



## **Stag Brewery, Mortlake**

### **Sustainability Statement**

For Reselton Properties

February 2018

# SUSTAINABILITY

## Stag Brewery Sustainability Statement



### Audit sheet

Rev.	Date	Description	Prepared	Verified
00	13.02.2018	For Submission	R. Harper	K. Adair

This report has been prepared for Reselton Properties Limited only and expressly for the purposes set out in an appointment dated 11/07/2017 and we owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

# SUSTAINABILITY

## Stag Brewery Sustainability Statement



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1. Executive Summary

This Sustainability Statement has been prepared by Hoare Lea LLP on behalf of Reselton Properties Limited ('the Applicant') in support of three linked planning applications for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ('the Site') within the London Borough of Richmond Upon Thames ('LBRuT').

The former Stag Brewery Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High Street) to the west. The Site is bisected by Ship Lane. The Site currently comprises a mixture of large scale industrial brewing structures, large areas of hardstanding and playing fields.

The redevelopment will provide homes (including affordable homes), a Care Village for an older population, complementary commercial uses, community facilities, a new secondary school alongside new open and green spaces throughout. Associated highway improvements are also proposed, which include works at Chalkers Corner junction.

The three planning applications are as follows:

- ▶ Application A – hybrid planning application for comprehensive mixed use redevelopment of the former Stag Brewery site consisting of:
  - ▶ Land to the east of Ship Lane applied for in detail (referred to as 'Development Area 1' throughout); and
  - ▶ Land to the west of Ship Lane (excluding Application B (School)) applied for in outline detail (referred to as 'Development Area 2' throughout).
- ▶ Application B – detailed planning application for Application B (School) (on land to the west of Ship Lane).
- ▶ Application C – detailed planning application for highways and landscape works at Chalkers Corner.

Full details and scope of all three planning applications are described in the submitted Planning Statement, prepared by Gerald Eve LLP.

This report presents the sustainability strategy for the redevelopment and responds to relevant policies contained within the Greater London Authority (GLA) London Plan (2016), the supplementary planning guidance on Sustainable Design and Construction (2014), and the policies of the London Borough of Richmond upon Thames (LBRuT) Core Strategy (2009), Development Management Plan (2011) and Emerging Local Plan (2017) documents.

The completed LBRuT sustainability checklist is provided in Appendix D.

Environmental Assessment

The office, retail, leisure and school elements of the Proposed Development, will achieve a BREEAM 'Excellent' rating as a minimum under BREEAM New Construction, and the residential refurbishment at The Maltings will aim to achieve an 'Excellent' rating under BREEAM Domestic Refurbishment. Please refer to Appendix A and B for pre-assessment summaries.

It is anticipated that within Development Area 2 the care home and flexible residential/assisted living units would target a BREEAM 'Excellent' rating as a minimum under BREEAM New Construction.

Inclusive Design

The principles of Secured by Design will be adopted for the redevelopment to ensure the safety and security of all users. Flexible use space is being proposed which will provide opportunity for a variety of spaces including retail, community, restaurants, and bars, which can be utilised and enjoyed by all.

Energy & CO<sub>2</sub> Emission Reduction Strategy

The Energy Strategy has demonstrated that through implementation of passive design and energy efficiency measures and the installation of a CHP engine and on-site PV array, that overall the Proposed Development is anticipated to achieve a **20.3%** reduction in regulated CO<sub>2</sub> emissions beyond the requirements of the Building Regulations Part L (2013) 'baseline'

Site Wide	Estimated Regulated Carbon Dioxide Emission Savings for Whole Site	
	(Tonnes CO <sub>2</sub> /yr)	(%)
Savings from energy demand reduction (Lean)	48	1.9%
Savings from heat network / CHP (Clean)	441	17.2%
Savings from renewable energy (Green)	30	1.5%
<b>Total Cumulative Savings</b>	<b>519</b>	<b>20.3%</b>

Development Area 1 in Application A achieves an overall 21% reduction in regulated CO<sub>2</sub> emissions. The application for Application B (School) achieves an overall 24% reduction in regulated CO<sub>2</sub> emissions.

Water

Application B (School) and Application A (Development Area 1) of the Proposed Development will be provided with water efficient fixtures, fittings and appliances. The residential spaces within Development Area 1 of Application A will aim to achieve a water consumption rate of 105 litres per person per day.

For the non-domestic elements in Application A Development Area 1, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. 2.5 credits are also targeted under Wat 01 in BREEAM 2014 Domestic refurbishment for The Maltings. These principles would also be considered for Development Area 2 of Application A.

Materials

Building elements will be selected in accordance with the BRE Green Guide to Specification, with the aim of selecting elements in the range A+ to C to minimise environmental impact.

A Resource Management Plan (RMP) will be produced that will outline how recycling of construction, demolition and excavation material can be maximised and reused on site.

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## Stag Brewery Sustainability Statement



All timber used at the Proposed Development will be FSC certified and where possible and practicable materials will be locally sourced.

The Maltings building (Building 4) is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to re-establish a new combination of uses for this building. The new uses include a hotel (in the part of the building formerly occupied by a hotel), office, gym and retail use. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint. Where new materials are introduced they will be specified, where possible and practicable, to be sustainably sourced, recycled or re-used building materials.

### Waste

The contractor will be required to produce and adhere to a RMP which clearly sets out requirements to maximise diversion of demolition and construction waste from landfill.

All spaces at the Proposed Development will be provided with suitable internal and communal waste storage facilities for the segregation of recyclable materials, designed to meet the requirements of BS5096 (Waste Management in Buildings), LBRuT policies and guidance and BREEAM.

### Transport

For Application A (Development Area 1) and Application B (School), secure cycle storage, changing and showering facilities will be provided for residents and occupants. The aim of such facilities is to encourage the use of sustainable transport to and from the Proposed Development. Cycle parking will also be provided for visitors. These measures would also be considered for Development Area 2.

### Biodiversity

Native species or species of benefit to wildlife will be incorporated throughout the development, and it is expected that the construction of the Proposed Development will lead to no net loss of ecology from the Site.

The Proposed Development (Application A) will include park/recreation areas which will include the planting of new evergreen and deciduous trees. With Application A, B and C it is proposed that there will be a net increase in trees on the site.

### Pollution

Systems at the Proposed Development (Application A and B) will be selected to minimise emissions of Nitrous Oxide (NOx) and other pollutants which can lead to adverse air quality impacts. The Proposed Development, Application A and B, will be serviced through the provision of CHP engines with NOx abatement technologies and low NOx emission boilers to minimise the generation of air pollution, and cycling will be encouraged through the provision of cyclist facilities in order to reduce the use of cars. Electric car charging points will also be provided. These measures are consistent with those identified by LBRuT within their Air Quality Action Plan. Details provided in the Environmental Impact Assessment.

The impact of Application C on Air Quality is addressed in the Environmental Impact Assessment. When considering the impact of the Development (with highway works) the results demonstrate a 'negligible' impact. The results show that the highway works balance out the adverse Development traffic impacts.

Luminaires will be selected with suitable output to direct lighting appropriately to minimise light pollution and loss of light to the sky.

The main contractor will operate to minimise the risk of pollution from the Proposed Development and will be required to register with the Considerate Constructors Scheme.

## 2. Introduction

### The Application

This Sustainability Statement has been prepared by Hoare Lea LLP on behalf of Reselton Properties Limited ('the Applicant') in support of three linked planning applications for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ('the Site') within the London Borough of Richmond Upon Thames ('LBRuT').

The former Stag Brewery Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High Street) to the west. The Site is bisected by Ship Lane. The Site currently comprises a mixture of large scale industrial brewing structures, large areas of hardstanding and playing fields. The Site location is shown in Figure 2.1.

The redevelopment will provide homes (including affordable homes), a Care Village for an older population, complementary commercial uses, community facilities, a new secondary school alongside new open and green spaces throughout. Associated highway improvements are also proposed, which include works at Chalkers Corner junction.

The three planning applications are as follows:

- ▶ Application A – hybrid planning application for comprehensive mixed use redevelopment of the former Stag Brewery site consisting of:
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Full details and scope of all three planning applications are described in the submitted Planning Statement, prepared by Gerald Eve LLP.

### Aim

This report presents the sustainability strategy for the redevelopment and responds to relevant policies contained within the Greater London Authority (GLA) London Plan (2016), the supplementary planning guidance on Sustainable Design and Construction (2014), and the policies of the London Borough of Richmond upon Thames (LBRuT) Core Strategy (2009), Development Management Plan (2011) and Emerging Local Plan (2017) documents.

### Summary of Policy Framework

A policy review has been undertaken and is detailed in Appendix C. Planning policy documents applicable to the proposed development include:

- ▶ National Planning Policy Framework (NPPF)
- ▶ Building Regulations Part L (2013)
- ▶ The London Plan (2016)
- ▶ London Borough of Richmond upon Thames Core Strategy (2009)
- ▶ London Borough of Richmond upon Thames Development Management Plan (2011)
- ▶ Emerging Local Plan (2017)

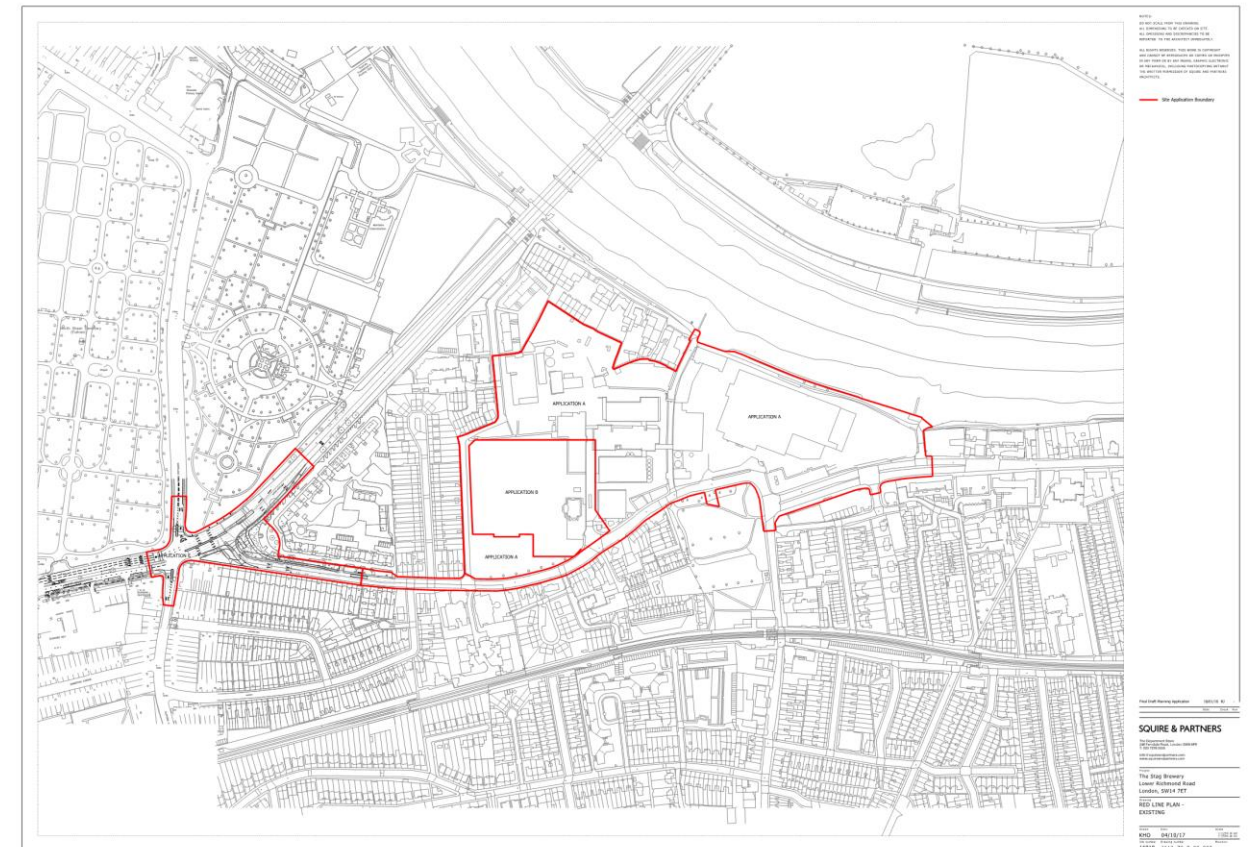


Figure 2.1 - The location of the proposed development.

### 3. Sustainability Statement

The following statement is written in reference to the applicable 'priorities' and 'best practice' as outlined in the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction (2014), as required by Policy 5.3 of the London Plan (2016). Reference is also made to the local policies of LBRuT.

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response																				
Priority	Best Practice	London Plan	LBRuT Policies																					
<b>Resource Management - Land</b>																								
<b>Optimising the Use of Land</b>																								
Through both their Local Plans and planning decisions, boroughs should aim for 100% of development to be delivered on previously developed land.	-	1.1, 3.3	CP1, 14. DM DC 2 DM SD 1	<p><b>Optimising the Use of Land</b></p> <p>The Proposed Development is a mix of new buildings and refurbishment, situated on the former Stag Brewery site. The Proposed Development has sought to maximise the use of previously developed land.</p>																				
Developers should optimise the scale and density of their development, considering the local context, to make efficient use of London's limited land.	-	3.4, 4.3, 7.6	CP8, 7, 14. DM DC 2 DM SD 1	<p><b>Optimising the Use of Land</b></p> <p>The Site's density will be optimised through providing a suitable mix of uses in buildings and spaces which efficiently use land, at the same time as responding to local context and delivering architectural and planning benefits.</p> <p>The Proposed Development is approximately 152,041sqm in Gross Internal Area (GIA).</p> <p>The useful floor space is split (in GIA) by use as follows:</p> <table border="1"> <thead> <tr> <th>Use</th> <th>Area (m<sup>2</sup>)</th> </tr> </thead> <tbody> <tr> <td>Dwellings (Development Area 1)</td> <td>47,147</td> </tr> <tr> <td>Refurbishment Dwelling Area</td> <td>2,968</td> </tr> <tr> <td>Flexible Use A1/A2/A3/A4/A5/B1/Boathouse</td> <td>4,664</td> </tr> <tr> <td>Hotel</td> <td>1,668</td> </tr> <tr> <td>Office</td> <td>2,424</td> </tr> <tr> <td>Cinema</td> <td>2,120</td> </tr> <tr> <td>Gym</td> <td>740</td> </tr> <tr> <td>Management Office</td> <td>33</td> </tr> <tr> <td><b>Total Development Area 1</b></td> <td><b>61,764</b></td> </tr> </tbody> </table>	Use	Area (m <sup>2</sup> )	Dwellings (Development Area 1)	47,147	Refurbishment Dwelling Area	2,968	Flexible Use A1/A2/A3/A4/A5/B1/Boathouse	4,664	Hotel	1,668	Office	2,424	Cinema	2,120	Gym	740	Management Office	33	<b>Total Development Area 1</b>	<b>61,764</b>
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GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response														
Priority	Best Practice	London Plan	LBRuT Policies															
				<table border="1"> <tr> <td>Townhouses</td> <td>3,912</td> </tr> <tr> <td>Dwellings (Development Area 2)</td> <td>21,093</td> </tr> <tr> <td>Flexible Residential/Assisted Living Apartments</td> <td>14,737</td> </tr> <tr> <td>Care Home</td> <td>9,472</td> </tr> <tr> <td><b>Total Development Area 2</b></td> <td><b>49,214</b></td> </tr> <tr> <td><b>School</b></td> <td><b>9,319</b></td> </tr> <tr> <td><b>Overall Total</b></td> <td><b>120,297</b></td> </tr> </table> <p>Flexible Use spaces will consist of restaurant / bar / retail / community / leisure and boat house (sui generis). The development also includes a basement car park of 31,745sqm that will be within the basement of Development Area 1 and Development Area 2.</p>	Townhouses	3,912	Dwellings (Development Area 2)	21,093	Flexible Residential/Assisted Living Apartments	14,737	Care Home	9,472	<b>Total Development Area 2</b>	<b>49,214</b>	<b>School</b>	<b>9,319</b>	<b>Overall Total</b>	<b>120,297</b>
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<b>Basement and Lightwells</b>																		
When planning a basement development, developers should consider the geological and hydrological conditions of the Site and surrounding area, proportionate to the local conditions, the size of the basement and lightwell and the sensitivity of adjoining buildings and uses, including green infrastructure.	-	5.12, 5.13, 7.13, 7.19	DM SD 6	<p><b>Basement and Lightwells</b></p> <p>The structural engineers have considered all applicable geological and hydrological conditions in accordance with relevant design guidance and standards. Wherever possible, the basements will be constructed to avoid any adverse impact on the roots of retained trees.</p>														
When planning and constructing a basement development, developers should consider the amenity of neighbours.	-	5.3, 5.18, 6.3, 7.14, 7.15	-	<p><b>Basement and Lightwells</b></p> <p>It is anticipated that there will be limited impact to the amenity of neighbours as the contractor will be targeting a high score in the Considerate Constructors Scheme (CCS) in accordance with BREEAM.</p>														
<b>Local Food Growing</b>																		
To protect existing established food growing spaces.	-	2.18, 3.2, 5.3, 5.10, 5.11, 7.18, 7.22.	DM OS 10	<p><b>Local Food Growing</b></p> <p>The Site does not contain any existing established spaces for growing food.</p>														
-	<p><b>Local Food Growing</b></p> <p>To provide space for individual or communal food</p>	2.18, 3.2, 5.3, 5.10, 5.11, 5.21, 7.18, 7.22.	DM OS 10	<p><b>Local Food Growing</b></p> <p>Dwellings in Application A (Development Area 1) at the Proposed Development will be provided with rooftop gardens, terraces and balconies which will enable residents to plant a variety of species for food growth, should</p>														





GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
	growing, where possible and appropriate.			this be desired. How amenity areas in Development Area 2 could be utilised for communal food growing will also be considered. To the south west of Application B (School) there is a community park, which could have space dedicated for food growing, if desired.
-	<b>Local Food Growing</b> To take advantage of existing spaces to grow food, including adapting temporary spaces for food growing.	2.18, 3.2, 5.3, 5.10, 5.11, 5.21, 7.18, 7.22.	DM OS 10	
<b>Site Layout and Building Design</b>				
-	<b>Site Layout &amp; Building Design</b> Any existing buildings that can be practically refurbished, retrofitted, altered, or extended should be retained and reused.	5.3, 5.4	CP1, 2, 3. DM SD 3	<p><b>Site Layout &amp; Building Design</b></p> <p>The proposal for the former Maltings building (building 4) incorporates several sensitive amendments to the existing building facades. The building is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to re-establish a new combination of uses for this building. The new uses include a hotel (in the part of the building formerly occupied by a hotel), office, gym and retail use. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint.</p> <p>All other existing buildings are brewery buildings which would not be suitable to retain. These would be difficult to refurbish and would not deliver a high quality scheme, from a practical, aesthetic and energy efficiency perspective.</p>
-	<b>Site Layout &amp; Building Design</b> A mix of uses, where suitable should be included to provide a range of services commensurate to the public transport accessibility.	4.3, 6.1	CP1, 7, 14, 15, 17, 19, DM TC 2, DM DC 2,	<p><b>Site Layout &amp; Building Design</b></p> <p>The Proposed Development will contain a combination of retail, community, leisure, office and residential space, as well as a school, a care home and flexible residential/assisted living units.</p> <p>Generally the whole Site falls within the PTAL 2 category. A PTAL rating of 2 represents a 'poor' level of accessibility to public transport services. In reality though, as demonstrated in the Travel Plan, the public transport accessibility can be considered to be much better.</p> <p>The rail services from Mortlake provide for easy access to a very extensive area through interchange at Clapham Junction, Richmond, Victoria or Waterloo whilst the various bus services that serve the area provide links to a very extensive area of London and again provide access to a number of important strategic interchanges, including Hammersmith.</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
<p>The design of the Site and building layout, footprint, scale and height of buildings as well as the location of land users should consider:</p> <p><b>Existing Features</b></p> <ul style="list-style-type: none"> <li>▶ The possible retention and reuse of existing buildings and structures;</li> <li>▶ The retention of existing green infrastructure, including trees and other ecological features, and potential for its improvement and extension; and</li> <li>▶ Access routes to public transport and other facilities that minimise the use of private transport.</li> </ul>	-	<p>2.18, 5.2, 5.3, 5.4, 5.6, 5.7, 5.9, 5.10, 5.11, 5.12, 5.13, 5.16, 5.18, 5.21, 6.1, 6.7, 6.9, 6.10, 6.11, 6.13, 7.1, 7.6, 7.14, 7.15, 7.18, 7.19, 7.21, 7.22</p>	<p>CP1, 2, 3, 4, 5, 7, 10, 13, 16, 17, DM SD 3, DM HO4,6 DM SI 1, DM DC 2, DM SD 5 DM OS 2</p>	<p><b>Site Layout &amp; Building Design</b></p> <p>The Proposed Development is a mix of new buildings and refurbishment, located on the former Stag Brewery site. The Proposed Development has sought to maximise the use of previously developed land.</p> <p><b>Existing Features</b></p> <p>The proposal for the former Maltings building (building 4) incorporates several sensitive amendments to the existing building facades. The building is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to re-establish a new combination of uses for this building. The new uses include a hotel (in the part of the building formerly occupied by a hotel), office, gym and retail use. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint.</p> <p>All other existing buildings are brewery buildings which would not be suitable to retain. These would be difficult to refurbish and would not deliver a high quality scheme, from a practical, aesthetic and energy efficiency perspective.</p> <p>There are areas of the Proposed Development that would be suitable for ecological features to be included, and this has been considered as part of the design process.</p> <p>Proposals include improvements to bus services and infrastructure as well as routes towards Mortlake Rail Station to increase the attractiveness of the public transport network. The overall pedestrian and cycle access strategy is described in further detail within Chapter 8 of the Travel Plan which also shows how the on-site proposals link into the wider networks serving the area.</p>
<p><b>New Design of Development</b></p> <ul style="list-style-type: none"> <li>▶ The existing landform</li> <li>▶ The potential to take advantage of natural systems such as wind, sun and shading;</li> <li>▶ The principles set out London Plan policies 7.1 and 7.6;                             <ul style="list-style-type: none"> <li>▶ The potential for adaption and reuse in the future;</li> <li>▶ Potential for incorporating green infrastructure, including enhancing biodiversity;</li> <li>▶ Potential for incorporating open space, recreation space and child play space;</li> </ul> </li> </ul>				<p><b>New Design of Development</b></p> <p><u>Detailed Elements (Application A (Development Area 1) and Application B (School)):</u></p> <p>The Proposed Development has been designed to benefit from natural sunlight, in particular the upper storeys, for light and warmth in winter. Measures such as internal blinds will be used to control excessive solar gain in summer months.</p> <p>Regarding LP Policy 7.1, it is considered that the Proposed Development will:</p> <ul style="list-style-type: none"> <li>▶ Improve access to green infrastructure by providing green space throughout the Proposed Development.</li> <li>▶ Enable people to live healthy and active lifestyles due to the provision of suitable cycle parking to encourage commuting by bike which is a low-carbon mode of transport;</li> <li>▶ Allow staff/occupiers and visitors of all ages and stages of life to access the Proposed Development's non-residential areas by ensuring suitable access provisions.</li> </ul> <p>Regarding LP Policy 7.6, it is considered that the Proposed Development is of high architectural quality and is of a proportion, composition, scale and orientation that enhances, activates and defines the public realm. The</p>



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
<ul style="list-style-type: none"> <li>› Energy demands and the ability to take advantage of natural systems and low and zero carbon energy sources;</li> <li>› Site wide infrastructure;</li> <li>› Access to low carbon transport modes;</li> <li>› The promotion of low carbon transport modes, including walking and cycling;</li> <li>› Potential to address any local air quality, noise disturbance, flooding and land contamination issues; and</li> <li>› The potential effect on the micro-climate.</li> </ul>				<p>Proposed Development will comprise details and materials that complement the local character through the re-use of the façade on The Maltings, existing former Bottling and hotel building (building 5) building and the materials used in construction of the new buildings, and will incorporate best practice in terms of resource management. The following measures will be targeted for the Proposed Development:</p> <ul style="list-style-type: none"> <li>› Secured by design principles will be incorporated; and</li> <li>› The buildings will contribute to the adaption and mitigation of the effects of climate change, designed to enable sunlight access, and to minimise overshadowing and adverse wind conditions.</li> <li>› Implementation of acoustic measures to ensure high levels of noise are not transferred into the spaces.</li> <li>› Mechanical ventilation will be designed with air intake louvres away from sources of air pollution.</li> <li>› Limited car parking will be provided for Application B (School) and a Travel Plan will be utilised to promote access and use of low carbon transport.</li> <li>› Application B (School) will include a playing pitch and Multi Use Games Area. The playing pitch will incorporate flood lighting to ensure use is possible throughout all times of the year.</li> <li>› Proposals in Application A also include a community park and green roofs with links to wider green infrastructure.</li> </ul> <p>The landscape plan is proposed to deliver a mix of types of open areas throughout the site, supplemented by extensive tree planting and soft landscaping. A range of character areas will be provided within a number of green areas across the site, each of which will contribute to green infrastructure provision. Landscape elements include play facilities, paths and seating areas as well as soft landscape and pedestrian and cycle circulation</p> <p><u>Outline element (Application A Development Area 2):</u> The measures detailed above would also be considered for Development Area 2 of the Proposed Development.</p>

**Resource Management - Energy and Carbon Dioxide Emissions**

<p>The overall carbon dioxide emissions from a development should be minimised through the implementation of the energy hierarchy set out in London Plan Policy 5.2.</p> <p>Developments should be designed to meet the regulated carbon dioxide standards, in line with London Plan Policy 5.2.</p>	-	5.2, 5.3	CP1, 2 DM SD1, 2	<p><b>Energy and CO<sub>2</sub> Emissions</b></p> <p>A summary of the anticipated CO<sub>2</sub> emissions and reduction at each step of the energy hierarchy is given in Table 1 below.</p> <p>Table 1 Summary of CO<sub>2</sub> emissions reductions and carbon offset for Application A &amp; B. This captures the CO<sub>2</sub> emissions reductions and potential offset payment for the whole site.</p>
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GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response			
Priority	Best Practice	London Plan	LBRuT Policies				
				<b>Application A - Domestic Use Areas</b>		Estimated Regulated Carbon Dioxide Emission Savings for Residential Buildings	
					(Tonnes CO <sub>2</sub> /yr)	(%)	
				Savings from energy demand reduction (Lean)	15	1.1%	
				Savings from heat network / CHP (Clean)	242	19.2%	
				Savings from renewable energy (Green)	30	2.1%	
				<b>Total Cumulative Savings</b>	<b>288</b>	<b>20.7%</b>	
				<b>Total Target Reduction</b>	<b>1381</b>	100%	
				<b>Application A - Non-Domestic Areas</b>		Estimated Regulated Carbon Dioxide Emission Savings for Non-Residential Buildings	
					(tonnesCO <sub>2</sub> /yr)	(%)	
				Savings from energy demand reduction (Lean)	23	2.0%	
				Savings from heat network / CHP (Clean)	184	19.0%	
				Savings from renewable energy (Green)	-	-	
				<b>Total Cumulative Savings</b>	<b>207</b>	<b>21.0%</b>	
				<b>Total Target Reduction</b>	<b>347</b>	35%	
				<b>Application A - Total</b>	Total Regulated Emissions (Tonnes CO <sub>2</sub> /year)	CO <sub>2</sub> Savings (Tonnes CO <sub>2</sub> /year)	Percentage Savings (%)
				Part L 2013 baseline	2,387	-	-
				Be Lean	2,349	38	1.6%
				Be Clean	1,921	428	17.9%
				Be Green	1,891	30	1.3%
				<b>Total Cumulative Savings</b>	<b>496</b>	<b>496</b>	<b>20.8%</b>
				<u>Application A - Development Area 1</u>			
				A summary of the targeted CO <sub>2</sub> emissions and reductions at each step of the energy hierarchy is given in Table 2 below. Development Area 1 of Application A achieves an overall 21% reduction in regulated CO <sub>2</sub> emissions when considering the overall area of the Full application.			
				Table 2 Summary of CO <sub>2</sub> emissions reductions for Development Area 1 areas.			



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response			
Priority	Best Practice	London Plan	LBRuT Policies				
				<b>Domestic Use Areas – Development Area 1</b>		Estimated Regulated Carbon Dioxide Emission Savings for Domestic Use Buildings	
					(Tonnes CO <sub>2</sub> /yr)	(%)	
				Savings from energy demand reduction (Lean)	10	1.3%	
				Savings from heat network / CHP (Clean)	144	18.5%	
				Savings from renewable energy (Green)	30	3.7%	
				<b>Total Cumulative Savings</b>	<b>183</b>	<b>23.6%</b>	
				<b>Total Target Reduction</b>	776	100%	
				<b>Non-Domestic Areas – Development Area 1</b>		Estimated Regulated Carbon Dioxide Emission Savings for Non-Domestic Buildings	
					(tonnesCO <sub>2</sub> /yr)	(%)	
				Savings from energy demand reduction (Lean)	23	5.0%	
				Savings from heat network / CHP (Clean)	54	13.4%	
				Savings from renewable energy (Green)	-	-	
				<b>Total Cumulative Savings</b>	<b>77</b>	<b>17.8%</b>	
				<b>Total Target Reduction</b>	162	35%	
				<b>Development Area 1 Total</b>	<b>Total Regulated Emissions (Tonnes CO<sub>2</sub>/year)</b>	<b>CO<sub>2</sub> Savings (Tonnes CO<sub>2</sub>/year)</b>	<b>Percentage Savings (%)</b>
				Part L 2013 baseline	1,238	-	-
				Be Lean	1,205	33	2.7%
				Be Clean	1,007	198	16.4%
				Be Green	977	30	2.9%
				<b>Total Cumulative Savings</b>	<b>261</b>	<b>261</b>	<b>21.0%</b>
				<u>Application B (School)</u>			
				A summary of the anticipated CO <sub>2</sub> emissions and reduction at each step of the energy hierarchy is given in Table 3 below. The application for Application B (School) achieves an overall 24% reduction in regulated CO <sub>2</sub> emissions when considering Application B (School).			

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response																																									
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				<p>Table 3: Summary of CO<sub>2</sub> emissions reductions and carbon offset for Application B (School)</p> <table border="1"> <thead> <tr> <th rowspan="2">School Areas</th> <th colspan="3">Estimated Regulated Carbon Dioxide Emission Savings for the School</th> </tr> <tr> <th>Total Regulated Emissions (Tonnes CO<sub>2</sub>/year)</th> <th>CO<sub>2</sub> Savings (Tonnes CO<sub>2</sub>/year)</th> <th>Percentage Savings (%)</th> </tr> </thead> <tbody> <tr> <td>Part L 2013 baseline</td> <td>176</td> <td>-</td> <td>-</td> </tr> <tr> <td>Be Lean</td> <td>166</td> <td>11</td> <td>6.3%</td> </tr> <tr> <td>Be Clean</td> <td>135</td> <td>31</td> <td>17.6%</td> </tr> <tr> <td>Be Green</td> <td>135</td> <td>-</td> <td>-</td> </tr> <tr> <td><b>Total Cumulative Savings</b></td> <td><b>42</b></td> <td><b>42</b></td> <td><b>23.8%</b></td> </tr> <tr> <td><b>Total Target Reduction</b></td> <td><b>-</b></td> <td><b>62</b></td> <td><b>35%</b></td> </tr> </tbody> </table> <p>Table 4: Carbon Offset</p> <table border="1"> <thead> <tr> <th colspan="2">Application A and B Total</th> </tr> </thead> <tbody> <tr> <td>Potential Annual Off-set (Residential Areas)</td> <td>1,093 tCO<sub>2</sub></td> </tr> <tr> <td>Potential Annual Off-set (Non-residential Areas)</td> <td>137 tCO<sub>2</sub></td> </tr> <tr> <td>Potential Annual Off-set (School)</td> <td>20 tCO<sub>2</sub></td> </tr> <tr> <td><b>Total Annual Off-set (Application A and B)</b></td> <td><b>1,250 tCO<sub>2</sub></b></td> </tr> </tbody> </table>	School Areas	Estimated Regulated Carbon Dioxide Emission Savings for the School			Total Regulated Emissions (Tonnes CO <sub>2</sub> /year)	CO <sub>2</sub> Savings (Tonnes CO <sub>2</sub> /year)	Percentage Savings (%)	Part L 2013 baseline	176	-	-	Be Lean	166	11	6.3%	Be Clean	135	31	17.6%	Be Green	135	-	-	<b>Total Cumulative Savings</b>	<b>42</b>	<b>42</b>	<b>23.8%</b>	<b>Total Target Reduction</b>	<b>-</b>	<b>62</b>	<b>35%</b>	Application A and B Total		Potential Annual Off-set (Residential Areas)	1,093 tCO <sub>2</sub>	Potential Annual Off-set (Non-residential Areas)	137 tCO <sub>2</sub>	Potential Annual Off-set (School)	20 tCO <sub>2</sub>	<b>Total Annual Off-set (Application A and B)</b>	<b>1,250 tCO<sub>2</sub></b>
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-	<p><b>Energy and CO<sub>2</sub> Emissions</b>                      Developments should contribute to ensuring resilient energy infrastructure and a reliable energy supply, including from local low and zero carbon sources.</p>	5.1, 5.4A, 5.5, 5.6, 5.7, 5.8, 5.17	CP1, 2 DM SD1, 2	<p><b>Energy and CO<sub>2</sub> Emissions</b>                      The Proposed Development is proposing a staggered approach across the two Development Areas with an energy centre provided within the basement of each phase. It is anticipated that Application B (School) will be serviced independently from the heat networks. Application B (School) is being brought forward by LBRuT, not the Applicant. The distribution losses associated with extending the Development Area 1 district heat network to serve Application B (School) site at the time of construction would not be effective in delivery of heat. The townhouses within Development Area 2 are also likely to be serviced separately with individual boilers located within each town house.</p> <p><u>Application A - Development Area 2</u></p> <p>Future emissions scenarios indicate that gas-fired CHP may not be an effective method of reducing CO<sub>2</sub> over electrically based heating systems such as air source heat pumps. This is likely to become relevant within the timescales of the phases of the Proposed Development.</p>																																									



