring to achieve 60% by 2031;*
- *exceeding recycling / composting levels in commercial and industrial waste of 70% by 2020;*
- *exceeding recycling and reuse levels in construction, excavation and demolition waste of 95% by 2020;*
- *improving London's net self-sufficiency through reducing the proportion of waste exported from the capital over time; and*
- *working with neighbouring regional and district authorities to co-ordinate strategic waste management across the greater South East.*

2.5 Local Waste Policy

LBL, Core Strategy Development Plan Document (proposed submission version) (2010)⁹

2.5.1 LBL's Core Strategy covers a 15 year period from 2011 to 2026. The policies laid out in the Core Strategy will help LBL to assess all future planning applications.

2.5.2 Core Strategy Policy 13 for waste management states the following requirements which would be relevant to the Proposed Development:

- *LBL will require all new major developments of at least 1,000 sqm or 10 dwellings to:*
 - *Submit and implement a Site Waste Management Plan (SWMP), as per the requirements of The London Plan to minimise the disposal of waste to landfill, by reducing waste of materials*

⁹ LBL (2010) 'Core Strategy Development Plan Document (proposed submission version)' http://consult.lewisham.gov.uk/portal/planning_policy/cs/csps?pointId=d542111e633#section-d542111e633

on-site and promoting reuse, segregation, recycling and composting of waste streams that arise;

- *Design in a manner to incorporate the existing and future long-term needs of waste management and disposal; and*
- *Achieve recycling and reuse levels in construction, excavation and demolition waste of 95% by 2020 according to the requirements of the London Plan.*
- *To support recycling, LBL will require integrated, well-designed recycling facilities to be incorporated into all new development.*

LBL, Residential Standards - Supplementary Planning Document (2006)¹⁰

2.5.3 The Residential Standards Supplementary Planning Document (SPD) provides detailed guidance on standards for new residential development in LBL.

2.5.4 With regard to waste management, the SPD states the following:

- *2.18 - Access for refuse vehicles:*
 - *Developers need to allow appropriate access for refuse vehicles. This may for example involve remote collection points for refuse in some development layouts. Access for these vehicles is governed by the Building Regulations (Part H for Refuse Vehicle Access). [Developers] are advised to consult the Council's Building Control and Highway Sections at an early stage to ensure that access for these vehicles can be achieved.*
- *3.6 - Recycling facilities and bin storage:*
 - *Bins should not be stored on routes involving staircases or steps, and should not obstruct pedestrian or vehicular access.*
 - *If [developers] wish to construct a bin store, planning permission is usually required, and it should use materials to match those used in the surrounding building or garden wall, and be unobtrusive in design.*
 - *Additional adequate space (internal or external, such as storage bins in kitchens and integrating recycling bins or composting areas in the building or site fabric) should where possible also be provided for the separation and storage of recyclable material.*

LBL, Draft Municipal Waste Management Strategy (2006)¹¹

2.5.5 LBL is a unitary authority, responsible for the collection, treatment and final disposal of all municipal waste. This strategy sets out the policies and plans to deliver improved performance in the management of waste in Lewisham.

2.5.6 The majority of Lewisham's waste is disposed of through the South East London Combined Heat and Power (SELCHP) plant and incinerated to recover power for supply to the National Grid. Over 70% of

¹⁰ LBL (2006) 'Residential Standards - Supplementary Planning Document' <http://www.lewisham.gov.uk/NR/rdonlyres/E4AF4559-BC37-43B6-8E6E-E2A1934D967E/0/ResidentialDevelopmentStandardsSPD.pdf>

¹¹ LBL, 'Draft Municipal Waste Management Strategy' http://www.lewisham.gov.uk/NR/rdonlyres/60F7EBE2-1A5D-43FA-8C78-E6173359278B/0/WasteStrategyv5_Draft.pdf

Lewisham's municipal waste is managed in this way and LBL holds a contract with SELCHP to supply a minimum of 100,000 tonnes and a maximum of 105,000 tonnes of municipal waste each year until 2024.

2.5.7 According to the strategy, LBL has a clear vision for the sustainable management of its waste and will provide an efficient, high quality, cost effective and sustainable approach in the collection and management of waste, through commitment to the principles of the waste hierarchy, sustainable development and best value.

LBL, Unitary Development Plan (2004)¹²

2.5.8 The 2004 Planning and Compulsory Purchase Act required LBL to replace their Unitary Development Plan (UDP) with new Development Plan Documents (see Core Strategy section above) which form part of LBL's emerging Local Development Framework.

2.5.9 The Secretary of State for Communities and Local Government has issued a Direction to LBL that specifies which policies in the UDP can continue to be saved as part of the development plan. The policy for waste has been saved and states the following:

- *STR.ENV PRO 1 - To minimise the generation of waste and encourage greater reuse of materials and recycling of waste and to ensure that schemes for waste disposal are environmentally acceptable.*

¹² LBL (2004) 'Unitary Development Plan' <http://www2.lewisham.gov.uk/lbl/planning/udp/index.html>

3. Management of Construction Waste

3.1 Introduction

3.1.1 The following sections detail how overarching waste management practices would be undertaken during the construction phases of the Proposed Development.

3.2 Considerate Constructors Scheme

3.2.1 The appointed Principal Contractors would register with the 'Considerate Constructors Scheme'¹³ which is a national initiative, set up by the construction industry. Sites that register with the Scheme are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.

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

3.2.3 It is expected that the construction sites would work in an environmentally conscious, sustainable manner.

3.2.4 The Applicant would prepare a Code of Construction Practice (CoCP) for the Proposed Development. A list of construction and demolition commitments is provided in the Development Specification; and a number of key matters of most relevance to waste management during the construction phase are provided in the following sections.

3.3 Code of Construction Practice

3.3.1 It is intended that the Proposed Development be constructed in phases. Notwithstanding, construction activities would be subject to a site-wide CoCP which would be prepared in consultation with LBL.

3.3.2 The purpose of the CoCP would be to ensure compliance with environmental and other relevant legislation and best practice standards. General principles to be applied across all phases of the Proposed Development would be set out in the site-wide CoCP. It is proposed that there would be then specific sub-CoCPs which would apply the principles of the site-wide CoCP to each development plot/phase and this would form part of the tender and contract documentation.

3.3.3 The CoCP would include procedures for the management, recovery and disposal of construction waste, including the specific requirements for the development of Site Waste Management Plans, as detailed further in the following section.

¹³ Considerate Constructors Scheme <http://www.ccscheme.org.uk/>

3.4 Site Waste Management Plans (SWMPs)

- 3.4.1 SWMPs are a statutory requirement for all projects with a construction cost of more than £300,000¹⁴.
- 3.4.2 SWMPs provide a structure for systematic waste management at all stages of a project's delivery, allowing for the effective monitoring of waste generation and encouraging the efficient use of resources and emphasis on waste minimisation. SWMPs are also required for projects (regardless of value) aspiring to achieve best practice status or appropriate industry standards, such as CfSH and BREEAM ratings.
- 3.4.3 As there would be a number of Principal Contractors appointed on the various phases of the Proposed Development, there would be separate SWMPs developed for each plot/phase.
- 3.4.4 SWMPs aim to address two key issues:
- **Improving resource efficiency**, by promoting the economic use of construction materials and methods so that waste is minimised and any that is produced can be reused, recycled or recovered in other ways before disposal options are explored; and
 - **Reducing fly-tipping**, by restricting the opportunities available for the illegal disposal of waste by ensuring compliance with existing legal controls and providing a full audit trail of any waste that is removed from the construction site.
- 3.4.5 The Applicant would be responsible for ensuring that the SWMPs are prepared before each plot/phase begins.
- 3.4.6 The responsibility for the SWMPs would then be passed to the Principal Contractor for each plot/phase, who would update them as work progresses and ensure that employees are aware of the plans and co-operate with them.
- 3.4.7 A summary of the details required in the first draft of the SWMPs is set out below:

¹⁴ Statutory Instruments 2008 No. 314 *The Site Waste Management Plans Regulations 2008*
http://www.opsi.gov.uk/si/si2008/uksi_20080314_en_1

Responsibilities

1. The Client.
2. The Principal Contractor.
3. The person who drafted the SWMP.

Description of the Construction Works

4. The location of the construction site.
5. The estimated cost of the project.

Materials Resource Efficiency

6. Any decision taken before the SWMP was drafted to minimise the quantity of waste produced on-site.

Waste Management

7. Description of each waste type expected to be produced during the project.
8. An estimation of the quantity of each waste type that would be produced.
9. Identification of the waste management action proposed for each waste type (including reuse, recycling, other types of recovery and disposal).

Waste Controls and Handling

10. A declaration that all waste produced on the construction site is dealt with in accordance with the waste Duty of Care¹⁵.
11. A declaration that materials would be handled efficiently and waste managed appropriately.

- 3.4.8 The SWMPs would be regularly updated to provide an accurate record of how construction work is progressing against the waste quantity estimates. For waste that is reused or recycled on-site, the SWMPs would describe how much of the estimated volume or tonnage has been processed.
- 3.4.9 For waste that is removed from the Application Site, the SWMPs would record the identity of the person removing the waste, the type (and quantity) of waste and the site to which it has been taken.
- 3.4.10 At the end of each construction project the completed SWMPs, containing records of all waste management actions, would be reconciled against what was planned before the work commenced. Regular updating during the proposed works phases would make this a relatively straightforward process.
- 3.4.11 A framework SWMP document has been provided as an example of what would be developed by Principal Contractors. Please refer to **Appendix A** for further details.

3.5 Demolition Waste

- 3.5.1 All of the existing buildings on the Application Site would be demolished with the exception of the Stadium, Excelsior Rollins House (incorporating the Live Work New Build and Unit 12 Excelsior) and Guild House (which is to be extended as part of the Proposed Development).

¹⁵ Section 34 of the Environmental Protection Act 1990 and the Duty of Care Regulations 1991

- 3.5.2 Pre-demolition audits by structural engineers would be commissioned before any work was undertaken on-site. The audits would help to identify the quantity and types of waste materials that would be produced and identify what can be recovered for further use or recycling rather than being sent for disposal. These would also enable the maximising of achieving potential cost savings and associated environmental benefits.
- 3.5.3 It would be anticipated that all heating, water pipe work and metal contained within the buildings would be carefully removed and taken away for recycling prior to the main demolition. Similarly, all timber and plasterboard would be set aside in separate waste containers to be sent for off-site recycling. Items such as roller shutter doors, gas radiant heaters and high bay lighting would be reclaimed for reuse on other sites but this would be dependent on market demand. If there is a commercial market demand then the portal frames would be carefully taken down and reused off-site.
- 3.5.4 All masonry would be crushed on-site to a suitable grade for reuse as general fill across the site. The concrete slabs would be crushed and may be suitable for reuse on-site as part of a piling mat and all reinforcing bars would be removed for off-site recycling.
- 3.5.5 There would be no planned, long-term period of demolition waste stockpiling on-site. Demolition waste and materials would therefore be stockpiled for as a short a period as possible before being removed for reuse on-site or recycling off-site where feasible.

Management of Asbestos Containing Material

- 3.5.6 Any hazardous demolition waste (e.g. asbestos) would be identified by Type 3 Surveys and sampling before demolition commences and removed only in accordance with statutory requirements. Removal and on-site management of such materials would be via authorised specialists only.
- 3.5.7 From preliminary observations, Asbestos Containing Material (ACM) is likely to be present as corrugated roof sheets, the external panelling on the Stockholm Road warehouse building, roofing and elevation cladding on the Excelsior works site and roofing on the Jewson Site.
- 3.5.8 The duty to manage ACM, under Regulation 4 of The Control of Asbestos Regulations 2006¹⁶, requires the duty holder to appoint competent surveyors to carry out a 'Refurbishment / demolition survey', as per the Health & Safety Executive Surveyors Guide (HSG 264 (2010)) prior to any demolition works commencing.
- 3.5.9 The Construction Design and Management (CDM) client would provide designers and contractors with project specific information about the presence of ACM.
- 3.5.10 The disposal of any ACM would be undertaken at appropriately licensed hazardous waste facilities.

¹⁶ Statutory Instrument 2006 No. 2739 *The Control of Asbestos Regulations 2006* <http://www.opsi.gov.uk/si/si2006/20062739.htm>

3.6 Earthworks

- 3.6.1 Once demolition and investigative activities have been completed, on-site excavation activities would commence.
- 3.6.2 BWB Consulting Ltd. have undertaken preliminary estimates of the excavation arisings for each Plot of the Proposed Development. The indicative figures are provided in **Table 3.1**.

Table 3.1: Estimated excavation waste from the Proposed Development

Plot	Arisings (m ³)
Excelsior	9,000
Timber Wharf	27,500
Orion	13,000
Senegal Way and Stadium Avenue	18,500
Stockholm 1 and Stockholm 2	21,000
Bolina North and Bolina West	23,000
Bolina East	17,000

- 3.6.3 It should be noted that the above figures are estimations at this stage and would be subject to further refinement as the application process progresses.
- 3.6.4 Waste arising from site clearance, primary infrastructure and groundworks would comprise vegetation, soil, rubble, concrete from former hardstandings and ground floor slabs, gravel and clay material. The majority of these materials would be reused on-site with the rubble and hardstanding materials (if this proves economic) crushed and reused where appropriate beneath slabs, in roads or in drainage infrastructure if adoptable standards can be met. Crushed concrete may be utilised for the construction of temporary roads on-site.
- 3.6.5 Any clean excavated material that cannot be reused on-site would be removed by licensed waste carriers and sent for reuse at another development site or sent for disposal at appropriately licensed facilities (these are expected to be inert waste landfill sites).