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				<p>In order to deliver lowest life-cycle CO<sub>2</sub> emissions within an evolving energy landscape, it would be preferable for available technologies to be assessed for their ability to provide reductions in regulated CO<sub>2</sub> as and when each phase is brought forward, and subject to commercial viability. This will allow the most appropriate heat generating plant to be chosen in the face of the changing energy landscape, particularly if any revision to the carbon factor specified in the Building Regulations is made.</p> <p>Given the timescales, the nature of development phasing, and taking consideration for decarbonisation of the grid, it is currently anticipated that Development Area 2 would be delivered with a separate energy centre located within the Development Area 2 development. However, the energy strategy that provides beneficial CO<sub>2</sub> emissions reductions in accordance with policy and building regulations at the time of the reserved matters submission(s) would be submitted for consideration with the application at that time. This would seek to avoid the scenario whereby the entire site is locked into an energy strategy that may not deliver optimum life-cycle CO<sub>2</sub> benefits. This approach would provide more flexibility in the longer term with respect to energy sources, and maximising carbon emissions reductions throughout the lifetime of the Proposed Development.</p> <p>On the basis that the CHP engine will supply 91% of the hot water requirements and up to 30% of the space heating requirements of the areas within the outline application, it is expected that a reduction in regulated CO<sub>2</sub> emissions of <b>212 tonnes</b> per annum can be achieved using Part L 2013 carbon factors. This is equivalent to a further <b>18.5%</b> reduction in CO<sub>2</sub> emissions beyond the requirements of the Building Regulations Part L 2013 'baseline'.</p> <p>Future proofing measures will be provided, such as identified distribution routes, to enable future connections between Development Area 1 and 2 if the energy strategy at reserved matters submission(s) demonstrates that this would be effective. This would also include a connection to any alternative off-site district energy networks should one become available at a later date, or to enable any future nearby and existing developments the opportunity to connect, subject to capacity and viability.</p> <p><u>Application A (Development Area 1)</u></p> <p>The energy centre within Development Area 1 is deemed to be better placed to supply the areas of Development Area 1 only, via the implementation of a single energy centre. When considering the dwellings within Development Area 1 separately and on the basis that the CHP engine will supply 97% of the hot water requirements (anticipating that point of use electric water heaters will be used in A1 retail and office spaces) and up to 30% of the space heating requirements of the Proposed Development, it is expected that a reduction in regulated CO<sub>2</sub> emissions of <b>144tonnes</b> per annum can be achieved. This is equivalent to a further <b>18.5%</b> reduction in CO<sub>2</sub> emissions beyond the requirements of the Building Regulations Part L 2013 'baseline'. The CHP engine and heat network would be considered for implementation at the point that the 500<sup>th</sup> dwelling is brought forward for development. This is in accordance with the GLA Energy Strategy Planning Guidance that suggests a CHP engine with heat network feeding greater than 500 dwellings is deemed to provide minimum demand for effective use.</p> <p>When considering all of the areas within the Development Area 1 of Application A the contribution of the CHP engine is equivalent to <b>~16.0%</b> reduction beyond the Building Regulations Part L 2013 'baseline' for the dwellings, equivalent to <b>197tonnes</b> of CO<sub>2</sub> emissions.</p>



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
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				<p><u>Application B (School)</u></p> <p>For Application B (School) a CHP engine has been assessed to supply 100% of the hot water and 30% of the space heating demands. It is expected that if a CHP is feasible for Application B (School) a reduction in regulated CO<sub>2</sub> emissions of <b>31tonnes</b> per annum can be achieved. This is equivalent to a further <b>17.6%</b> reduction in CO<sub>2</sub> emissions beyond the requirements of the Building Regulations Part L 2013 'baseline'.</p>
-	<p><b>Energy and CO<sub>2</sub> Emissions</b></p> <p>Developers are encouraged to include innovative low and zero carbon technologies to minimise carbon dioxide emissions within developments and keep up to date with rapidly improving technologies.</p>	5.2, 5.17	CP1, 2 DM SD1, 2	<p><b>Energy and CO<sub>2</sub> Emissions</b></p> <p>The inclusion of on-site renewable energy generation has been assessed.</p> <p><u>Application A (Development Area 1)</u></p> <p>It is anticipated that a PV array with a total area of 520m<sup>2</sup> would be provided on the roof area of the Proposed Development. Based on the solar irradiance data for London, an array of this size would generate approximately 57,200kWh of electricity per annum, reducing CO<sub>2</sub> emissions by <b>30tonnes</b> per annum. This is equivalent to a reduction in regulated CO<sub>2</sub> emissions of <b>2.4%</b> beyond the Building Regulations Part L (2013) 'baseline' for the anticipated emissions of the Proposed Development.</p> <p>When considering the residential elements separately if this array was to be connected to the supply to the dwellings the contribution is equivalent to a <b>3.7%</b> reduction in CO<sub>2</sub> emissions beyond the Building Regulations Part L 2013 'baseline'.</p> <p>PV is therefore anticipated to be a suitable addition to the Proposed Development in pursuit of further reductions in regulated CO<sub>2</sub> emissions.</p> <p><u>Application A (Development Area 2)</u></p> <p>At the reserved matters submission the available roof space of Development Area 2, for the installation of a solar PV system size would be considered. It is anticipated that this array would contribute to a reduction in CO<sub>2</sub> emissions of at least 1% beyond Part L 2013.</p> <p><u>Application B (School)</u></p> <p>PV is not proposed to be located on Application B (School) building as the roof area is being used to provide a multi-use games area and is also allocated for plant.</p>
<b>Energy Demand Assessment</b>	Development applications are to be accompanied by an energy demand assessment	5.2	-	<p><b>Energy Demand Assessment</b></p> <p>The following is an appraisal of the anticipated energy requirements and resultant CO<sub>2</sub> emissions that could arise as a result of the Proposed Development, after the inclusion of the passive design and energy efficiency measures described above.</p>



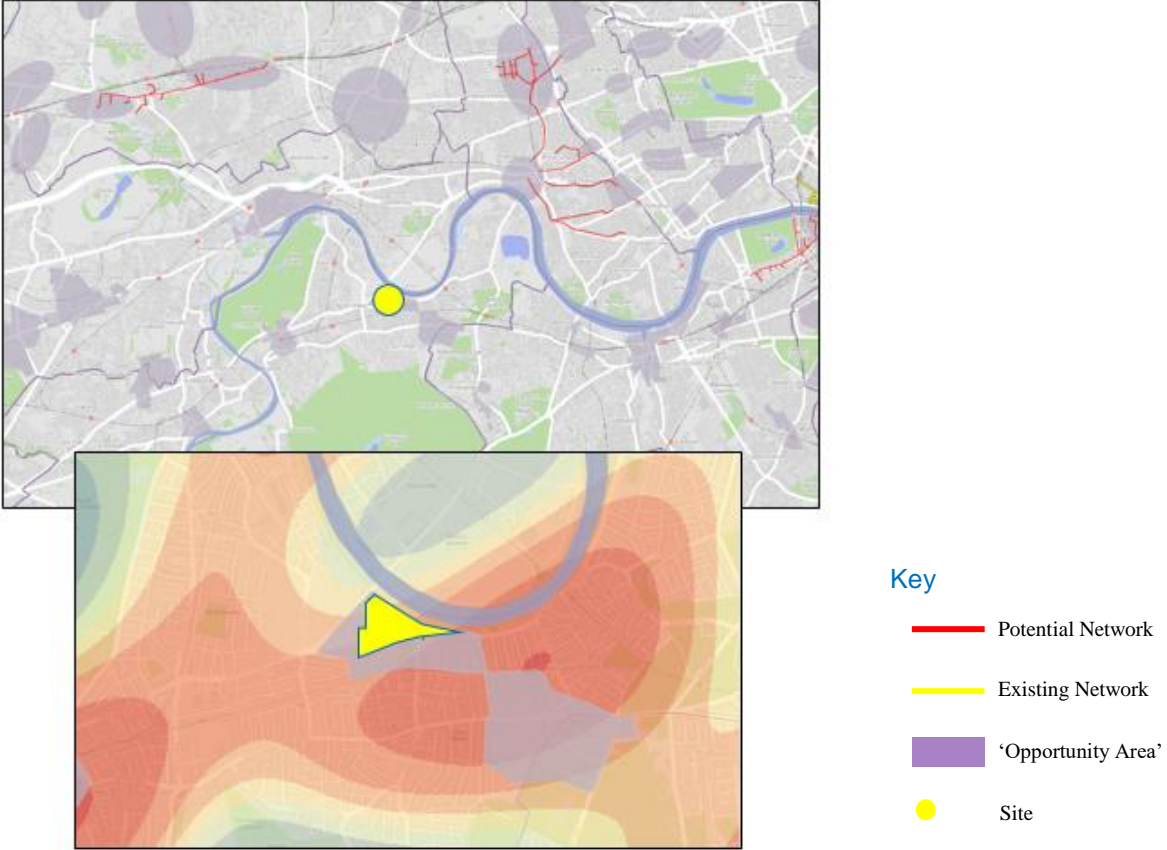
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<p><b>Use Less Energy</b> The design of developments should prioritise passive measures.</p>	<p><b>Use Less Energy</b> Developers should aim to achieve Part L 2013 Building Regulations requirements through design and energy efficiency alone, as far as is practical.</p>	5.2, 5.3, 5.9	CP1, 2 DM SD 1, 4	<p><b>Use Less Energy</b> The following tables summarise the anticipated passive design and energy efficiency targets for the dwellings and commercial areas at the Proposed Development. These parameters have been used to inform the initial outline energy strategy.</p> <table border="1"> <thead> <tr> <th rowspan="2">Passive Design</th> <th>Parameter</th> <th>Dwellings</th> <th>Non-Dwellings</th> </tr> </thead> <tbody> <tr> <td>Roof U-value (W/m<sup>2</sup>.K)</td> <td>0.15</td> <td>0.20</td> </tr> <tr> <td>External Wall U-value</td> <td>0.12</td> <td>0.20</td> </tr> </tbody> </table>				Passive Design	Parameter	Dwellings	Non-Dwellings	Roof U-value (W/m <sup>2</sup> .K)	0.15	0.20	External Wall U-value	0.12	0.20																																																																																																																					
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GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response		
Priority	Best Practice	London Plan	LBRuT Policies			
				(W/m <sup>2</sup> .K)		
				Floor U-value (W/m <sup>2</sup> .K)	0.15	0.20
				Party Wall U-value (W/m <sup>2</sup> .K)	0.00 (fully filled cavity with effective edge sealing)	N/A
				Sheltered Wall U-value (W/m <sup>2</sup> .K)	0.20	N/A
				Window U-value (W/m <sup>2</sup> .K)	1.40 – 1.30	1.60 5.56 – retail display glazing
				Glazing g-value	0.35	040-0.60
				Fabric Air Permeability ((m <sup>3</sup> /m <sup>2</sup> .h) at 50 Pa)	3.00	3.00-5.00
				Thermal Bridging	Approved	-
Summary of Passive Design Measures for Dwellings and Commercial Buildings.						
				<b>Parameter</b>	<b>Dwellings</b>	<b>Non-Dwellings</b>
				Energy Efficiency	Space Heating	High-efficiency (94%) centralised condensing gas-boilers coupled to hot water systems. Heating delivered to space via fan coil units
					Hot Water	Water efficient fixtures and fittings to minimise water demand. HIU with minimal heat loss
					Space Cooling	No cooling.



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response		
Priority	Best Practice	London Plan	LBRuT Policies			
				Lighting	High efficiency lighting. Daylight and presence detection in common areas / roof terraces.	Target efficacy of >70 luminaire lumens per circuit Watt.
				Ventilation	MVHR with specific fan power 0.4-0.53 with Heat Recovery of 91-94%	Target SFP of 1.6W/l/s and HR of 75%
				Metering & Controls	Zonal, programmable thermostatic controls for heating. Separate programmable control for hot water. Electricity meter and heat meter with potential link to energy display device.	To be provided in accordance with the requirements of the Building Regulations.
				Pipework & Ductwork Insulation	To be provided in accordance with the requirements of the Building Regulations.	To be provided in accordance with the requirements of the Building Regulations
				Variable Speed Pumping	To be provided.	To be provided.
				O&M Manuals	Systems overview and detailed descriptions in plain and clear English.	To be provided in accordance with the requirements of the Building Regulations.
<b>Energy Efficient Supply</b>	-	5.5, 5.6	DM SD 2	<p><b>Energy Efficient Supply</b></p> <p>By reference to the London Heat Map (<a href="http://www.londonheatmap.org.uk">http://www.londonheatmap.org.uk</a>), the proposed development is not in close proximity to an existing energy network, the closest being some 5.4miles away in Westminster. This is an unavailable connection, with no known plans to develop or extend as far as Richmond. There are opportunities for potential networks in the Hammersmith area although this remains at a distance that is beyond what could be considered reasonable to connect to at 2.3miles. Figure 4.10 shows the area of the site and the potential networks from the London Heat Map.</p>		
<p>Developers should assess the potential for their developments to:</p> <ul style="list-style-type: none"> <li>▶ Connect to an existing district heating or cooling network;</li> <li>▶ Expand an existing district heating or cooling network, and connect to it; or</li> <li>▶ Establish a Site wide network, and enable the connection of existing buildings in the vicinity of the developers.</li> </ul>						