Management of Potentially Contaminated Materials

- 3.6.6 Given the historical uses of the Application Site (significant heavy industry and bounded by railways), there is the potential for contamination to be present. A number of on-site and off-site sources of contamination have been identified in **Table 3.2**:

Table 3.2: Sources and types of potential contamination

On-site	General made ground, former railway line and backfilled canal	Heavy metals, hydrocarbon fractions, polyaromatic hydrocarbons (PAHs) and asbestos
	Timber yard, leather works, tar paving, identified tanks and electricity substations	Heavy metals, hydrocarbon fractions, PAHs, polychlorinated biphenyls (PCBs), semi volatile organic compounds (SVOCs) and VOCs
	Alluvial deposits / backfilled canal / other made ground	Carbon dioxide (CO ₂) and Methane (CH ₄)
Off-site	Gas and glass works	High pH, ammonia, PAHs and heavy metals
	Surrounding industrial land uses and adjacent electricity substation	Heavy metals, hydrocarbon fractions, PAHs and PCBs
	Alluvium	CO ₂ and CH ₄
	Waste Transfer Station	Dioxins and PAHs

3.6.7 Detailed, intrusive investigations would be required to confirm the ground conditions and conceptual site model for the Application Site and to determine parameters for foundation design. A detailed Remediation Strategy would be prepared and presented to LBL prior to construction.

3.6.8 Based on the identified potential contamination sources in **Table 3.2** above, a number of mitigation measures are outlined below and would be incorporated into the Proposed Development:

- Protection of construction workers – Use of personal protective equipment (PPE) and appropriate hygiene and health and safety measures to minimise exposure would be adopted during any groundworks;
- Physical impacts to soil structure and drainage:
 - Damping down of earthworks to reduce dust generation;
 - Use of settling tanks to remove particulates from water generated from excavations prior to discharge to the drainage system;
 - Benching of excavations to reduce erosion of soils;
 - A SWMP would be adopted to minimise the generation of wastes during the construction works;
 - Surface drainage system to incorporate petrol interceptors to reduce the potential for spillages of fuels and lubricants from vehicles using the site to migrate into the subsurface and impact soil and groundwater; and

- The stability of slopes associated with the railway lines would be assessed as part of the Phase 2 investigation of the Application Site. The sides of the excavations would be left at a safe angle of repose, in order to prevent sidewall collapse. Where it would not be possible to provide a batter, a sheet piled solution would be required.

3.6.9 Ecology Solutions Ltd. have identified three areas of Japanese Knotweed across the Application Site.

3.6.10 A management plan for the effective eradication of Japanese Knotweed will be drawn up and implemented as part of the Proposed Development. The Japanese Knotweed would be controlled and disposed of in line with all current legislation and guidance, with the management / control implemented by appropriately licensed specialists.

3.7 Construction Waste

3.7.1 The Building Research Establishment (BRE) has developed indicators to aid in the calculation of construction waste arisings at the design stage of new developments. The Environmental Performance Indicator (EPI) measures m³ of waste / 100m² of floor area (as an actual, not bulk volume).

3.7.2 **Table 3.3** shows the average EPI for various project types.

Table 3.3: Waste benchmark by project type

BRE Project Type	m ³ waste / 100m ² floor area
Commercial Offices	19.9
Commercial Other	12.5
Commercial Retail	20.8
Education	21.3
Healthcare	15.8
Industrial Buildings	17.2
Leisure	15.8
Public Buildings	15.8
Residential	17.3

Source: BRE Waste Benchmark Data (issued October 2010)

3.7.3 **Table 3.4** shows the estimated construction waste arisings for the Proposed Development, based on the maximum total of the floor space by land use as set out in section 2.4 of the Development Specification and the construction waste benchmarks from BRE. (Note: these figures are based on actual volume, not bulk volume).

Table 3.4: Estimated construction waste from the Proposed Development†

Land Use	Floor Space	BRE Project Type	m ³ waste / 100 sqm floor area	Construction waste arisings (m ³)
A1 / A2: Retail	Up to 3,600 sqm	Commercial Retail	20.8	Up to 749
A3-A4: Cafés / Restaurants and Drinking Establishments	Up to 3,500 sqm	Commercial Retail	20.8	Up to 728
A5: Hot Food Takeaway	Up to 300 sqm	Commercial Retail	20.8	Up to 62
B1: Business	10,000 sqm – 15,000 sqm	Commercial Offices	19.9	1,990 - 2,985
C1: Hotels	Up to 15,000 sqm	Leisure	15.8	Up to 2,370
C3: Residential	150,000 sqm - 200,000 sqm	Residential	17.3	25,950 - 34,600
D1: Community	400 sqm - 10,000 sqm	Public Buildings	15.8	63 - 1,580
D2: Leisure and Entertainment	4,120 sqm up to 15,800 sqm	Leisure	15.8	651 - 2,496

† Note: Calculations are based on the maximum total of the floor space by land use as set out in the Development Specification. The construction waste arising figures are based on the quantum of proposed development floor space and are therefore a 'worst case scenario' and are only illustrative of the volume range that could potentially require management.

- 3.7.4 It should be noted that the above information is based on standard construction operations in the UK and the estimated volumes identified above have the potential to be lowered through on-site best practice.
- 3.7.5 The information can be used to start measuring and monitoring construction waste generated. This would enable the setting of realistic and attainable waste minimisation and management targets.

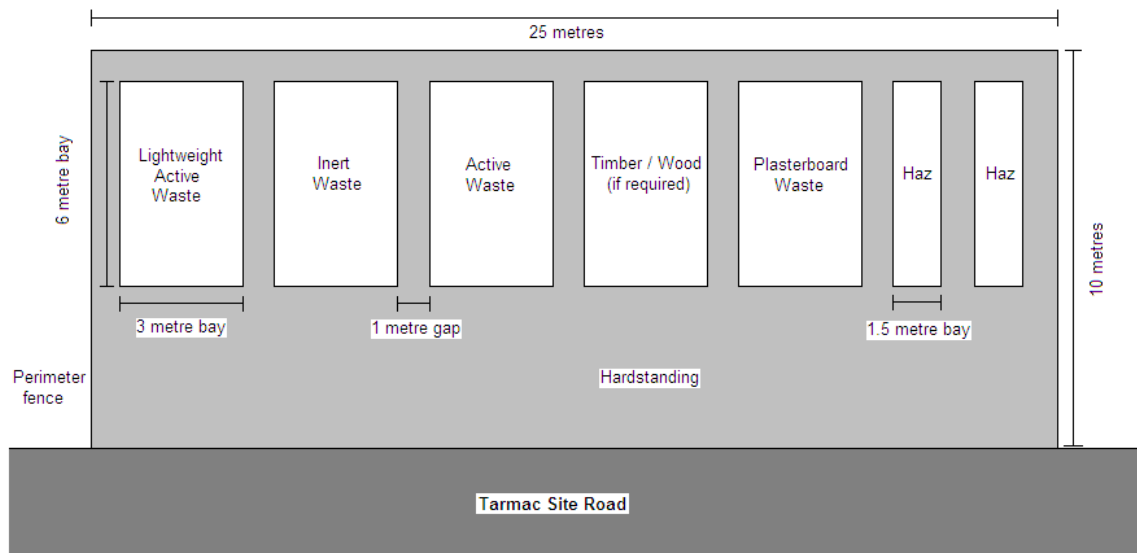
3.8 Raw Materials and Waste Storage

- 3.8.1 The location and provision of raw materials and waste storage on-site would be clearly labelled, identifying the materials that can be received. Provisions that would be made include:
- Temporary offices retaining all details relating to the SWMPs, health and safety and waste management monitoring and reporting details;
 - Storage areas for raw materials and assembly areas for construction components would be located away from sensitive receptors;

- Clearly identified skips / containers would be provided for segregated waste streams for reuse and recycling;
- Dedicated skips would be provided for any waste that requires off-site disposal;
- Hazardous waste materials would be stored in secure bunded compounds in appropriate containers which were clearly labelled to identify their hazardous properties and were accompanied by the appropriate Control of Substances Hazardous to Health (COSHH) assessment sheets; and
- Any fuels, oils and chemicals would be stored in appropriate containers within secure bunded compounds in accordance with good site practice and regulatory guidelines and located away from sensitive receptors.

3.8.2 **Figure 3.1** illustrates the possible layout of a temporary site waste segregation area which would be provided to ensure construction waste materials were securely stored prior to recycling or disposal (it should be noted that in practice there would be flexibility in the actual size, layout and number of these areas on each construction site).

Figure 3.1: Possible site waste segregation area layout (plan view)



3.8.3 In addition, the provision of effective and secure storage areas for raw materials is important to ensure that potential loss of material from damage, vandalism or theft is avoided. These measures would be supported by:

- Ensuring well-timed deliveries to the Application Site – it is proposed during fit out phases that most deliveries would be made on a ‘just in time’ basis;
- Providing appropriate on-site security; and
- Installing temporary site security fencing.

3.8.4 It is acknowledged, however, that construction sites are often space constrained and as a result waste storage space on-site may not enable the segregation of the full suite of materials suitable for recycling. This may be done off-site by an appropriate waste contractor at their own facility.

3.8.5 Implementation of good practice measures in terms of on-site storage and security practices would assist in reducing unnecessary wastage of materials and ensure that high standards are maintained throughout the development process.

3.9 Setting Targets

3.9.1 Appropriate targets and objectives would be set in relation to the minimisation and recycling of any waste materials. This would ensure that a clear action plan is generated for the management of specified types and quantities of materials identified.

3.9.2 The findings of any site audits would assist in the development of suitable material-specific targets.

3.9.3 These targets would be agreed at the inaugural meetings with the contractors.

3.9.4 **Table 3.5** provides an overview of the Waste and Resources Action Programme (WRAP) *Standard*, *Good*, and *Best Practice* recovery rates by material. These would be used as guidance during the agreement of targets at the inaugural meetings with the contractors.

Table 3.5: Standard, Good, and Best Practice recovery rates by material

Material	Standard Recovery* %	Good Recovery* (Quick Win) %	Best 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***

* Proposed waste management actions
 'Reuse' and 'recycling' are forms of waste recovery.

** This is a required recovery target for the type of Waste Electrical and Electronic Equipment (WEEE) likely to be produced from construction sites, e.g. lighting (the WEEE Regulations, Jan 2007).

***This cannot be 100% as most hazardous waste streams (e.g. asbestos) must be landfilled.

3.9.5 To ensure that the system of waste minimisation, reuse and recycling is effective, consideration would be given to the setting of on-site waste targets for the Proposed Development and a suitable programme of monitoring at regular intervals to focus upon:

- Quantifying raw material wastage;
- Quantifying the generation of each waste stream;
- Any improvements in current working practices;
- Methods by which the waste streams are being handled and stored; and
- The available waste disposal routes used, e.g. landfill, waste transfer stations.

3.9.6 The Principal Contractor would be responsible for the setting and review of waste targets from the outset to ensure that high standards are maintained with the emphasis being on continual improvement.

3.9.7 Specific waste quantification and monitoring (i.e. through development of the SWMPs) would assist in determining the success of waste management initiatives employed and progress against these targets should be relayed back to the Project Team.

3.10 Promotion of Best Practice

3.10.1 As part of the encouragement of on-site best practice, there would also be a need to ensure that suppliers of raw materials for each plot/phase are committed to reducing surplus packaging associated with the supply of any raw materials. This includes the reduction of plastics (i.e. shrink wrap and bubble wrap), cardboard and wooden pallets. This may involve improved procurement and consultation with selected suppliers regarding commitments to waste minimisation, recycling and the emphasis on continual improvement in environmental performance.

3.10.2 **Table 3.6** summarises the most important mitigation measures to minimise the potential waste of on-site materials during the proposed works. It is important to note, however, that not all raw materials would be provided by local suppliers.

Table 3.6: Measures to reduce the wastage of raw materials

Ordering	Delivery
Avoid: <ul style="list-style-type: none"> • Over-ordering (order 'just in time') • Ordering standard lengths rather than lengths required • Ordering for delivery at the wrong time (update programme regularly) 	Avoid: <ul style="list-style-type: none"> • Damage during unloading • Delivery to inappropriate areas of the Application Site • Accepting incorrect deliveries, specification or quantity
Storage	Handling
Avoid: <ul style="list-style-type: none"> • Damage to materials from incorrect storage • Loss, theft or vandalism through secure storage and on-site security 	Avoid: <ul style="list-style-type: none"> • Damage or spillage through incorrect or repetitive handling

3.10.3 Where practicable, waste streams that have the potential to be reused on-site or transported off-site for recycling would need to be segregated. Although every effort would be made to retain all suitable materials on-site, it is possible that some of these materials cannot be reused or recycled during the proposed works. In these situations, the Site Managers would work to identify suitable Transfer Stations in order for material to be redistributed to other suitable sites. This represents the most sustainable alternative to landfill disposal.

3.11 Monitoring and Reporting

3.11.1 It would be a condition of contract for the Principal Contractors to discuss and agree recovery rates (see **Table 3.5** above) to be targeted at the inaugural meetings. Monitoring reports would be generated on a monthly basis which would include details of the progress made in diverting waste materials from landfill, against these pre-agreed targets.

3.11.2 On completion of the proposed works, the contractors would report on the site performance against the agreed waste targets to the Project Team and LBL. This would be demonstrated through providing

evidence of the actual volume of waste collected for disposal and the volume collected for reuse and recycling.

3.11.3 Contractors would be expected to provide evidence through the collation of Waste Transfer Notes, invoices etc. This information would all be included within the SWMPs developed for each construction project.

3.12 Transport and Traffic Impacts

3.12.1 The logistics associated with waste from the proposed works would be affected by a wide range of factors. The quantity and types of waste materials generated would fluctuate during this period and the resulting number of waste collections would be dictated by a range of variables, including:

- the amount of on-site storage space for waste;
- the capacity of waste containers used;
- the materials that are segregated for recycling; and
- whether any on-site processes are used for reducing the volume of waste (compactors / balers / shredders etc.).

3.12.2 The Principal Contractors would provide construction waste logistics forecasts, which would be discussed with waste contractors and LBL following the appointment of relevant parties.

3.12.3 The impact of traffic associated with the movement of raw materials and during the proposed works on surrounding neighbourhoods and the local road network would be minimised by a combination of factors. These include reducing the need to import / export materials and minimising off-site removal of waste to landfill.