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				 <p><b>Key</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> Potential Network</li> <li><span style="color: yellow;">—</span> Existing Network</li> <li><span style="background-color: purple; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> 'Opportunity Area'</li> <li><span style="color: yellow;">●</span> Site</li> </ul> <p>From viewing the current London Heat Map data for the area, we understand that there are no current plans to create new or extend existing networks to the proximity of the site. Consideration will therefore be given for the Proposed Development to develop a heat network on the site with an on-site CHP district energy system that allows simple and easy means of connection to any future DEN so that benefit can be taken should an opportunity arise and should a connection be deemed technically, legally and commercially viable.</p> <p>The calculations include for Application B (School) to be serviced by a CHP of its own. This is accounted for within the calculations presented for the Be Clean stage of the whole site in this Energy Strategy. The feasibility of Application B (School) utilising a CHP engine of its own will be reviewed in the detailed design stages.</p>
<p><b>Renewable Energy</b> Major developments should incorporate renewable energy technologies to minimise overall carbon dioxide emissions, where feasible.</p>	-	5.7	CP1, 2 DM SD 1, 2, 3, 4	<p><b>Renewable Energy</b> An appraisal of the available roof space at the Proposed Development has been undertaken. The roof layouts have been designed in response to the need to balance many factors such as:</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response																																														
Priority	Best Practice	London Plan	LBRuT Policies																																															
				<p>a) area required for plant (chillers, flues from boilers, CHP and generator)                      b) area required for access                      c) building heights in respect of the parameter plan thresholds                      d) potential area for PV arrays                      e) green roof areas</p> <p>Considering the available roof space, and allowing for access and maintenance requirements, a total solar PV system size in the region of 520m<sup>2</sup> array area is included on the roofs of Development Area 1 (Application A).</p> <p>Based on the solar irradiance data for London, an array of this size would generate approximately 57,200kWh of electricity per annum, reducing CO<sub>2</sub> emissions by <b>29.7 tonnes</b> per annum. This is equivalent to a reduction in regulated CO<sub>2</sub> emissions of <b>1.0%</b> beyond the Building Regulations Part L (2013) 'baseline'. When considering the residential elements separately, the contribution is equivalent to a <b>2.4%</b> reduction in CO<sub>2</sub> emissions beyond the Building Regulations Part L 2013 'baseline'.</p> <p>PV is therefore anticipated to be a suitable addition to the Proposed Development in pursuit of further reductions in regulated CO<sub>2</sub> emissions.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Annual Output</th> <th colspan="2">Annual Regulated CO<sub>2</sub> Emission Reduction</th> <th rowspan="2">Sizing Notes</th> <th rowspan="2">Suitable?</th> </tr> <tr> <th>Thermal (kWh/yr)</th> <th>Electrical (kWh/yr)</th> <th>Tonnes per year</th> <th>% Beyond Part L 'baseline'</th> </tr> </thead> <tbody> <tr> <td>~756kWe CHP to be met by multiple engines with DEN</td> <td>4,302,000</td> <td>4,055,000</td> <td>410</td> <td>16.3%</td> <td>Running for ~5500 hours per year to provide 28% of the space heating and 99% of the hot water demand.</td> <td></td> </tr> <tr> <td>Application B ~50kWe CHP</td> <td>419,000</td> <td>265,000</td> <td>31</td> <td>17.6%</td> <td>Running for ~5200 hours per year to provide 230of the space heating and 100% of the hot water demand.</td> <td></td> </tr> <tr> <td>~74kWp (520sqm) Photovoltaic (PV) Panels</td> <td>-</td> <td>57,200</td> <td>30</td> <td>1.2%</td> <td>Estimated to require a roof area of approximately 1000sqm.</td> <td></td> </tr> <tr> <td>~260kWp (520sqm) Solar Thermal Heating</td> <td>237,400</td> <td>-</td> <td>58</td> <td>2.4%</td> <td>Estimated to require a roof area of approximately 1000sqm.</td> <td></td> </tr> <tr> <td>~1200kW Wood Pellets Boilers</td> <td>4,317,000</td> <td>-</td> <td>771</td> <td>32.3%</td> <td>Running for ~4800 hours per year to provide 28% of the space heating and 99% of the hot water demand.</td> <td></td> </tr> </tbody> </table>		Annual Output		Annual Regulated CO <sub>2</sub> Emission Reduction		Sizing Notes	Suitable?	Thermal (kWh/yr)	Electrical (kWh/yr)	Tonnes per year	% Beyond Part L 'baseline'	~756kWe CHP to be met by multiple engines with DEN	4,302,000	4,055,000	410	16.3%	Running for ~5500 hours per year to provide 28% of the space heating and 99% of the hot water demand.		Application B ~50kWe CHP	419,000	265,000	31	17.6%	Running for ~5200 hours per year to provide 230of the space heating and 100% of the hot water demand.		~74kWp (520sqm) Photovoltaic (PV) Panels	-	57,200	30	1.2%	Estimated to require a roof area of approximately 1000sqm.		~260kWp (520sqm) Solar Thermal Heating	237,400	-	58	2.4%	Estimated to require a roof area of approximately 1000sqm.		~1200kW Wood Pellets Boilers	4,317,000	-	771	32.3%	Running for ~4800 hours per year to provide 28% of the space heating and 99% of the hot water demand.	
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GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response								
Priority	Best Practice	London Plan	LBRuT Policies									
				~831kW Air Source Heat Pump	2,926,000	-	345	14.5%	Sized to provide 100% of the space heating and cooling and 0% of the hot water demand.			
				~128kW ground Source Heat Pump	709,000	-	61	2.5%	Sized to provide 12% of the space heating 100% of cooling and 0% of the hot water demand.			
				25 No. 6kW Vertical axis wind turbines	-	13,417	7	0.3%	Based on NOABL wind speed data for the site at 30m above ground level.			
<p>Summary of LZC Technology Appraisal for Application A and B</p> <p>Key:</p> <p>(h) heating and hot water output                      (c) cooling output                      hw hot water                      sh space heating                      sc space cooling</p> <p><u>Application A (Development Area 2)</u>                      At the reserved matters submission the available roof space of Development Area 2, for the installation of a solar PV system size would be considered. It is anticipated that this array would contribute to a reduction in CO<sub>2</sub> emissions of at least 1% beyond Part L 2013.</p> <p><u>Application B (School)</u>                      PV is not proposed to be located on Application B (School) building as the roof area is being used to provide a multi-use games area and is also allocated for plant.</p>												
<p><b>Carbon Offsetting</b></p> <p>Where developments do not achieve the Mayor's carbon dioxide reduction targets set out in London Plan Policy 5.2, the developer should make a contribution to the local borough carbon dioxide off-setting fund.</p>	-	5.2, 5.4	-	<p><b>Carbon Offsetting</b></p> <p>The Proposed Development is anticipated to yield a reduction in regulated CO<sub>2</sub> emissions of 537 tonnes beyond the Part L 'baseline'. In this case it would be necessary to offset the remaining 1,253 tonnes for 30 years. The GLA has set the price for Carbon Offset at £60 per tonne per year.</p> <table border="1"> <thead> <tr> <th colspan="2">Whole Site (Application A and B) Total</th> </tr> </thead> <tbody> <tr> <td>Annual Off-set (Residential Areas)</td> <td>1093 tCO<sub>2</sub></td> </tr> <tr> <td>Annual Off-set (Non-residential Areas)</td> <td>140 tCO<sub>2</sub></td> </tr> <tr> <td>Annual Off-set (School)</td> <td>20 tCO<sub>2</sub></td> </tr> </tbody> </table>	Whole Site (Application A and B) Total		Annual Off-set (Residential Areas)	1093 tCO <sub>2</sub>	Annual Off-set (Non-residential Areas)	140 tCO <sub>2</sub>	Annual Off-set (School)	20 tCO <sub>2</sub>
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Annual Off-set (School)	20 tCO <sub>2</sub>											

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
<b>Retrofitting</b> Where works to existing developments are proposed developers should retrofit carbon dioxide and water saving measures.	-	5.4, 5.15	DM SD 1, 3	<p><b>Retrofitting</b></p> <p>The Maltings Building and the existing former Bottling and hotel building (building 5) will include the retrofitting of leak detection and presence detection and solenoid shut-off valves to WC fittings. Energy display devices will also be provided to residential units in order to encourage the efficient use of water and energy.</p> <p>The refurbished buildings will connect to the proposed district heat network from the Development Area 1 energy centre.</p> <p>2.5 credits are also targeted under Wat 01 in BREEAM 2014 Domestic refurb for The Maltings and a consumption level of &lt;105 l/p/day is also targeted.</p>
<b>Monitoring Energy Use</b>	Developers are encouraged to incorporate monitoring equipment, and systems where appropriate to enable occupiers to monitor and reduce their energy use.	5.2, 5.3	-	<p><b>Monitoring Energy Use</b></p> <p>Sub metering of end energy using systems will be specified for Development Area 1 (Application A) and Application B (School). This will include sub-metering of space heating, cooling, ventilation, hot water, small power and lighting. The sub-meters will have pulsed outputs to enable connection to a Building Management System. In residential areas, energy display devices will be installed to enable tenants to monitor their energy consumption. These measures would also be considered for the reserved matters submission(s) for Development Area 2 (Application A).</p>
<b>Resource Management - Water Efficiency</b>				
<b>Water Efficiency</b> Developers should maximise the opportunities for water saving measures and appliances in all developments, including the reuse and using alternative sources of water.	-	5.3, 5.13, 5.15	CP3	<p><b>Water Efficiency</b></p> <p>Application B (School) and non-domestic spaces in Development Area 1 of Application A will be provided with water efficient fixtures, fittings and appliances.</p> <p>For the non-domestic elements, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. This approximately equates to water use ratings of:</p> <ul style="list-style-type: none"> <li>- WC = 4.5 l/flush</li> <li>- Hand Basin Taps = 7.5 l/m</li> <li>- Showers = 8 l/m</li> <li>- Urinal = 3 l/Bowl/hour</li> <li>- Kitchenette tap = 7.5 l/m</li> <li>- Dishwashers = 13 l/cycle</li> </ul> <p>2.5 credits are also targeted under Wat 01 in BREEAM 2014 Domestic refurb for The Maltings, and a water consumption level of &lt;105 l/p/day will be targeted.</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				It is also anticipated that Development Area 2, Application A would consider the provision of water efficient fixtures, fittings and appliances.
<p><b>Water Efficiency</b></p> <p>Developers should design residential schemes to meet a water consumption rate of 105 litres per person per day.</p>	-	5.3, 5.15	CP3 DM SD 9	<p><b>Water Efficiency</b></p> <p>The residential spaces for Development Area 1 of Application A will aim to achieve a water consumption rate of 105 litres per person per day. For The Maltings, 2.5 credits under BREEAM Domestic Refurbishment, Wat 01 is targeted, and a water consumption rate of 105 litres per person per day will also be targeted.</p> <p>The residential spaces within Development Area 2 of Application A would also consider the potential to incorporate this target.</p>
<p><b>Water Efficiency</b></p> <p>New non-residential developments, including refurbishments, should aim to achieve the maximum number of water credits in a BREEAM assessment or the 'best practice' level of the AECB (Association of Environment Conscious Building) water standards.</p>	-	5.3, 5.15	CP1, 3 DM SD 9	<p><b>Water Efficiency</b></p> <p>Water efficient fixtures and fittings will be installed to the non-domestic spaces. The Proposed Development is targeting 2 credits for Water Consumption reductions in the BREEAM assessments for Application B (School) and The Maltings.</p> <p>Fitted out non-domestic spaces in Development Area 1 of Application A will be provided with water efficient fixtures, fittings and appliances.</p> <p>For the non-domestic elements, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. This approximately equates to water use ratings of:</p> <ul style="list-style-type: none"> <li>- WC = 4.5 l/flush</li> <li>- Hand Basin Taps = 7.5 l/m</li> <li>- Showers = 8 l/m</li> <li>- Urinal = 3 l/Bowl/hour</li> <li>- Kitchenette tap = 7.5 l/m</li> <li>- Dishwashers = 13 l/cycle</li> </ul> <p>Tenants will be encouraged to fit-out their spaces appropriately to meet the requirements of the Building Regulations Part G (2013) as a minimum, with the aspiration to achieve a reduction beyond this level for BREEAM credits.</p> <p>It is anticipated that the non-residential elements of Development Area 2 of Application A would also be provided with water efficient fixtures, fittings and appliances, in line with BREEAM requirements.</p>
<p><b>Water Efficiency</b></p> <p>Where a building is to be retained, water efficiency measures should be retrofitted.</p>	-	5.3, 5.4, 5.15	CP3 DM SD 3, 9	<p><b>Water Efficiency</b></p> <p>Refurbishment of The Maltings (Development Area 1 of Application A) will include the complete refit of all WCs fixtures and fittings. The target efficiencies of these new fixtures and fittings is to meet a reduction in the overall water consumption to achieve 2.5 BREEAM credits.</p>





GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
<p><a href="#">Water Efficiency</a></p> <p>All developments should be designed to incorporate rainwater harvesting.</p>	-	5.3, 5.13, 5.15	DM SD 7, 9	<p><a href="#">Water Efficiency</a></p> <p>The potential for inclusion of rainwater harvesting would be further investigated at detailed design stage.</p>
-	<p><a href="#">Water Efficiency</a></p> <p>All residential units, including individual flats / apartments and commercial units, and where practical, individual leases in large commercial properties should be metered.</p>	5.15	-	<p><a href="#">Water Efficiency</a></p> <p>All domestic uses within Development Area 1 (Application A), and the School in Application B, will include pulsed-output water meters, with sub-metering where feasible. Non-domestic units will be metered by tenancy, and tenants will be encouraged to fit sufficient sub-meters to identify different areas of use such as toilets, kitchens and showers.</p> <p>Sub-metering would also be considered for inclusion in Development Area 2, (Application A) where feasible.</p>
<p><b>Resource Management - Materials and Waste</b></p>				
<p><a href="#">Design Phase</a></p> <p>The design of development should prioritise materials that:</p> <ul style="list-style-type: none"> <li>▶ Have a low embodied energy, including those that can be re-used intact or recycled;                             <ul style="list-style-type: none"> <li>▶ At least three of the key elements of the building envelope (external walls, windows roof, upper floor slabs, internal walls, floor finishes / coverings) are to achieve a rating of A+ to D in the BRE's The Green Guide of specification;</li> </ul> </li> <li>▶ Can be sustainably sourced;                             <ul style="list-style-type: none"> <li>▶ At least 50% of timber and timber products should be sourced from accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source;</li> </ul> </li> <li>▶ Are durable to cater for their level of use and exposure; and</li> </ul>	-	5.3, 5.17, 5.20, 7.6, 7.14	<p>CP7</p> <p>DM SD 1, 4</p> <p>DM DC 1</p>	<p><a href="#">Design Phase</a></p> <p><u>Detailed elements (Application A (Development Area 1) and Application B (School)):</u></p> <p>100% of the timber used at the Proposed Development will be FSC certified.</p> <p>Wherever feasible, selected materials will be in the range of A+ to D as confirmed by the BRE Green Guide to Specification.</p> <p>Where specified by the developer (e.g. low VOC paint), finishes and other materials will not contain or emit toxic substances.</p> <p><u>Outline element (Application A, Development Area 2):</u></p> <p>The measures outlined above for Development Area 1 (Application A) and Application B (School) would also be considered for Development Area 2 (Application A).</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
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<p>▶ Will not release toxins into the internal and external environment, including those that deplete stratospheric ozone.</p>				
	<p><b>Design Phase</b> The design of developments should maximise the potential to use pre-fabrication elements.</p>	5.3, 7.6	-	<p><b>Design Phase</b> During detailed design stages, consideration will be given to the use of pre-fabricated elements such as bathroom pods or modular construction. Where practical and suitable, it is intended that these could be used to improve construction time and reduce on-site waste.</p>
<p><b>Construction Phase</b> Developers should maximise the use of existing resources and materials and minimise waste generated during the demolition and construction process through the implementation of the waste hierarchy.</p>	-	5.3, 5.17, 5.20	CP6 DM SD 1	<p><b>Construction Phase</b> BREEAM credits are targeted that require the main contractor to produce a Resource Management Plan prior to commencement of any demolition or construction works on-site. One of the aims of the document will be to investigate how recycling of construction, demolition and excavation material can be maximised, and to highlight means to divert specific waste streams from landfill.</p>
<p><b>Occupation Phase</b> Developers should provide sufficient internal space for the storage of recyclable and compostable materials and waste in their schemes.</p>	-	5.3, 5.17	CP6 DM SD 1	<p><b>Occupation Phase</b> All spaces at the Proposed Development will be provided with suitable internal and communal waste storage facilities for the segregation of recyclable materials, designed to meet the requirements of BS5096 (Waste Management in Buildings), LBRuT and BREEAM.</p>
<p><b>Occupation Phase</b> The design of development should meet borough requirements for the size and location of recycling, composting and refuse storage, and its removal.</p>	-	5.3, 5.17	CP6 DM SD 1	
<p><b>Resource Management - Nature Conservation and Biodiversity</b></p>				
<p><b>Nature &amp; Biodiversity</b> There is no net loss in the quality and quantity of biodiversity.</p>	-	5.3, 7.19	CP1, 4, 10, 12 DM OS 5, 6 DM DC 4	<p><b>Nature &amp; Biodiversity</b> The existing site for Application B (School) includes playing fields, however these contain little ecological value, and so with the addition of ecological enhancements as part of the proposals, it is anticipated that there will be no net loss in the quality and quantity of biodiversity. Proposals in Application A also include a community park and green roofs with links to wider green infrastructure.</p>
<p><b>Nature &amp; Biodiversity</b> Developers make a contribution to biodiversity on their development Site.</p>	-	5.3, 7.19	CP1, 4, 10, 12 DM OS 5, 6 DM DC 4	<p>The landscape plan is proposed to deliver a mix of types of open areas throughout the site, supplemented by extensive tree planting and soft landscaping. A range of character areas will be provided within a number of</p>



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
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				<p>green areas across the site, each of which will contribute to green infrastructure provision. Landscape elements include play facilities, paths and seating areas as well as soft landscape and pedestrian and cycle circulation</p> <p>A number of the ecology credits in BREEAM are being targeted in order to achieve the target of BREEAM 'Excellent'. In order to achieve these credits a Suitably Qualified Ecologist will complete an assessment of biodiversity and suggest measures to improve the net ecological value of the site. Implementing the recommendations of the ecologist will ensure that the proposed development will make a positive contribution to biodiversity and subsequently fulfil the policy requirements of the London Plan and LBRuT.</p> <p>In Development Area 1 of Application A and Application B (School) it is proposed that 10 bat boxes will be provided and 10 bird nesting boxes.</p> <p>Improvements and protection of ecology would be considered in the design of Development Area 2 of Application A.</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	