4. Management of Household Waste

4.1 Introduction

- 4.1.1 This section outlines the plan which would be adopted to successfully manage the waste arisings from the residential elements of the Proposed Development, taking into account the constraints afforded by the location and necessary design.

4.2 Code for Sustainable Homes' Requirements

- 4.2.1 All residential units would achieve a minimum of Code for Sustainable Homes (CfSH) Level 4.
- 4.2.2 The following sub-sections outline the criteria for 'Was 1 - Storage of non-recyclable waste and recyclable household waste'¹⁷.
- 4.2.3 Credits are awarded for the provision of storage space for household and recycling waste, in accordance with the criteria below.

Storage of household waste (no credits available)

The space allocated for waste storage within the Proposed Development will be able to accommodate containers with at least the minimum volume recommended by British Standard 5906:2005¹⁸ based on a maximum collection frequency of once per week. This is 100 litres volume for a single bedroom dwelling, with a further 70 litres volume for each additional bedroom. As an example, a three bedroom dwelling will have 240 litres.

If no Local Authority scheme exists, the developer will need to ensure and demonstrate that the minimum volume according to BS 5906:2005 and defined above is met.

- 4.2.4 With regards to the Proposed Development, a vacuum waste handling system would be installed for the separate collection of refuse and recycling as an innovative alternative to the traditional kerbside collection of waste.
- 4.2.5 This system removes the requirement to provide numerous waste storage rooms in the basements or on street level and the subsequent collection of containers by refuse and recycling vehicles.

No Local Authority collection scheme but adequate external storage capacity (4 credits available)

For houses and flats, there must be at least three identifiably different internal storage bins for recyclable waste, located in an adequate internal space with a minimum total capacity of 30 litres; and where every bin has at least 7 litres capacity.

¹⁷ Code for Sustainable Homes (2009) http://www.planningportal.gov.uk/uploads/code_for_sustainable_homes_techguide.pdf

¹⁸ British Standards (2005) 'BS 5906:2005 Waste management in buildings – Code of practice'

- 4.2.6 With regards to the Proposed Development, the vacuum waste handling system includes a central collection station that would provide adequate external storage capacity for refuse and recyclable materials. Section 4.6 of this chapter provides further details on the system to be installed.
- 4.2.7 With regards to internal storage of recyclable waste, residents would be responsible for segregating and temporarily storing their refuse and recycling within their properties.
- 4.2.8 To help to maximise the Proposed Development’s segregation of recyclable materials, sufficient internal storage space would be designed within each unit’s kitchen or utility area.
- 4.2.9 Options that would be considered include the provision of kitchen units with pull out drawers with containers for co-mingled recycling. This would help to encourage residents to separate their waste at the point of generation and ensure the contamination of collected recyclables within the development is kept to a minimum.

Composting

- 4.2.10 The Applicant and their landscape architects, Townshend Landscape Architects have confirmed that composting provision for residents, whether it would be individual home composting units for gardens or community schemes such as allotments, would be further explored within the detailed landscaping proposals for the Proposed Development at reserved matters stage.

4.3 LBL Waste Management Services

- 4.3.1 **Table 4.1** outlines the waste management services that are currently provided by and on behalf of LBL, which would be relevant to the Proposed Development, particularly having regard to the proposals for a vacuum waste handling system which would obviate the need for a number of LBL’s standard services:

Table 4.1: Waste management services within LBL

Garden waste	<ul style="list-style-type: none"> ■ Free collection at four locations across the Borough during summer months ■ Chargeable kerbside collection ■ Residents can take waste to the Reuse and Recycling Centre
Bulky waste	Chargeable collection service
Reuse and Recycling Centre	Landmann Way – accepts materials outlined above in addition to bulky waste, waste electricals, batteries, garden waste and wood etc.
Commercial waste	Chargeable collection service

4.4 Generation of Household Waste

- 4.4.1 The calculation of future household waste generation has been estimated using DEFRA municipal waste statistics and LBL data.
- 4.4.2 At this stage in the design process the figures can only be considered indicative as a variety of factors, such as the on-going promotion of waste minimisation and recycling, consumer habits and population changes etc. would impact on waste generation rates in future years.
- 4.4.3 As a baseline, **Table 4.2** outlines how the average household waste generation rate per residential unit was established using LBL waste data for 2009/10.

Table 4.2: Average household waste generation

Total household waste in 2009/10 (tonnes) ¹⁹	108,314
Total number of households within LBL boundary ²⁰	116,901
Average waste generation per household per annum (tonnes)	0.93

- 4.4.4 This average household waste generation rate was then used to provide an estimate of the maximum waste arisings from the future residents of the Proposed Development (per annum). This is outlined in **Table 4.3**.

Table 4.3: Estimated household waste arisings

No. of Proposed Units	Average household waste arisings per unit (tonnes)	Tonnes / annum*	Tonnes / week*
Up to 2,500	0.93	2,316	45

* Note: Figure has been rounded

- 4.4.5 It is estimated that if current waste generation levels remained the same, the Proposed Development could potentially generate 2,316 tonnes of household waste per annum (45 tonnes per week), assuming that the maximum number of units would be constructed and occupied.
- 4.4.6 Of this tonnage, a significant proportion would be separated for recycling and composting. For indicative purposes, assuming that at least half of the household waste from the Proposed Development would be recycled or composted (there is a 50% recycling target for England by 2020²¹), this equates to 1,158 tonnes per annum (22 tonnes per week).

¹⁹ Source: DEFRA website 'Municipal Waste Statistics 2009/10'
<http://www.defra.gov.uk/evidence/statistics/environment/wastats/download/mwb200910a.xls>

²⁰ Source: LBL Council Tax dept. (figure as of December 2010)

²¹ DEFRA (2007) 'Waste Strategy for England 2007'

4.5 Vacuum Waste Handling System

4.5.1 Household and commercial waste from all areas of the Proposed Development would be collected via the innovative vacuum waste handling system (ENVAC)²².

4.5.2 The main advantages of using ENVAC compared to a traditional waste collection service are as follows:

- Storage areas for refuse and recycling containers are greatly reduced if not removed altogether;
- Vacuum systems can be more efficient, safer and hygienic to operate;
- They can be adapted for the segregation of refuse, recycling and organic waste; and
- Collection vehicles would not require access to the Proposed Development, reducing local noise and traffic impacts.

4.5.3 Residents and commercial occupiers of the Proposed Development would be provided with the opportunity to deposit their waste into three separate fractions: refuse, recycling and organic material.

4.5.4 Access portals would be provided on each floor for taller buildings (i.e. those above seven storeys) and on the ground floor for low rise buildings (i.e. those seven storeys or below). This is a similar proposal to the operational ENVAC system at Wembley City in the London Borough of Brent, which has been running since December 2008 and data indicates a recycle rate of 45%.

4.5.5 The following sub-sections provide further details on the operation of the ENVAC system:

Prevention of Blockages

4.5.6 At the access portals, the first part of the chute is narrower in diameter than the main pipe network. If something that is too big for the system is inputted then it would not be able to enter the system and can be easily removed by hand. The lack of moving parts means that no health and safety hazard is posed in this instance.

4.5.7 Once waste has gone through the narrower pipe it would then fall easily into the bigger diameter section.

4.5.8 In the underground pipe network the system is able to measure air speed. Blockages can occur if two large pieces of waste meet at a junction. This would cause the air speed to slow down and the automated system recognises this and automatically increases vacuum pressure until the air flow returns to normal.

4.5.9 Failing this, ENVAC design access hatches every 100 metres (similar to a sewer) so that traditional 'rodding' can take place to clear blockages.

Prevention of Misuse

4.5.10 The ENVAC system is hermetically sealed (airtight) and there is not enough oxygen within the pipe network for a fire to remain alight.

²² ENVAC website: <http://www.envacgroup.com/web/Start.aspx>

4.5.11 The inlets are not large enough for children to climb into, although motion sensors can be added to the system which triggers an alarm if something is moving. The system would not operate until this has been checked and reset.

4.5.12 The doors to the access portals also have self-closing hinges. A range of access control options would also be available, such as key locks, user cards etc.

Minimising Contamination

4.5.13 Operationally, the ENVAC system would only collect one waste type at a time which eliminates the risk of contamination between the separate fractions.

4.5.14 As with all waste collection systems, clear and concise instructions to occupiers of the Proposed Development would be vital to minimising the contamination of recyclable materials.

4.5.15 The use of nationally recognised iconography, such as the material icons from WRAP's '*RecycleNow*' campaign, would also feature at ENVAC access portals and within internal communications to residents²³.

Bulky Waste

4.5.16 Generation of bulky waste is likely to be minimal during the early operational phase of the Proposed Development; however this would increase over time as items such as furniture and electrical goods become out dated or unserviceable.

4.5.17 Bulky household waste items that are too large for ENVAC would be housed in a small waste storage area in the basement or ground floor of each building. Items would then be transferred to the central waste collection station and temporarily stored awaiting collection. The option is currently being explored to use an on-site electric vehicle(s) to move these and other items around the Proposed Development. This could be undertaken by a private Facilities Management company.

Hazardous Waste

4.5.18 It is anticipated that relatively small volumes of hazardous waste would be generated by residents during operation. Residents would be instructed, via internal communications, not to deposit these waste streams into the ENVAC system and instead be directed to use storage containers which would be provided within the waste storage areas in the basement or ground floor of each building for the correct storage and subsequent collection of the following hazardous waste materials:

- Batteries: appropriate container of small dimensions;
- Paints, solvents, chemicals: Flammable Safety Cabinet with lockable doors; and
- Waste Electrical & Electronic Equipment (WEEE): appropriate wheeled or caged container.

²³ RecycleNow Partners website : http://www.recyclenowpartners.org.uk/local_authorities/brand_benefits.html

Access to Users

- 4.5.19 The distance that residents would be required to travel to ENVAC access portals from their property would be kept to a minimum and not exceed 30 metres horizontal distance, in line with The Building Regulations 2002, Part H²⁴.
- 4.5.20 The system would also be fully accessible to wheelchair users as the access portals are at a convenient level.

Potential for Noise and/or Odour

- 4.5.21 The only source of noise within the system is caused by fans within the central waste collection station which is soundproofed from the inside of the building where these are housed.
- 4.5.22 The pipes are carbon steel and are treated to prevent corrosion. The speed at which the waste fractions travel (approximately 70km/h) also helps to keep the underground pipe network clean.
- 4.5.23 It would be possible to flush a cleaning fluid through the system. Cleaning around the access portals and the section of vertical chute where the waste would be stored could be undertaken with a power wash and detergent.

4.6 Collection of Household Waste

- 4.6.1 A central waste collection station is proposed to be located in a suitable Plot. This is anticipated to be Orion which is within the expected early phases of the Proposed Development.
- 4.6.2 The access road to the central waste collection station would be designed to accommodate the collection vehicles and allow them to easily access the containers.
- 4.6.3 Full containers would be loaded on to a hook lift vehicle. Refuse would then be transported either to SELCHP or other suitably licensed facilities for disposal. Materials for recycling and organic waste would be transported to external reprocessors for treatment.

4.7 Public Refuse and Recycling Facilities

- 4.7.1 The ENVAC system could also be expanded to provide facilities for the collection of refuse and recycling in public realm areas of the Proposed Development.
- 4.7.2 The access portals include restricted apertures typically found in street litter bins and recycling containers which would help prevent contamination and fly-tipping.
- 4.7.3 The feasibility of this collection option would be further explored for the Proposed Development before or during reserved matters stage.

²⁴ The Building Regulations (2002) 'Part H Drainage and waste disposal'
http://www.planningportal.gov.uk/uploads/br/BR_PDF_ADH_2002.pdf

5. Management of Commercial Waste

5.1 Introduction

5.1.1 This section outlines the plan which would be adopted to successfully manage the waste arisings from the commercial elements of the Proposed Development.

5.1.2 A variety of employment uses and spaces would be provided including:

A1 / A2: Retail	Up to 3,600 sqm
A3-A4: Cafés / Restaurants and Drinking Establishments	Up to 3,500 sqm
A5: Hot Food Takeaway	Up to 300 sqm
B1: Business	10,000 sqm – 15,000 sqm
C1: Hotels	Up to 15,000 sqm
D1: Community	400 sqm - 10,000 sqm
D2: Leisure and Entertainment	4,120 sqm up to 15,800 sqm

5.1.3 The following sections provide an indication of the methods by which commercial waste would be managed.

5.2 BREEAM Requirements – Waste Management

5.2.1 The Proposed Development would be targeting a minimum of BREEAM 'Very Good' rating in accordance with LBL's proposed Core Strategy.

5.2.2 Separate assessments would be undertaken depending upon each building type (e.g. 'BREEAM Offices'; 'BREEAM Retail' etc.).

5.2.3 With regards to waste management, SWMPs (as outlined earlier in section 3.4) are required for projects aspiring to achieve best practice status or appropriate industry standards such as BREEAM.

5.2.4 Operationally, commercial buildings would also be required to provide dedicated space for the storage of recyclable waste streams. Please refer to section 5.5 for further details.

5.3 Generation of Commercial Waste

5.3.1 Estimated volumes of commercial waste from the Proposed Development would be calculated at reserved matters stage from available benchmarking data to define expected area requirements for the storage of refuse and recycling.

5.3.2 Where applicable, the British Standard (BS) 5906:2005 '*Waste management in buildings - Code of practice*' would be used as guidance to identify the potential composition and volumes of waste from the different uses outlined in the table above.

5.4 Storage of Commercial Waste

5.4.1 It is proposed that clusters of commercial and retail units would be provided with shared temporary waste storage areas for refuse and recycling on ground floor level. Separate containers would be provided for the collection of refuse and recycling. These containers would be frequently serviced by Facilities Management staff and emptied into the ENVAC system. Please refer to section 5.5 for further details.

5.4.2 All waste storage areas would be clearly labelled to ensure cross contamination of refuse and recycling is minimised.