**Climate Change Adaption - Tackling Increased Temperature and Drought**

<p><b>Overheating</b> Developers should include measures, in the design of their schemes, in line with the cooling hierarchy set out in London Plan Policy 5.9 to prevent overheating over the scheme's lifetime.</p>	-	5.3, 5.9	DM SD 4	<p><b>Overheating</b> The Proposed Development has been designed in accordance with the overheating checklist and the cooling hierarchy to minimise cooling demand and limit the likelihood of high internal temperatures. Mitigation measures such as suitable glazing ratio and g-value, appropriate ventilation levels and minimisation of internal heat gains will be implemented. Through these measures, relevant areas of the Proposed Development will achieve compliance with Criterion 3 of the Building Regulations Part L (2013).</p> <p>It is not anticipated that active cooling will be provided for the residential areas of Development Area 1 (Application A). An overheating risk assessment has been carried out on the Development Area 1 (Application A) proposals in accordance with recent GLA policy, using the CIBSE TM59 methodology. A completed overheating checklist has also been provided in this report.</p> <p>The following mitigation measures have been implemented in the design of the Proposed Development.</p> <ul style="list-style-type: none"> <li>▶ Energy efficient lighting (such as LED or compact fluorescent) with low heat output</li> <li>▶ Insulation to heating and hot water pipework and minimisation of dead-legs to avoid standing heat loss (from pipework to dwellings) including no-hot water storage in the dwellings</li> <li>▶ HIUs located away from main living spaces</li> <li>▶ Environmental controls within the common corridors to provide ventilation</li> </ul>
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GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				<p>► Increased mechanical ventilation rates beyond minimum Building Regulations requirements.</p> <p>The results show a hybrid ventilation strategy enables more than 83% of living rooms, kitchens and bedrooms assessed to meet the CIBSE TM59 requirements of the first criteria of the adaptive thermal comfort model and over 91% of bedrooms meet the second criteria. All dwellings will be provided with opening windows and therefore the adaptive thermal comfort model has been used as the benchmark in this analysis.</p> <p>During the detailed design stages of Development Area 2 of Application A an overheating risk assessment will be undertaken to identify design proposals and mitigation measures that would provide a reduced risk of overheating. The conclusion of the assessment and a further completed overheating checklist would be included in the reserved matters submission(s).</p>
-	<p><b>Heat and Drought Resistant Planting</b></p> <p>The design of developments should prioritise landscape planting that is drought resistant and has a low water demand for supplementary watering.</p>	5.3, 5.15	DM DC 4	<p><b>Heat and Drought Resistant Planting</b></p> <p>The species selected for soft landscaping and green/brown roofs will aim to reduce supplementary watering while still being in keeping with the native ecological environment.</p> <p>Drought resistant planting would also be considered for the landscaping and green roofs of the Outline submission (Development Area 2 of Application A).</p>
-	<p><b>Resilient Foundations</b></p> <p>Developers should consider any long term potential for extreme weather events to affect a building's foundations and to ensure they are robust.</p>	5.3, 7.6	-	<p><b>Resilient Foundations</b></p> <p>The Structural Engineers have considered all applicable geological and hydrological conditions in accordance with relevant design guidance and standards.</p> <p>The BREEAM credit for Wst 05 – Adaptation to Climate Change is targeted for all BREEAM assessments included in Development Area 1 of Application A and Application B (School). A report will identify the main hazards associated with extreme weather events and the predicted impact of climate change, and list of mitigations measures which could be included into the design produced.</p> <p>The Outline submission (Development Area 2 of Application A) would also consider the long term impact of climate change and appropriate mitigation measures would be considered.</p>
<b>Climate Change Adaption – Increasing Green Cover</b>				
<p><b>Urban Greening</b></p> <p>Developers should integrate green infrastructure into development schemes, including by creating links with wider green infrastructure network.</p>	-	2.18, 5.3, 5.10, 5.11	CP1, 4, 10, 12 DM SD 4, 5 DM OS 2, 5	<p><b>Urban Greening</b></p> <p>Native species, or species of benefit to wildlife, will be incorporated throughout the development. New planting will be incorporated close to the river edge, responding to the existing riverside vegetation.</p> <p>The recommendations from the Suitably Qualified Ecologist's report will also include the most appropriate measures to increase the ecological value of the development.</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				<p>Soft landscaping as well as artificial habitats would be provided in the Development. Application A would include:</p> <ul style="list-style-type: none"> <li>▶ hedge planting (1.5 m high) enclosing all ground level residential courtyards east of Ship Lane in the detailed part of the Stag Brewery component of the Development</li> <li>▶ a minimum of ten bat boxes</li> <li>▶ provision of new trees including the use of native species, or species of benefit to wildlife. This includes littoral plant species in areas close to the river edge responding to existing riverside vegetation and fruit / berry and nut bearing trees located in the community park south of the proposed school provision of biodiversity roofs, including a mix of green and brown roofs</li> <li>▶ a green link connecting the River Thames and Mortlake Green.</li> </ul> <p>The recommendations of the ecologist would also be considered for the Outline application of Development Area 1 of Application A, in order to integrate green infrastructure to link to the site of Development Area 1 of Application A and Application B (School)) and wider areas.</p>
<p><b>Urban Greening</b></p> <p>Major developments in the Central London Activity Area (CAZ) should be designed to contribute to the Mayor’s target to increase green cover by 5% in this zone by 2030.</p>	-	5.10	-	<p><b>Urban Greening</b></p> <p>The Proposed Development is not included in the Central Activities Zone (CAZ) and so the London Plan target for the CAZ does not apply.</p>
<p><b>Trees</b></p> <p>Developments should contribute to the Mayor’s target to increase tree cover across London by 5% by 2025.</p>	-	-	CP1, 4 DM DC 4,	<p><b>Trees</b></p> <p>The Proposed Development (Application A) will include park/recreation areas which will include the planting of new evergreen and deciduous trees. With Application A, B and C it is proposed that there will be a net increase in trees on the site.</p>
<p><b>Trees</b></p> <p>Any loss of a trees resulting from development should be replaced with an appropriate tree or group of trees for the location, with the aim of providing the same canopy cover as that provided by the original trees.</p>	-	-	CP1, 4 DM DC 4,	<p><b>Trees</b></p> <p>In order to deliver a comprehensive mixed use development on the Site, some trees will need to be removed. The majority of trees on Site will be retained, and protected during construction. In order to mitigate against tree removal, up to 163 new trees are proposed to be planted across the Stag Brewery site (application A &amp; B) and Chalkers Corner (Application C), representing a 45% increase in tree cover. The new trees will be a mix of species to respond to their locations and provide ecological and biodiversity benefits, and a number will be planted at semi-mature age.</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
<b>Climate Change Adaptation – Flooding</b>				
<b>Surface Water / Sustainable Drainage</b> Developers should maximise all opportunities to achieve greenfield runoff rates in their developments.	-	5.12, 5.13	CP3 DM SD 6, 7, 8, 9	<b>Surface Water / Sustainable Drainage</b> The Drainage Strategy confirms that Application A and B will aim to restrict surface water runoff to 50% of the existing rate. This is set out in the Drainage Strategy for the site. Where applicable the surface water run-off will discharge directly to the Thames at an unrestricted rate. The Application A and Application B areas of the site are expected to require 2650m <sup>3</sup> of attenuation to achieve the restricted run off rate and this would be considered for inclusion in Application A and B appropriately.
<b>Surface Water / Sustainable Drainage</b> When designing their schemes developers should follow the drainage hierarchy set out in London Plan Policy 5.13.	-	5.13	CP3 DM SD 6, 7, 8, 9	The Drainage Strategy confirms that in line with the drainage hierarchy, the Proposed Development in Application A will discharge surface water runoff from the northeast part of the Site into the adjacent River Thames. Due to the tidal nature of the Thames, LBRuT accept that surface water runoff can discharge to it unrestricted. Refer to the Drainage Strategy for details.  The provision of SuDs will be considered for the Proposed Development in Application A and B, which could include green planting and rainwater harvesting.  The Drainage Strategy provided in support of the applications states:
<b>Surface Water / Sustainable Drainage</b> Developers should design Sustainable Drainage Systems (SuDS) into their schemes that incorporate attenuation for surface water runoff as well as habitat, water quality and amenity benefits.	-	5.3, 5.13, 5.14	CP3 DM SD 6, 7, 8, 9	Appropriate treatment would be incorporated into the drainage system to ensure that the quality of water discharged is acceptable. This would be achieved through the incorporation of green roofs, and the potential inclusion of blue roofs, rainwater harvesting, permeable paving, and swales. If required, a biomat filtration system, downstream defender or other hard engineered solution could also be incorporated to ensure discharge is appropriately treated. This report sets out the principals of the SuDS scheme, however the final proposed SuDS would be confirmed at the detailed design stage.
<b>Flood Resilience</b> Development in areas at risk from any form of flooding should include flood resistance and resilience measures in line with industry best practice.	-	5.3, 5.12, 5.13	CP3 DM SD 6, 7, 8, 9	<b>Flood Resilience</b> By reference to the Environment Agency Flood Risk Map, it is understood that Application A and B of the Proposed Development is within Flood Zone 3, however it is within the area that benefits from the Thames flood defences.

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				<p>The existing site boundary walls will be removed or modified as required and new flood defence walls will be provided. Full details of Flood Risk Management Measures have been provided in the Flood Risk Assessment submitted as part of Application .</p>
<b>Flood Risk Management</b>	-	5.3, 5.12	CP3 DM SD 6, 7, 8, 9	<p><b>Flood Risk Management</b></p> <p>The Proposed Development is located within the area protected by existing flood defences. In addition to this, the existing site boundary walls will be removed or modified as required and new flood defence walls will be provided. Additional Flood Risk Management measures will be considered for Development Area 1 of Application A and Application B (School), as appropriate.</p>
<b>Flood Risk Management</b>	-	5.3, 5.12	CP3 DM SD 6, 7, 8, 9	<p>Appropriate Flood Risk Management measures would also be considered for Development Area 2 of Application A to be confirmed in the reserved matters submission(s).</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
measures are to be incorporated into the design to ensure resilience and the safety of occupiers.				Full details of Flood Risk Management Measures have been provided in the Flood Risk Assessment submitted as part of Application A.
<b>Other Flooding</b> All sources of flooding need to be considered when designing and constructing developments.	-	5.3, 5.12, 5.13	CP3 DM SD 6, 7, 8, 9	<b>Other Flooding</b> All sources of flooding have been considered when designing and constructing developments. Please refer to the Flood Risk Assessment.
<b>Pollution Management - Land Contamination</b>				
Developers should set out how existing land contamination will be addressed prior to the commencement of their development.	-	3.2, 5.3, 5.21	CP1	<b>Land Contamination</b> The Environmental Statement sets out the issues of existing ground contamination, the risks and remediation measures. The basement excavation would remove the majority, if not all, Made Ground within the Stag Brewery component of the Site, thereby substantially reducing the hotspots of contamination associated with the Stag Brewery component of the Site of Application A and B.  Below ground Development infrastructure would be inherently suitably designed and specified for the ground conditions at the Site and to withstand the potential adverse effects from any residual contamination which could give rise to chemical attack. The likely effect is therefore considered to be insignificant
Potentially polluting uses are to incorporate suitable mitigation measures.	-	3.2, 5.3, 5.21	CP1	<b>Land Contamination</b> The Proposed Development is not proposing to include uses that would lead to land contamination.
<b>Pollution Management - Air Quality</b>				
<b>Air Quality</b> Developers are to design their schemes so that they are at least 'air quality neutral'.	-	7.14	CP1	<b>Air Quality</b> Systems at the Proposed Development (Application A and B) will be selected to minimise emissions of Nitrous Oxide (NOx) and other pollutants which can lead to adverse air quality impacts.
<b>Air Quality</b> Developments should be designed to minimise the generation of air pollution.	-	5.3, 7.14	CP1, 5	The Proposed Development , Application A and B, will be serviced through the provision of CHP engines with NOx abatement technologies and low NOx emission boilers to minimise the generation of air pollution, and cycling will be encouraged through the provision of cyclist facilities in order to reduce the use of cars. Electric car charging points will also be provided. These measures are consistent with those identified by LBRuT within their Air Quality Action Plan.  Future emissions scenarios indicate that gas-fired CHP may not be an effective method of reducing CO <sub>2</sub> over electrically based heating systems such as air source heat pumps (ASHP). This is likely to become relevant within the timescales of the phases of the Proposed Development. As ASHP do not contribute to local air quality the implementation of this technology would minimise negative effect on air quality.



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				<p>The energy strategy that provides beneficial CO<sub>2</sub> emissions reductions in accordance with policy and building regulations at the time of the reserved matters submission(s) would be submitted for consideration with the application at that time. This approach would provide more flexibility in the longer term with respect to energy sources, and maximising carbon emissions reductions throughout the lifetime of the Proposed Development and the associated impact on air quality.</p> <p>The impact of Application C on Air Quality is addressed in the Environmental Impact Assessment. When considering the impact of the Development (with highway works) against the 2027 baseline, which is the scenario that is presented in the Chapter 10 Air Quality of the ES, the Development results in a 'negligible' impact at all 140 receptor locations. The results show that the highway works balance out the adverse Development traffic impacts.</p>
<p><b>Air Quality</b> Developments should be designed to minimise and mitigate against increased exposure to poor air quality.</p>	-	3.2, 5.3, 7.14	CP1, 5	<p><b>Air Quality</b> The Proposed Development will be serviced through the provision of CHP engines with appropriate NOX abatement technologies located in a dedicated energy centre, supported by additional gas boilers.</p> <p>The boilers will be selected with low NOx emissions to reduce the impact on local air quality.</p> <p>The Environmental Impact Assessment will review and assess mitigation techniques that will be incorporated into the Proposed Development, with the aim of minimising the generation of air pollution and mitigating against increased exposure to poor air quality.</p> <p>The impact of Application C on Air Quality is addressed in the Environmental Impact Assessment. See the section above for a summary of the conclusion of the report.</p>
<p><b>Air Quality</b> Developers should select plant that meets the standards for emissions from combined heat and power and biomass plants set out in Appendix 7.</p>	-	7.14	CP2	<p><b>Air Quality</b> The CHP engine and NOx abatement will be selected to meet the criteria for pollutant emissions as provided in Appendix 7 of the Sustainable Design and Construction Guide (2014) for Development Area 1 of Application A and Application B (School).</p> <p>The appropriate use of CHP with NOx abatement would be considered for Development Area 2 of Application A, to be confirmed by the reserved matters submission(s).</p>
<p><b>Air Quality</b> Developers and contractors should follow the guidance set out in the emerging The Control of Dust and Emissions during Construction and Demolition SPG when constructing their development.</p>	-	5.3, 7.14	-	<p><b>Air Quality</b> It is intended that contractors for Application B (School) and Development Area 1 of Application A will comply with The Control of Dust and Emissions during Construction and Demolition SPG, and will also be required to identify potential sources of dust and other air pollution and ensure appropriate dust control measures are implemented.</p> <p>It is also intended that the main contractors will register under the Considerate Constructors Scheme and achieve a best practice score, in order to achieve the associated BREEAM credits.</p>

GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
				These measures would also be considered for inclusion in the contractor's requirements for Development Area 2 of Application A.
<b>Pollution Management - Noise</b>				
Areas identified as having positive sound features or as being tranquil should be protected from noise.	-	3.2, 7.15	CP1,5	<b>Noise</b> The Site does not include areas identified as having positive sound features or as being tranquil.
Noise should be reduced at source, and then designed out of a scheme to reduce the need for mitigation measures.	-	3.2, 5.3, 7.6, 7.15	CP1, 5	<b>Noise</b> <u>Detailed elements (Application A (Development Area 1), and Application B (School)):</u> Noise attenuation measures will be incorporated on-site where required, to ensure that any noise generated by equipment or services will not generate a source of noise pollution or negatively impact the surrounding area.  The Site is located in an area with a high level of background noise. High efficiency mechanical ventilation will be available to provide ventilation to the spaces in addition to the option to use natural ventilation. This will aid noise attenuation as occupants will not be reliant on opening windows to maintain good indoor air quality and control internal temperatures.  <u>Outline element (Application A, Development Area 2)</u> The strategy detailed above would also be considered for Development Area 2 of the Proposed Development.
<b>Pollution Management - Light Pollution</b>				
Developments and lighting schemes should be designed to minimise light pollution.	-	5.2, 5.3, 6.7	CP4 DM OS 9 DM SD 3	<b>Light Pollution</b> All external lighting provided as part of the Proposed Development will be energy efficient. It is anticipated that suitable controls such as daylight detection and time-switches will be provided to minimise inappropriate use.  Luminaires will be selected with suitable light output ratio and polar curve to ensure light is distributed appropriately. This will minimise light lost to the night sky.
<b>Pollution Management - Water Pollution</b>				
In their aim to achieve a greenfield runoff rate developers should incorporate sustainable urban	-	5.3, 5.13, 5.14	CP3 DM SD 3, 6, 7, 9	<b>Surface Water Runoff</b> A number of SuDS have been assessed for their suitability for the Proposed Development as part of the Drainage Strategy. Green/Brown roofs, Blue roofs, Rainwater harvesting and underground attenuation have been