Hazardous Waste

5.4.4 It is anticipated that relatively small volumes of hazardous waste would be generated during operation. Where appropriate, equipment would be provided by tenants for the correct storage and subsequent collection of the following hazardous waste materials in their waste storage areas:

- Batteries: appropriate container of small dimensions;
- Fluorescent bulbs: specialist 'coffin' container;
- Paints, solvents, chemicals: Flammable Safety Cabinet with lockable doors;
- Printer cartridges: container provided with a lid or use of manufacturers' 'take back' schemes;
- and
- WEEE: appropriate wheeled or caged container.

5.5 Collection of Commercial Waste

5.5.1 Commercial uses within the Proposed Development would also be provided with access to the ENVAC system.

5.5.2 Access doors would be provided for each waste type to ensure recycling is maximised and contamination avoided. There would be no access to these disposal areas for residents.

5.5.3 Access can also be controlled by means of user card and the measurement of waste for charging purposes can be provided via weight or by volume.

5.5.4 The inlets can accept waste sacks of up to 120 litres. Commercial waste is then moved through the pipe network by vacuum to the central collection facility, where it is stored in 30 cubic metre containers, to await collection by the external waste collection company.

6. Summary & Conclusion

6.1 Summary of the Strategy

Waste from the Construction Phase

- 6.1.1 For waste arising from the construction phase of the Proposed Development, materials would be separated into key waste groups where possible to encourage reuse and recycling. Contractors would provide a suitable area(s) within the construction sites for the separation of materials for recycling (e.g. timber, metals, packaging, hardcore etc.).
- 6.1.2 It is acknowledged, however, that construction sites can often be space constrained and this may limit the opportunity for segregation of the full suite of materials on-site. This may instead be undertaken off-site by suitable waste contractors.
- 6.1.3 SWMPs are now a statutory requirement and would be prepared for the construction of each plot/phase of the Proposed Development. These would include details of the forecast and actual tonnage of each waste stream and their recycling / disposal route.
- 6.1.4 It would be a condition of contract for the contractors to discuss and agree waste recovery rates to be targeted at the inaugural meetings. Monitoring reports would then be generated on a monthly basis which would include details of the progress made in diverting waste materials from landfill, against these pre-agreed targets.
- 6.1.5 Contractors would register each plot/phase with the '*Considerate Constructors Scheme*' and also adhere to a site-wide and plot/phase-specific CoCP.

Waste from the Operational Phase

- 6.1.6 To help to maximise the Proposed Development's segregation of recyclable materials, sufficient internal storage space would be designed within each residential unit's kitchen or utility area.
- 6.1.7 Households would have easy access to the ENVAC waste handling system and have the opportunity to separate their waste into separate fractions to maximise recycling.
- 6.1.8 The non-residential elements of the Proposed Development would be provided with shared temporary waste storage areas for refuse and recycling on ground floor level prior to accessing the ENVAC system.

6.2 Conclusion

- 6.2.1 At this stage the proposals for the management of waste from the Proposed Development take into account the need to lessen the overall impact of waste generation through minimisation, reuse and recycling of materials.

- 6.2.2 The Applicant is committed to sustainable waste management, particularly the emphasis on minimising construction phase waste arisings and the integration of the ENVAC waste handling system.
- 6.2.3 The proposals meet the requirements of relevant waste policy and follow applicable guidance.
- 6.2.4 The means by which to further reduce the waste arisings and increase recycling rates from the Proposed Development have been identified, to ensure that it would continue to improve its sustainability agenda in the years to come.

Appendix A – Framework Site Waste Management Plan

SECTION 1 - SWMP APPOINTMENT FORM & DECLARATIONS

1.1 Project Administration

Client:		Project Title:	
Client Address:		Project Location:	
Start date:		Client Project Reference:	
Completion date:		Project Value:	
Description of project:			
Site footprint (m²):			
Version No. and Date:			
Location of SWMP after commencement of work			

1.2 Responsibilities

	Name of Individual	Contact Details
Client		
Client Waste Management Representative / Project Manager		
Principal Contractor		
Waste Management Coordinator		
Document Regulator		
The person who drafted the SWMP		

Site Waste Management Plans Regulations 2008

The Regulations came into force on 6th April 2008. The significant responsibilities placed on Clients are:

Regulation 5

- (1) A Client who intends to carry out a project on any one construction site with an estimated cost **greater than £300,000** excluding VAT **must prepare a Site Waste Management Plan (SWMP)** conforming to the Regulations before construction work begins.
- (2) For these purposes the cost is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.
- (3) If such a project is started without a site waste management plan, the Client (and the Principal Contractor) are both guilty of an offence.

Regulation 4

- (1) A Client who intends to use one or more contractors for any project to which these Regulations apply must appoint a contractor as the Principal Contractor (for SWMPs).
- (2) If a Client does not use a contractor, all obligations placed on the Principal Contractor under these Regulations must be carried out by the Client.

Schedule to the Regulations

- (1) The Client must give reasonable directions to any contractor to enable the Principal Contractor to comply with the Regulations.
- (2) Both the Client and the Principal Contractor must review, revise and refine the SWMP to ensure changes in their roles and responsibilities are clearly communicated to those affected.
- (3) Both the Client and the Principal Contractor must take steps to ensure site security measures are in place to prevent illegal disposal of waste from the site.

See Appendix C 'Client Duties' accompanying this form for further detail.

Client Declaration

I declare that I am aware of my duties as representative of the Client under the SWMP Regulations.

<i>Signature</i>	<i>Print Name</i>	<i>Position</i>	<i>Date</i>
			/ /

Principal Contractor Declaration

We accept our appointment as SWMP Regulations Principal Contractor for the above project.

***We will use the Client’s SWMP template / We will use our own alternative format SWMP** that will comply with the SWMP Regulations 2008. (Copy to be sent to Client for review).

(*delete as applicable)

<i>Signature</i>	<i>Print Name</i>	<i>Principal Contractor</i>	<i>Date</i>
			/ /

When signed Principal Contractor to return duplicate copy of document to Client

SECTION 2 - WASTE MINIMISATION

Actions taken by the Design Team to prevent and/or reduce the amount of waste arising are recorded in the table below:

List those actions planned to reduce the amount of waste material arising from the works.

Phase	Waste Minimisation Decisions Taken	Resource Saving (quantify if possible)	Responsibility	Date Action Commenced
Establishing nature of project	<ul style="list-style-type: none"> ■ Setting of targets for construction and demolition waste generation. The best practice standard required by BREEAM to achieve three credits of <0.51 tonnes per square meter (<4.7 tonnes per 9.2 m²) will be adopted for the project. ■ Setting of target for the amount of recycled and secondary aggregate specified. A target of 25% (by weight or volume) of the total high-grade aggregate uses for the building will be adopted in line with BREEAM standards 	N/A		
Design	<ul style="list-style-type: none"> ■ Identify opportunities for reuse of all demolition materials. This could include: <ol style="list-style-type: none"> 1. Reusing stone and concrete waste arising as crushed aggregate on site; and, 2. Reusing excavated soils wither on or off site. ■ Encouraging design for disassembly. 	N/A		
Construction methods	<ul style="list-style-type: none"> ■ Ordering of correct quantities of materials and minimising contingency margins; ■ Diligent planning of just in time deliveries of materials to avoid excessive storage times of materials on site; ■ Identify opportunities for pre-fabrication off-site to avoid waste generation at the site. 	N/A		

Materials	<ul style="list-style-type: none"> ■ Commitment to a recycled content target for all materials used on site of 10-20%. ■ Use of local suppliers with take back agreements for any surplus undamaged building materials; ■ Work with suppliers to reduce the amount of packaging delivered to the site. 	N/A	Principal Contractor (on appointment)	
Other				

Principal Contractor to detail proposed measures to minimise waste and reduce quantities sent for landfill, including site set up, segregation, security, monitoring, means to prevent illegal disposal and training. For detailed forecast of quantities see Section 3.