GLA Sustainable Design & Construction SPG		Policy References		Proposed Development Response
Priority	Best Practice	London Plan	LBRuT Policies	
drainage systems (SuDS) into their schemes which also provide benefits for water quality.				<p>considered for the Proposed Development. The final proposed SuDS would be confirmed at the detailed design stage.</p> <p>For Development Area 1 of Application A and Application B (School) the Drainage Strategy submitted in support of the applications states:</p> <p>Appropriate treatment would be incorporated into the drainage system to ensure that the quality of water discharged is acceptable. This would be achieved through the incorporation of green roofs, and the potential inclusion of blue roofs, rainwater harvesting, permeable paving, and swales. If required, a biomat filtration system, downstream defender or other hard engineered solution could also be incorporated to ensure discharge is appropriately treated. This report sets out the principals of the SuDS scheme, however the final proposed SuDS would be confirmed at the detailed design stage.</p>
-	<p><b>Surface Water Runoff</b> Encourage good environmental practice to help reduce the risk from business activities on the London water environment.</p>	5.3, 5.13, 5.14	CP3 DM SD 3, 6, 7, 9	<p><b>Surface Water Runoff</b> It is intended that commercial tenants will be advised of good environmental practice to reduce risk on the London water environment.</p>
-	<p><b>Surface Water Runoff</b> Encourage those working on demolition and construction sites to prevent pollution by incorporating prevention measures and following best practice.</p>	5.3, 5.14	CP3 DM SD 3, 6, 7, 9	<p><b>Surface Water Runoff</b> The main contractor will be required to operate in an environmentally conscious manner to prevent pollution. It is also intended that the main contractor shall register under the Considerate Constructors Scheme and achieve a best practice score.</p>
<b>Pollution Management - Wastewater Treatment</b>				
Commercial developments discharging trade effluent should connect to the public foul sewer or combined sewer network where it is reasonable to do so subject to a trade effluent consent from the relevant sewerage undertaker.	-	5.3, 5.14	DM SD 10	<p><b>Wastewater Treatment</b> All spaces at the Proposed Development will be provided with suitable connections to the public foul sewer or combined sewer network, as appropriate.</p>
Developments should be properly connected and post construction checks should be made by developers to ensure that misconnections do not occur.	-	5.3, 5.14	DM SD 10	

### 4. Conclusions

This statement demonstrates that high standards of environmental sustainability have been considered in the design of the Proposed Development. This is demonstrated by the commitment to energy efficiency, water efficiency, waste management and cyclist facilities.

The strategy highlights how the Proposed Development achieves the sustainability objectives. The features of the Development include:

- a. The non-domestic areas of Application A at the Proposed Development seek to target BREEAM 'Excellent' as a minimum as is required by LBRuT policy. This includes the hotel, office, and cinema areas.
- b. The School (application B) would aspire to achieve a BREEAM 'Excellent' rating. However, this development is to be brought forward by LBRuT not the applicant.
- c. The energy strategy is designed to achieve regulated CO<sub>2</sub> emissions reductions, with the following targets for CO<sub>2</sub> emissions reductions beyond Part L 2013 baseline:
  - i. Development Area 1 of Application A is targeting a reduction of **21.0%**
  - ii. Development Area 2 of Application A is targeting a reduction of **19.5%**
  - iii. The School (Application B) is targeting a reduction of **23.8%**
- d. Water efficient devices will be installed to target a reduced water consumption in the non-domestic areas sufficient to achieve two credits for the New Construction elements and 2.5 credits for the domestic refurbishment element.
- e. The Proposed Development (Application A) will include park/recreation areas which will include the planting of new evergreen and deciduous trees. With Application A, B and C it is proposed that there will be a net increase in trees on the site.
- f. A number of SuDS have been assessed for their suitability for the Proposed Development as part of the Drainage Strategy. Green/Brown roofs, Blue roofs, Rainwater harvesting and underground attenuation have been considered for the Proposed Development of Application A. Application B will include attenuation to limit run off rate to the required limit.
- g. The Maltings building (Building 4) is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to re-establish a new combination of uses for this building. The new uses include a hotel (in the part of the building formerly occupied by a hotel), office, gym and retail use. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint. Where new materials are introduced they will be specified, where possible and practicable, to be sustainably sourced, recycled or re-used building materials.
- h. A Resource Management Plan will be produced by the Principal Contractors to monitor, sort and recycle construction waste on or off site.
- i. Recyclable waste storage will be provided for the occupants to manage their operational waste. Waste storage areas are provided throughout Application A to enable the management of waste.
- j. Secure cycle storage and facilities will be provided to encourage the use of bicycles.
- k. Contractors will be required to sign up to the Considerate Constructors Scheme (CCS) and target a beyond best practice score.

- I. Systems at the Proposed Development (Application A and B) will be selected to minimise emissions of Nitrous Oxide (NO<sub>x</sub>) and other pollutants which can lead to adverse air quality impacts. The Proposed Development, Application A and B, will be serviced through the provision of CHP engines with NO<sub>x</sub> abatement technologies and low NO<sub>x</sub> emission boilers to minimise the generation of air pollution, and cycling will be encouraged through the provision of cyclist facilities in order to reduce the use of cars. Electric car charging points will also be provided. These measures are consistent with those identified by LBRuT within their Air Quality Action Plan. Details provided in the Environmental Impact Assessment. The impact of Application C on Air Quality is addressed in the Environmental Impact Assessment. When considering the impact of the Development (with highway works) the results demonstrate a 'negligible' impact. The results show that the highway works balance out the adverse Development traffic impacts.

It is also anticipated that all occupied spaces of the Proposed Development of Application A and B will achieve compliance with the Building Regulations Part L 2013 Criterion Three requirements and that the risk of overheating is mitigated by the inclusion of features such as internal blinds, g-value of the glazing, an appropriate glazing ratio and mechanical ventilation rates in excess of the minimum requirements of building regulations.

Appendix A - BREEAM New Construction Pre-Assessment Summary

This report provides an indicative BREEAM 2014 New Construction pre-assessment for the Proposed Development.

The development falls under multiple assessment type categories as set out in table 1 and a Shell and Core assessment has been assumed for the Office, Hotel and Cinema. A 'Fully Fitted' assessment has been assumed for Application B (School). The proposed development is targeting a BREEAM 'Excellent' rating for each of the assessment types outlined below.

The Proposed Development is a mixed use scheme of apartments, nursing home, assisted living units, retail premises, office units, a school, a gym and a basement with car park. However, this reports focuses solely on the non-residential elements of Applicatoin A, Development Area 1 and Application B, The School; that is, the office, retail, hotel, and school spaces as shown in Table A1 below:

Assessment Type	Assessed Accommodation	Floor Area (sqm)
BREEAM Offices	▶ Office Units	2,424
	▶ Cinema	2,120
BREEAM Other	▶ Hotel	1,668
	▶ School	9,319

Table A.1: BREEAM Assessment Types

The current anticipated baseline score is as per table A2.

	BREEAM Target Score	Rating
Office Units	74.0%	'Excellent'
Hotel	72.5%	'Excellent'
Cinema	71.4%	'Excellent'
School	72.3%	'Excellent'

Table A.2: Anticipated BREEAM 2014 Performance Summary

A margin of at least 3% – 5% is recommended above the minimum required score at this stage to secure the target rating against design changes and potential constraints identified during the construction stage.

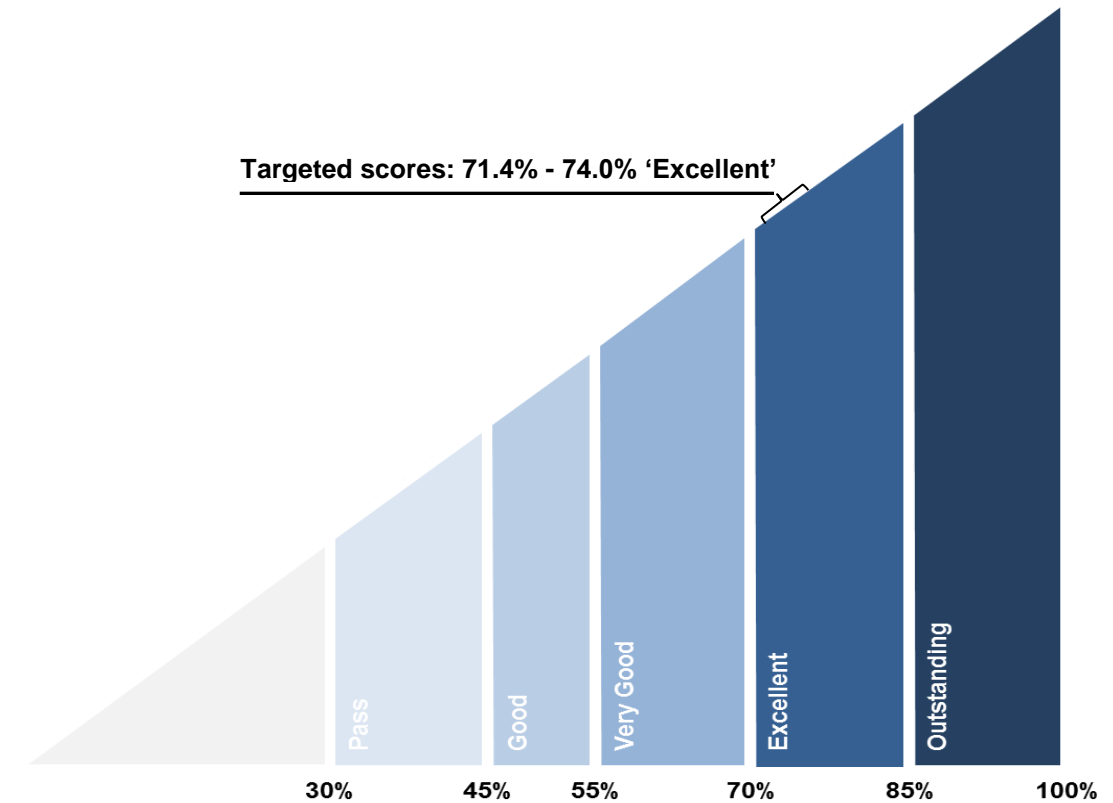


Figure A.1: BREEAM 2014 Scale and Anticipated Performance Scores.

The summary table below highlights the list of targeted credits for the current BREEAM 2014 pre-assessment. Mandatory credits to achieve a 'Very Good' rating and above are highlighted by **(M)**. Additional mandatory credits for an 'Excellent' or 'Outstanding' rating are highlighted by **(M<sub>e</sub>)** and **(M<sub>o</sub>)** respectively. Exemplary (innovation) credits are written in brackets; e.g. (+1).

The different assessment types have differing available credits. These are noted where applicable in the table below.

# SUSTAINABILITY

## Stag Brewery Sustainability Statement



Category	Issue	Targeted Credits				
		Available	Office	Hotel	Cinema	School
Management	Man 01: Project Brief and design	4	4	4	4	4
	Man 02: Lifecycle Cost and Service Life Planning	4	4	4	4	4
	Man 03: Responsible Construction Practices <b>(Me), (Mo)</b>	6	6	6	6	6
	Man 04: Commissioning and Handover <b>(Me), (Mo)</b>	4	4	4	4	4
	Man 05: Aftercare	3	-	-	-	3
Health & Wellbeing	Hea 01: Visual Comfort	3 5 - School	2	2	1	3
	Hea 02: Indoor Air Quality	2 5 - School	1	1	1	3
	Hea 04: Thermal Comfort	2 3 - School	2	2	2	3
	Hea 05: Acoustic Performance	1 3 - School	1	1	1	3
	Hea 06: Safety and Security	2	2	2	2	2
	Energy	Ene 01: Reduction of CO <sub>2</sub> Emissions <b>(Me)</b>	12	6	6	6
Ene 02: Energy Monitoring <b>(M)</b>		2	2	2	2	2
Ene 03: External Lighting		1	1	1	1	1
Ene 04: Low Carbon Design		3	1	1	1	1
Ene 05: Energy Efficient Cold Storage		2	-	-	-	-
Ene 06: Energy Efficient Transportation Systems		3	3	3	3	3

Category	Issue	Targeted Credits				
		Available	Office	Hotel	Cinema	School
	Ene 08: Energy Efficient Equipment	2	-	-	-	0
Transport	Tra 01: Public Transport Accessibility	5 – Cinema & Hotel 3 – School & Office	2	2	2	2
	Tra 02: Proximity to Amenities	1	1	1	1	1
	Tra 03: Cyclist Facilities	2	2	2	2	2
	Tra 04: Maximum Car Parking Capacity	2	2	2	2	-
	Tra 05: Travel Plan	1	1	1	1	1
Water	Wat 01: Water Consumption <b>(M)</b>	5	2	2	2	2
	Wat 02: Water Monitoring <b>(M)</b>	1	1	1	1	1
	Wat 03: Water Leak Detection and Prevention	2	2	2	2	2
	Wat 04: Water Efficient Equipment	1	1	1	1	1
Materials	Mat 01: Life Cycle Impacts	5 - Office 6 – School, Hotel & Cinema	3	3	3	3
	Mat 02: Hard Landscaping and Boundary Protection	1	1	1	1	1
	Mat 03: Responsible Sourcing of Materials <b>(M)</b>	4	2	2	2	2
	Mat 04: Insulation	1	1	1	1	1

# SUSTAINABILITY

## Stag Brewery Sustainability Statement



Category	Issue	Targeted Credits				
		Available	Office	Hotel	Cinema	School
	Mat 05: Designing for Durability and Resilience	1	1	1	1	1
	Mat 06: Material Efficiency	1	1	1	1	1
Waste	Wst 01: Construction Waste Management (M <sub>o</sub> )	4	3	3	3	3
	Wst 02: Recycled Aggregates	1	0	0	0	0
	Wst 03: Operational Waste (M <sub>e</sub> ), (M <sub>o</sub> )	1	1	1	1	1
	Wst 04: Speculative Floor and Ceiling Finishes	1	1	-	-	-
	Wst 05: Adaptation to Climate Change	1	1	1	1	1
	Wst 06: Functional Adaptability	1	0	1	1	0
Land Use and Ecology	LE 01: Site Selection	2	1	1	1	1
	LE 02: Ecological Value of Site and Protection of Ecological Features	2	2	2	2	2
	LE 03: Minimising Impact on Existing Site Ecology (M)	2	2	2	2	2
	LE 04: Enhancing Site Ecology	2	2	2	2	2
	LE 05: Long Term Impact on Biodiversity	2	2	2	2	2
Pollution	Pol 01: Impact of Refrigerants	3	0	0	0	0
	Pol 02: NO <sub>x</sub> Emissions	3	0	0	0	0
	Pol 03: Surface Water Run-off	5	3	3	3	3
	Pol 04: Reduction of Night-time Light Pollution	1	1	1	1	1
	Pol 05: Noise Attenuation	1	1	1	1	1

Category	Issue	Targeted Credits				
		Available	Office	Hotel	Cinema	School
Innovation	Inn 01: Approved Innovation and Exemplary Level Credits	10	1	1	1	1
Targeted weighted score & rating:			<b>74.0%</b>	<b>72.5%</b>	<b>71.4%</b>	<b>72.3%</b>
<b>'Excellent' rating</b>						

Table A3: BREEAM Target Summary.

Appendix B - BREEAM Domestic Refurbishment Pre-Assessment Summary

This report relates the areas of the Proposed Development that will be refurbished into dwellings. It is recommended the building should be registered under the BREEAM 2014 Domestic Refurbishment (DR) scheme and assessed under the BREEAM 2014 New Domestic Refurbishment (DR) Scheme.

This reports is relevant to the refurbishment of Block 4 – The Maltings and is targeting a BREEAM ‘Excellent’ rating. The building contains non-domestic areas on the ground floor and residential areas on the upper floors.