SECTION 3 - FORECASTING AND PLANNING THE REDUCTION, REUSE AND RECYCLING OF WASTE

Principal Contractor to complete this table and include all waste materials that are anticipated immediately prior to commencement of work on site

Waste		Forecast		Trade Contractor Package	Waste Minimisation Opportunities	Reuse / Recycling		Recovery	Disposal
Type	Material	Qty	m ³ or tonne			On-site	Off-site		
Inert	Ceramics & bricks		m ³	Demolition and break out works	Plan extent of demolition and break out activities to minimise waste arising	Crush material for low value aggregate replacement used as backfill	Crush material for low value aggregate replacement		Landfill
	Inert Rubble		m ³	Demolition and break out works	Plan extent of demolition and break out activities to minimise waste arising	Crush material for low value aggregate replacement used as backfill	Crush material for low value aggregate replacement		Landfill
	Concrete		m ³	Structural works and general construction	Prefabrication of concrete formwork off site, on site batcher, planning of concrete pours.	Excess material used as backfill for site works			
Non-hazardous	Canteen / Office / Ad-hoc		m ³	Operation of site office and contractors canteen	Introduction of paperless office protocol. Cooking food to order within the site canteen		Segregation of materials into key waste streams for offsite reprocessing and/or composting	Energy from waste technologies with energy recovery	Landfill

Waste		Forecast		Trade Contractor Package	Waste Minimisation Opportunities	Reuse / Recycling		Recovery	Disposal
Type	Material	Qty	m ³ or tonne			On-site	Off-site		
	Electrical equipment and wiring		m ³	<i>Enabling works</i>	<i>Identify opportunities to recondition equipment in-situ, extract electrical items in a way that provides opportunity for reuse.</i>	<i>Recondition and reinstall equipment with residual operational life span</i>	<i>Segregate and store items of electrical equipment for off-site reconditioning and reuse. Segregate metal wiring for metals recycling</i>		<i>Landfill</i>
	Insulation		m ³	<i>Demolition, break out works and enabling works</i>			<i>Segregate fibreglass based insulation for re-melt reprocessing</i>		<i>Landfill</i>
	Metals		m ³	<i>Demolition, steel form works</i>	<i>Off-site prefabrication, correct ordering, just in time delivery and correct storage</i>	<i>Reused in temporary works</i>	<i>Segregate metal wastes and send to metals recycler</i>		<i>Landfill</i>
	Packaging		m ³	<i>Delivery of construction materials to site</i>	<i>Ask suppliers to send with minimal packaging, use of multi trip containers, bulk purchase as opposed to individual purchase</i>	<i>Retain and return reusable packaging and materials to suppliers</i>	<i>Segregate packaging into key material streams for reprocessing or recycling</i>	<i>Energy from waste technologies with energy recovery</i>	<i>Landfill</i>

Waste		Forecast		Trade Contractor Package	Waste Minimisation Opportunities	Reuse / Recycling		Recovery	Disposal
Type	Material	Qty	m ³ or tonne			On-site	Off-site		
	Plaster / cement		m ³	Dry lining, Plastering	Procure to design specification, correct storage to prevent deterioration	Reuse off cuts	Return surplus material to plasterboard supplier		Landfill
	Plastics		m ³	General site works			Segregate plastic wastes and send to recycler	Energy from waste technologies with energy recovery	Landfill
	Timber		m ³	Demolition, form work, internal fit out, building finishes, site hoardings		Storage for reuse as shuttering or in general carpentry		Energy from waste technologies with energy recovery	Landfill
Hazardous	Liquids and Oils		m ³	Operation of machinery, demolition, strip out	N/A	N/A	Segregate for collection by oils recycler.	N/A	Hazardous
	General Hazardous		m ³	Demolition, strip out, earthworks	N/A	Remediate on site for reuse	Remediate off site	N/A	Hazardous landfill

SECTION 4 - PRE-CONTRACT DECLARATION

The Client and Principal Contractor 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.

Client:

Print Name	Signature	Date
		/ /

Principal Contractor:

Print Name	Signature	Date
		/ /
For and on behalf of		

SECTION 8 - POST-CONSTRUCTION COMPLETION

NB. For projects with a value of less than £500,000 some of the schedules below may not have to be completed. (See note against each).

8.1 Estimated versus actual waste quantities (to be completed for all projects)

Principal Contractor to complete by abstracting the information from 3 & 6.2

Waste		Quantities			Difference (+ / -)	Reason for Variance
Type	Material	Estimated	m ³ or tonne	Actual		
Inert						
Non-hazardous						
Hazardous						

8.2a Estimated (E) vs. Actual (A) waste management routes (to be completed for all projects with a value in excess of £500,000)

Waste		Reuse		Recycling		Other form of Recovery		Sent to Landfill	Other disposal
Type	Material	On-site	Off-site	On-site	Off-site	On-site	Off-site		
Inert		E							
		A							
		E							
		A							
		E							
		A							
Non-hazardous		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							

Waste		Reuse		Recycling		Other form of Recovery		Sent to Landfill	Other disposal
Type	Material	On-site	Off-site	On-site	Off-site	On-site	Off-site		
		E							
		A							
		E							
		A							
		E							
		A							
Hazardous		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							
		E							
		A							

8.2b Reasons for variance between E vs. A waste management routes (to be completed for all projects with a value in excess of £500,000)

List below the reasons for significant differences between original estimated quantities and actual quantities as shown by 8.2a:

8.3 Estimate of cost savings achieved by completing and implementing the SWMP (to be completed for all projects with a value in excess of £500,000)

Insert below an estimate of the cost savings achieved by completing and implementing the SWMP.

Include calculations below or attach summary of calculations on a separate sheet.

SECTION 9 – POST CONSTRUCTION DECLARATION

PRINCIPAL CONTRACTOR

This SWMP has been monitored on a regular basis to ensure that work is progressing according to the plan and has been updated in accordance with SWMP Regulations, Regulation 7.		
Print Name	Signature	Date
For and on behalf of		

When 2, 3, 4 & 8.1 have been completed, a signed copy of this SWMP is to be sent to the Client by the Principal Contractor. The original is retained by the Principal Contractor for two years.

CLIENT

We acknowledge receipt of a copy of this completed SWMP and confirm that it complies with the regulatory requirements.		
Print Name	Signature	Date
For and on behalf of		

Client signs above and sends copy of this page to the Principal Contractor for their records if the SWMP is in accordance with regulatory requirements.