This draft pre-assessment has been carried out independently by a qualified BREEAM assessor prior to a review by the project design team. This report sets out a route to achieving the target rating, and highlights the design team members responsible for each credit issue.

- ▶ Baseline score / rating: 73.41% equivalent to an ‘Excellent’ rating

Note: All mandatory and minimum standards for the ‘Excellent’ rating have been targeted within the baseline score.

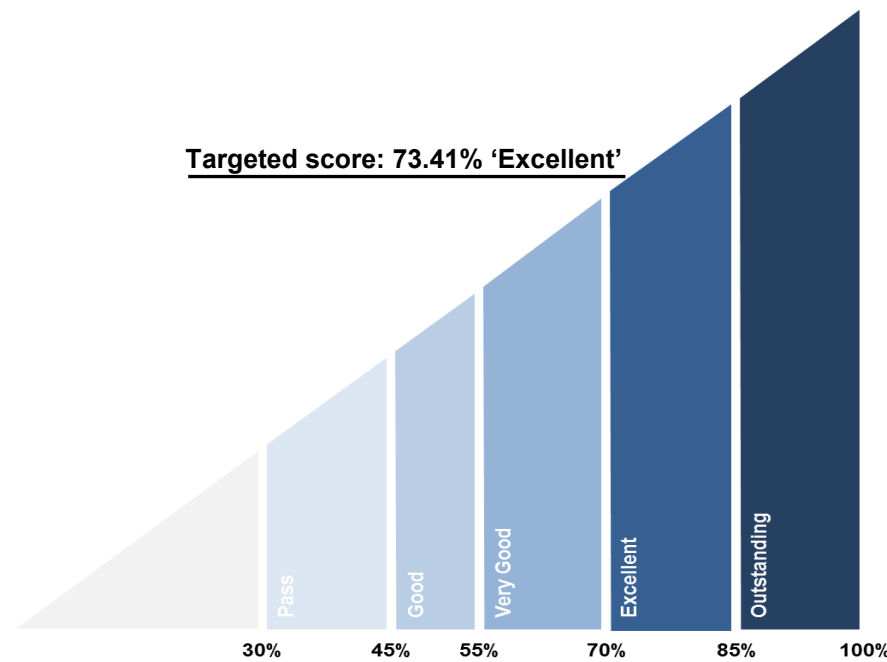


Figure B.1. BREEAM 2014 Scale and Anticipated Performance Score.

The summary table highlights the list of targeted credits for the current BREEAM Domestic Refurbishment 2014 pre-assessment. Mandatory credits to achieve a “Very Good’ rating and above are highlighted by (M).

Category	Issue	Credits	
		Available	Targeted
Management	Man01: Home User Guide	3	3
	Man02 Responsible Construction Practices	2	2
	Man03 Construction Site Impacts	1	1
	Man04 Security	2	2
	Man05 Protection and Enhancement of Ecological Features	1	1
	Man06 Project Management	2	2
Health & Wellbeing	Hea01 Daylighting	2	0
	Hea02 Sound Insulation	4	4
	Hea03 Volatile Organic Compounds	1	1
	Hea04 Inclusive Design	2	1
	Hea05 Ventilation (M)	2	2
	Hea06 Safety (M)	1	1
Energy	Ene01 Improvement in Energy Efficiency Rating	6	3.5
	Ene02 Energy Efficiency Rating Post Refurbishment (M)	4	2.5
	Ene03 Primary Energy Demand	7	4.5
	Ene04 Renewable Technologies	2	0
	Ene05 Energy Labelled White Goods	2	2
	Ene06 Drying Space	1	1
	Ene07 Lighting	2	2
	Ene08 Energy Display Devices	2	2
	Ene09 Cycle Storage	2	2
	Ene10 Home Office	1	1
Water	Wat01 Internal Water Consumption (M)	3	2
	Wat02 External Water Use	1	0
	Wat03 Water Meter	1	1
Materials	Mat01 Life Cycle Impacts (M)	25	15



# SUSTAINABILITY

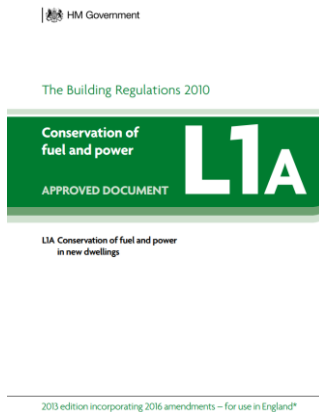
## Stag Brewery Sustainability Statement



Category	Issue	Credits	
		Available	Targeted
	Mat02 Responsible Sourcing of Materials	15	9
	Mat03 Insulation (M)	8	4
Waste	Was01 Household Waste	2	2
	Was02 Refurbishment Site Waste Management	3	3
Pollution	Pol01 Impact of Refrigerants	3	2
	Pol02 Surface Water Runoff	3	0
	Pol03 Flooding	2	2
Innovation	Man02 Responsible Construction Practices	1	0
	Man05 Protection and Enhancement of Ecological Value	1	0
	Man06 Project Management	2	0
	Hea04 Inclusive Design	1	0
	Ene02 Energy Efficiency Rating	1	0
	Ene08 Display Energy Devices	1	1
	Wat01 Internal Water Use	1	0
	Was02 Refurbishment Site Waste Management	1	0
Pol02 Surface Water Run-off	1	0	
<b>Total</b>			<b>73.41% 'Excellent' rating</b>

Table B.1: Credit summary.

## 5. Appendix C: Policy Framework



### 5.1 Building Regulations Part L 2013

Criterion one of the Building Regulations Part L 2013 requires that the building as designed is not anticipated to generate CO<sub>2</sub> emissions in excess of that set by a Target Emission Rate (TER) calculated in accordance with the approved Standard Assessment Procedure (SAP) v9.92 2012 for dwellings and the National Calculation Methodology (NCM) 2013 for non-dwellings.

On aggregate, Part L 2013 requires the following CO<sub>2</sub> emissions reductions:

- ▶ 6% beyond the requirements of Part L 2010 for dwellings
- ▶ 9% beyond the requirements of Part L 2010 for non-domestic buildings

Criterion two places upper limits on the efficiency of controlled fittings and services for example, an upper limit to an external wall U-value of 0.30W/m<sup>2</sup>.K (dwellings).

Part L 2013 requires the following performance targets to be met:

- ▶ Target Fabric Energy Efficiency (TFEE). The TFEE is calculated independently for each dwelling, based upon an elemental recipe of efficiency parameters, applied to the geometry of the dwelling in question. This will generate a notional value which will then be relaxed by 15% to generate the TFEE.

Criterion three requires that dwellings are not at 'high' risk of overheating in summer months (June, July & August) and that zones in commercial buildings are not subject to excessive solar gains. This is demonstrated using the procedure given in SAP 2012 Appendix P for dwellings and the National Calculation Methodology (NCM) 2013 for non-dwellings.

### 5.2 GLA Planning Policy

#### The London Plan Consolidated with Alterations Since 2011 (March 2016)

The regional policies of the GLA are contained within the London Plan. The latest version of the consolidated London Plan (2016) was published and adopted in March 2016. This constitutes the London Plan 2011 consolidated with:

- ▶ Revised Early Minor Alterations to the London Plan (October 2013)
- ▶ Further Alterations to the London Plan (March 2015)
- ▶ Housing Standards Minor Alterations to the London Plan (March 2016)

- ▶ Parking Standards Minor Alterations to the London Plan (March 2016)

#### London Plan – Consolidated with Alterations since 2011 (March 2015)

On the 10th March 2015, Further Alterations to the London Plan was issued. The updated London Plan document is now a material consideration for planning applications. Key alterations to the document are as follows:

- ▶ A new policy is in place relating to electricity and gas supply.
- ▶ Policy guidance changes relating to increased provision of waste capacity.
- ▶ Funding to create cycle friendly 'mini Hollands' for up to four outer London Borough town centres.
- ▶ Further guidance is given which highlights the importance of demand side energy management and minimum standards for cycle parking.

#### London Plan Policy

Development within LBRuT is subject to the policy requirements of the London Plan 2016. The following policies of the London Plan (2016) have informed this strategy.

#### Policy 5.2: Minimising CO<sub>2</sub> Emissions

Policy 5.2 requires new-build domestic and non-domestic development to reduce CO<sub>2</sub> emissions.

The target reduction in CO<sub>2</sub> emissions for Residential Buildings is to achieve 'zero carbon homes' for Stage 1 applications. The definition of this is clarified in the GLA's publication *Guidance on Preparing Energy Assessments*. The target for 'Non-Domestic Buildings' is to achieve 35% reduction in CO<sub>2</sub> emissions.

This document was produced by the GLA to provide further detail on how to prepare an energy assessment to accompany strategic planning applications. Within this, the definition of 'zero carbon homes' is made as follows:

*'Zero carbon' homes are homes forming part of major development applications where the residential element of the application achieves at least a 35 per cent reduction in regulated carbon dioxide emissions (beyond Part L 2013) on-site. The remaining regulated carbon dioxide emissions, to 100 per cent, are to be off-set through a cash in lieu contribution to the relevant borough to be ring fenced to secure delivery of carbon dioxide savings elsewhere (in line with policy 5.2E).*





The cash in lieu payment is currently set at £1,800 per tonne of CO<sub>2</sub> (equivalent to £60 per tonne per year over 30 year period).

Use Type	CO <sub>2</sub> Reduction Target (beyond Part L 2013)	
	2013 – 2016	2016 – 2019 (1 <sup>st</sup> October 2016)
Residential Buildings	35%	<b>'Zero Carbon'</b>
Non-Domestic Buildings	35%	35%

Table A1: Uplift in CO<sub>2</sub> emissions targets

**Policy 5.1 Climate Change Mitigation**

The Mayor seeks to achieve an overall reduction in London’s carbon dioxide emissions of 60 per cent (below 1990 levels) by 2025. It is expected that the GLA Group, London boroughs and other organisations will contribute to meeting this strategic reduction target, and the GLA will monitor progress towards its achievement annually.

**Policy 5.2: Minimising CO<sub>2</sub> Emissions**

Policy 5.2 sets out the target CO<sub>2</sub> emission reductions as described above.

**Policy 5.3 Sustainable Design and Construction**

Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process.

**Policy 5.4 Retrofitting**

The environmental impact of existing urban areas should be reduced through policies and programmes that bring existing buildings up to the Mayor’s standards on sustainable design and construction. In particular, programmes should reduce carbon dioxide emissions, improve the efficiency of resource use (such as water) and minimise the generation of pollution and waste from existing building stock.

**Policy 5.5 Decentralised energy networks**

The Mayor expects 25 per cent of the heat and power used in London to be generated through the use of localised decentralised energy systems by 2025. In order to achieve this target the Mayor prioritises the development of decentralised heating and cooling networks at the development and area wide levels, including larger scale heat transmission networks.

**Policy 5.6: Decentralised Energy in Development Proposals**

Policy 5.6 requires development proposals to evaluate the feasibility of Combined Heat & Power (CHP) systems and where a new CHP system is

appropriate, examine opportunities to extend the system beyond the Site boundary. Developments should select energy systems on the following hierarchy:

- a. connection to existing heating or cooling networks
- b. site wide CHP network
- c. communal heating and cooling

Where future network opportunities are identified, proposals should be designed to connect to these networks.

**Policy 5.7: Renewable Energy**

Policy 5.7 requires that developments should provide a reduction in expected CO<sub>2</sub> emissions through the use of on-site renewable energy generation, where feasible.

**Policy 5.9: Overheating and Cooling**

Policy 5.9 requires that development proposals reduce potential overheating & reliance on air conditioning systems, demonstrated in consideration of the following cooling hierarchy:

- a. minimisation of internal heat generation through efficient design
- b. reduction of external heat gains through consideration of orientation, shading, albedo, fenestration, insulation, and green roofs & walls
- c. management of internal heat gains through exposed thermal mass
- d. passive ventilation
- e. mechanical ventilation
- f. active cooling

Development proposals should demonstrate how the design, materials, construction and operation of the development would minimise overheating and also meet its cooling needs.



### 5.3 Supplementary Planning Guidance Documents

#### Sustainable Design and Construction (2014)

This SPG provides more detailed guidance to aid London Plan policies. It updates the standards that were developed for the Mayor's SPG on Sustainable Design and Construction in 2006 and identifies these as priorities for the Mayor. The SPG provides guidance and practical advice for those designing schemes including architects, developers and engineers as well as those developing planning policy and neighbourhood plans.

To support the policies in the London Plan the Sustainable Design and Construction SPG includes guidance on:

- ▶ Energy efficient design
- ▶ Meeting the carbon dioxide reduction targets
- ▶ Decentralised energy
- ▶ How to offset carbon dioxide where the targets set out in the London Plan are not met
- ▶ Retro-fitting measures
- ▶ Support for monitoring energy use during occupation
- ▶ An introduction to resilience and demand side response
- ▶ Air quality neutral
- ▶ Resilience to flooding
- ▶ Urban greening
- ▶ Pollution control
- ▶ Basements policy and developments
- ▶ Local food growing

#### Energy Planning - Greater London Authority guidance on preparing energy assessments (March 2016)

This document was produced by the GLA to provide further detail on how to prepare an energy assessment to accompany strategic planning applications.

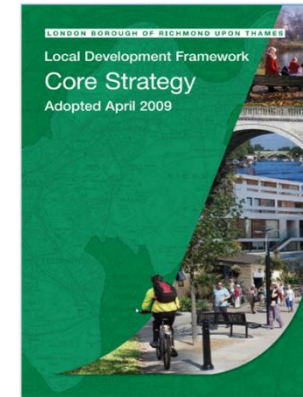
### 5.4 Local Development Framework: Core Strategy (2009)

#### CP1 Sustainable Development

BREEAM 'Excellent' is required for all non-residential developments and residential refurbishment.

#### CP2 Reducing Carbon Emissions

All new developments are required to achieve a reduction in carbon dioxide emissions of 205 from on-site renewable energy generation, unless it can be demonstrated that this is not feasible.



#### CP3 Climate Change – Adapting to the Effects

Development will need to be designed to take account of the impacts of climate change over its lifetime, including:

- ▶ Water conservation and drainage
- ▶ The need for Summer cooling
- ▶ Risk of subsidence
- ▶ Flood risk from the River Thames and its tributaries

#### CP4 Biodiversity

The Borough's biodiversity including the SSSIs and Other Sites of Nature Importance will be safeguarded and enhanced.

#### CP5 Sustainable Travel

Developments which would generate significant amounts of travel to be located on sites well served by public transport.

#### CP6 Waste

This policy supports the objectives of sustainable waste management and will maximise self-sufficiency in waste management capacity (in line with London Plan target of 85% self-sufficiency within London by 2020) and seek to minimise waste creation, increase household recycling and composting rates to at least 40% by 2010, 50% by 2020, address waste as a resource and look to disposal as the last option, in line with the waste hierarchy.

#### CP7 Maintaining and Improving the Local Environment

All new development should recognise distinctive local character and contribute to creating places of a high architectural and urban design quality that are well used and valued.

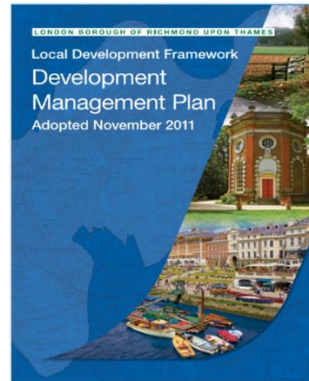
#### CP10 Open land and Parks

All developments will be expected to incorporate appropriate elements of open space that make a positive contribution to the wider network.

#### CP 17 Health and Wellbeing

All new development should encourage and promote healthier communities and places.

The provision of new or improved facilities for health and social care and other facilities will be supported.



### 5.5 Local Development Framework Development Management Plan (2011)

#### Policy DM SD 1 Sustainable Construction

All development in terms of materials, design, landscaping, standard of construction and operation should include measures capable of mitigating and adapting to climate change to meet future needs.

They also must achieve a minimum 25 per cent reduction in carbon dioxide emissions over Building Regulations (2010) in line with best practice from 2010 to 2013, 40 per cent improvement from 2013 to 2016, and 'zero carbon' standards (2) from 2016.

New non-residential buildings over 100sqm will be required to meet the relevant BREEAM 'excellent' standards.

#### Policy DM SD 2 Renewable Energy and Decentralised Energy Networks

New developments are required to maximise opportunities for the micro-generation of renewable energy. Some form of low carbon renewable and/or de-centralised energy will be expected in all new development.

All new development will be required to connect to existing or planned decentralised energy networks where one exists.

#### Policy DM SD 3 Retrofitting

High standards of energy and water efficiency in existing developments will be supported wherever possible through retrofitting.

#### Policy DM SD 4 Adapting to Higher Temperatures and Need for Cooling

All new developments should follow the cooling hierarchy.

#### Policy DM SD 5 Living Roofs

Living roofs should be incorporated into new developments where technically feasible and subject to considerations of visual impact. The onus is on the applicant/developer for proposals with roof plate areas of 100sqm or more to provide evidence and justification if a living roof cannot be incorporated. The aim should be to use at least 70% of any potential roof plate area as a living roof.

#### Policy DM SD 6 Flood Risk

Developments and Flood Risk Assessments must consider all sources of flooding and the likely impacts of climate change.

#### Policy DM SD 7 Sustainable Drainage

All development proposals are required to follow the drainage hierarchy when disposing of surface water and must utilise Sustainable Drainage

Systems (SuDS) wherever practical. Any discharge should be reduced to greenfield run-off rates wherever feasible. When discharging surface water to a public sewer, developers will be required to provide evidence that capacity exists in the public sewerage network to serve their development.

#### Policy DM SD 8 Flood Defences

The effectiveness, stability and integrity of the flood defences, river banks and other formal and informal flood defence infrastructure within the borough will be retained and provision for maintenance and upgrading will be ensured. Setting back developments from river banks and existing flood defence infrastructure, where there are opportunities, will be encouraged. The removal of formal or informal flood defences is only acceptable if this is part of an agreed flood risk management strategy by the Environment Agency.

#### Policy DM SD 9 Protecting Water Resources and Infrastructure

New developments must achieve a high standard of water efficiency by meeting a minimum of 2 credits on water consumption in BREEAM, and utilising rainwater harvesting for all external water uses to reduce the consumption of potable water wherever possible.

New developments should also consider utilising rainwater harvesting and greywater recycling for all non-potable uses to reduce the consumption of potable water wherever possible, and designing of landscaping to minimise water demand.

#### Policy DM OS 5 Biodiversity and New Development

All new development will be expected to preserve and where possible enhance existing habitats including river corridors and biodiversity features, including trees.

When designing new habitats and biodiversity features, consideration should be given to the use of native species as well as the adaptability to the likely effects of climate change.

#### Policy DM OS 6 Public Open Space

Public Open Space will be protected and enhanced. Improvement of the openness and character of the Public Open Space including measures to allow for convenient access for all residents will be encouraged where appropriate.

#### Policy DM OS 8 Sport and Recreation Facilities

Public and private sports grounds including playing fields and recreational areas, courts and greens as well as private open space in recreational use will be protected and enhanced. Owners of private facilities will be encouraged to make them available for public access and use.

### Policy DM OS 10 Allotments and other food growing spaces

Existing allotments will be protected and enhanced. The provision of new allotments and other food growing spaces will be supported where opportunities arise.

### Policy DM HO 4 Housing Mix and Standards

Development should generally provide family sized accommodation, except within town centres where a higher proportion of small units would be appropriate. The housing mix should be appropriate to the location.

### Policy DM TP 6 Walking and the Pedestrian Environment

To protect, maintain and improve the pedestrian environment, the Council will ensure that:

- ▶ New development and schemes protect, maintain and, where appropriate, improve the existing pedestrian infrastructure, including the Rights of Way network.
- ▶ New development does not adversely impact on the pedestrian environment and provides appropriate pedestrian access (see Policy DM TP 3 'Enhancing Transport Links').
- ▶ New development and schemes improve the safety and security of the pedestrian environment where appropriate.

### Policy DM TP 7 Cycling

To maintain and improve conditions for cyclists, the Council will ensure that new development or schemes do not adversely impact on the cycling network or cyclists and provide appropriate cycle access and sufficient, secure cycle parking facilities.

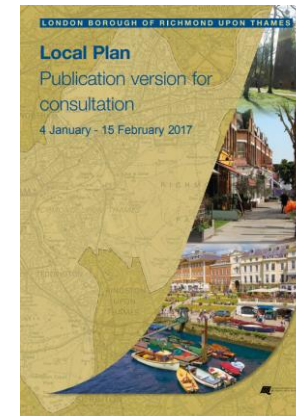
### Policy DM DC 1 Design Quality

New development must be of a high architectural and urban design quality based on sustainable design principles. Development must be inclusive, respect local character including the nature of a particular road, and connect with, and contribute positively, to its surroundings based on a thorough understanding of the site and its context.

### Policy DM DC 4 Trees and Landscape

The boroughs trees and landscape will be protected and enhanced by:

- ▶ Planting and encouraging others to plant trees, clumps and thickets particularly in areas of deficiency as shown on the Proposals Map and of a type and species as set out in the Borough's Tree Strategy.
- ▶ Continuing to maintain trees in streets and public open spaces and of selectively clearing and replanting trees;
- ▶ Requiring landscape proposals in submissions for new development which retains existing trees and other important landscape features where feasible.



### Policy DM DC 5 Neighbourliness, Sunlighting and Daylighting

The Council will generally seek to ensure that the design and layout of buildings enables sufficient sunlight and daylight to penetrate into and between buildings, and that adjoining land or properties are protected from overshadowing in accordance with established standards.

## 5.6 Emerging Local Plan (anticipated adoption Spring 2018)

### Policy LP 1 Local Character and Design Quality

The council will require all development to be of high architectural and urban design quality. The high quality character and heritage of the borough and its Villages will need to be maintained and enhanced where opportunities arise. Development proposals will have to demonstrate a thorough understanding of the site and how it relates to its existing context, including character and appearance, and take opportunities to improve the quality and character of buildings, spaces and the local area.

### Policy LP 8 Amenity and Living Conditions

Design and layout of buildings enables good standards of daylight and sunlight to be achieved in new development and in existing properties affected by new development.

### Policy LP 10 Local Environmental Impacts, Pollution and Land Contamination

Development proposals should not lead to detrimental effects on the health, safety and amenity of existing and new users or occupiers of the development site, or the surrounding land. These potential impacts can include, but are not limited to, air pollution, noise and vibration, light pollution, odours and fumes, solar glare, solar dazzle and land contamination.

### Policy LP 12 Green Infrastructure

The following will be taken into account when assessing development proposals:

- ▶ The need to protect green spaces and the wider network.
- ▶ Contribution to the wider green infrastructure network

### Policy LP 13 Green Belt, Metropolitan Open Land and Local Green Space

Inappropriate development will be refused on Green Belt and Metropolitan Open Land unless 'very special circumstances' can be demonstrated that clearly outweigh the harm.

### Policy LP 15 Biodiversity

Biodiversity should be protected and enhancements will be supported. Major developments are required to deliver net gain for biodiversity through incorporation of ecological enhancements, where possible. Ecological features should connect to the wider ecological and green infrastructure networks and compliment surrounding habitats.

### Policy LP 16 Trees, Woodlands and Landscape

Existing trees should be protected and new trees, shrubs and other vegetation of landscape significance should be provided.

### Policy LP 17 Green Roofs and Walls

Green/brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. If it is not feasible to incorporate a green/brown roof, then a green wall should be incorporated.

### Policy LP 18 River Corridors

Developments adjacent to the river corridor will be expected to contribute to improvements and enhancements to the river environment.

### Policy LP 20 Climate Change Adaptation

Developments will be encouraged to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property. New developments should minimise the effects of overheating in accordance with the cooling hierarchy.

### Policy LP 21 Flood Risk and Sustainable Drainage

All developments should avoid or minimise contributing to all sources of flooding, taking into account climate change and without increasing flood risk elsewhere.

### Policy LP 22 Sustainable Design and Construction

#### **Sustainable Design and Construction**

1. Developments of 1 dwelling or more, or 100sqm or more of non-residential floor space (including extensions) will be required to comply with the Sustainable Construction Checklist SPD.
2. Developments with new dwellings must achieve a water consumption of 110l per person per day for homes.
3. New non-residential buildings over 100sqm must achieve BREEAM "Excellent"
4. Change of use residential should meet BREEAM Domestic Refurbishment "Excellent", where feasible.

#### **Reducing Carbon Dioxide Emissions**

1. All new major residential developments should achieve zero carbon standards in line with London Plan policy.
2. All other new residential buildings should achieve 35% reduction
3. All major non-residential buildings should achieve a 35% reduction. From 2019 all major non-residential should achieve zero carbon standards in line with London Plan Policy.

#### **Decentralised Energy Networks**

1. All new development required to connect to existing DE network where feasible (including planned DE networks operational within 5 years of development completion).
2. Major developments will need to provide an assessment of the provision of on-site DE networks and CHP.
3. Where feasible, major developments will need to provide on-site DE and CHP. Provision for future connection should be incorporated where required.

#### **Retrofitting**

High standards of energy and water efficiency in existing developments will be supported wherever possible through retrofitting.

### Policy LP 23 Water Resources and Infrastructure

Water resources and supplies will be protected by resisting proposals that would pose an unacceptable threat. Proposals that seek to increase water availability or protect and improve water quality will be encouraged.

### Policy LP 24 Waste Management

All developments are required to provide adequate refuse and recyclable waste storage, sensitively integrated within the design of the scheme. All major developments are required to produce site waste management plans.

### Policy LP 30 Health and Wellbeing

Developments that support the following will be encouraged:

- ▶ Sustainable modes of travel
- ▶ Access to green infrastructure
- ▶ Access to local community facilities, services and shops
- ▶ Access to local healthy food
- ▶ Access to toilet facilities open to all
- ▶ Inclusive public realm layout

### Policy LP 31 Public Open Space, Play Space and Recreation

New open spaces, play facilities and formal and informal land for sport and recreation should be linked to the wider Green Infrastructure network.

### Policy LP 44 Sustainable Travel Choices

Safe, sustainable and accessible transport solutions will be promoted by:

- ▶ Ensuring new development is designed in the vicinity of walking and cycling routes, and links are provided to existing networks.
- ▶ Opportunities to link to existing public transport networks are maximised.
- ▶ Planning applications will need to be supported by a Transport Assessment, for major developments.

# SUSTAINABILITY

Stag Brewery Sustainability Statement



## 6. Appendix D: LBRuT Sustainability Checklist



## LBRUT Sustainable Construction Checklist - January 2016

This document forms part of the Sustainable Construction Checklist SPD. This document **must** be filled out as part of the planning application for the following developments: all residential development providing **one or more new residential units (including conversions leading to one or more new units)**, and all other forms of development providing **100sqm or more of non-residential floor space**. Developments including new non-residential development of less than 100sqm floor space, extensions less than 100sqm, and other conversions are strongly encouraged to comply with this checklist. Where further information is requested, please either fill in the relevant section, or refer to the document where this information may be found in detail, e.g. Flood Risk Assessment or similar. **Further guidance** on completing the Checklist may be found in the Justification and Guidance section of this SPD.

Property Name (if relevant):  Application No. (if known):

Address (include, postcode) Completed by:

For Non-Residential  
Size of development (m2)

For Residential  
Number of dwellings

### 1 MINIMUM COMPLIANCE (RESIDENTIAL AND NON-RESIDENTIAL)

**Energy Assessment**  
Has an energy assessment been submitted that demonstrates the expected energy and carbon dioxide emissions saving from energy efficiency and renewable energy measures, including the feasibility of CHP/CCHP and community heating systems? If yes, please tick.

**Carbon Dioxide emissions reduction**  
What is the carbon dioxide emissions reduction against a Building Regulations Part L (2013) baseline  
*Policy DM SD 1 and London Plan Policy 5.2 (2015) require a 35% reduction in CO<sub>2</sub> emissions beyond Building Regulations 2013.*

Percentage of total site CO<sub>2</sub> emissions saved through renewable energy installation?

### 1A MINIMUM POLICY COMPLIANCE (NON-RESIDENTIAL AND DOMESTIC REFURBISHMENT)

*Please check the Guidance Section of this SPD for the policy requirements*

#### Environmental Rating of development:

<i>Non-Residential new-build (100sqm or more)</i>			
BREEAM Level	<input type="text" value="Excellent"/>	Have you attached a pre-assessment to support this?	<input checked="" type="checkbox"/>
<i>Extensions and conversions for residential dwellings</i>			
BREEAM Domestic Refurbishment	<input type="text" value="Excellent"/>	Have you attached a pre-assessment to support this?	<input checked="" type="checkbox"/>
<i>Extensions and conversions for non-residential buildings</i>			
BREEAM Level	<input type="text" value="Please Select"/>	Have you attached a pre-assessment to support this?	<input type="checkbox"/>

Score awarded for Environmental Rating: **Subtotal**   
BREEAM: Good = 0, Very Good = 4, Excellent = 8, Outstanding = 16

### 1B MINIMUM POLICY COMPLIANCE (RESIDENTIAL)

#### Water Usage

Internal water usage limited to 105 litres person per day. (Excluding an allowance 5 litres per person per day for external water consumption). Calculations using the water efficiency calculator for new dwellings have been submitted.  1

**Subtotal**

## 2. ENERGY USE AND POLLUTION

### 2.1 Need for Cooling

Score

- a. How does the development incorporate cooling measures? Tick all that apply:
- Energy efficient design incorporating specific heat demand to less than or equal to 15 kWh/sqm  6
  - Reduce heat entering a building through providing/improving insulation and living roofs and walls  2
  - Reduce heat entering a building through shading  3
  - Exposed thermal mass and high ceilings  4
  - Passive ventilation  3
  - Mechanical ventilation with heat recovery  1
  - Active cooling systems, i.e. Air Conditioning Unit  0

### 2.2 Heat Generation

- b. How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy 5.6)? Tick all heating and cooling systems that will be used in the development:
- Connection to existing heating or cooling networks powered by renewable energy  6
  - Connection to existing heating or cooling networks powered by gas or electricity  5
  - Site wide CHP network powered by renewable energy  4
  - Site wide CHP network powered by gas  3
  - Communal heating and cooling powered by renewable energy  2
  - Communal heating and cooling powered by gas or electricity  1
  - Individual heating and cooling  0

### 2.3 Pollution: Air, Noise and Light

- a. Does the development plan to implement reduction strategies for dust emissions from construction sites?  2
- b. Does the development plan include a biomass boiler?  -
- If yes, please refer to the biomass guidelines for the Borough of Richmond, please see guidance for supplementary information. If the proposed boiler is of a qualifying size, you may need to completed the information request form found on the Richmond website.  -
- c. Please tick only one option below
- Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site?  3
  - Has the development taken care to not create any new noise generation/transmission issues in its intended operation?  1
- d. Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity?  3
- e. Have you attached a Lighting Pollution Report?  -

Subtotal **22**

Please give any additional relevant comments to the Energy Use and Pollution Section below

The Energy Strategy submitted in support of the applications provides more detail on the Energy Use of the Proposed Development. The Environmental Statement Chapter 10 provides more information on the air quality impacts of the Proposed Development. Chapter 9 provides additional information on the Noise and Vibration assessment. A Lighting Statement also provides further information on the impact of the Proposed Development.

## 3. TRANSPORT

### 3.1 Provision for the safe efficient and sustainable movement of people and goods

- a. Does your development provide opportunities for occupants to use innovative travel technologies?

Please explain:

The Transport Strategy provides detailed information on the measures employed to provide transport options for the occupants of the site.

- b. Does your development include charging point(s) for electric cars?  2
- c. **For major developments ONLY:** Has a Transport Assessment been produced for your development based on TfL's Best Practice Guidance?  5  
If you have provided a Transport Assessment as part of your planning application, please tick here and move to Section 3 of this Checklist.
- d. **For smaller developments ONLY:** Have you provided a Transport Statement?  5
- e. Does your development provide cycle storage? (Standard space requirements are set out in the the Council's Parking Standards - DM DPD Appendix 4)  2  
If so, for how many bicycles?  up to 1565  
Is this shown on the site plans?  -
- f. Will the development create or improve links with local and wider transport networks? If yes, please provide details.  2

Subtotal **11**

Please give any additional relevant comments to the Transport Section below

The Transport Strategy provides detailed information on the measures employed to provide transport options for the occupants of the site.

**4 BIODIVERSITY**

**4.1 Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people**

- a. Does your development involve the loss of an ecological feature or habitat, including a loss of garden or other green space? (Indicate if yes)  
If so, please state how much in sqm?  -2 sqm
- b. Does your development involve the removal of any tree(s)? (Indicate if yes)  
If so, has a tree report been provided in support of your application? (Indicate if yes)
- c. Does your development plan to add (and not remove) any tree(s) on site? (Indicate if yes)
- d. Please indicate which features and/or habitats that your development will incorporate to improve on site biodiversity:
- |   |     |                                     |                |                      |     |
|---|-----|-------------------------------------|----------------|----------------------|-----|
| Pond, reedbed or extensive native planting                              | 6   | <input type="checkbox"/>            | Area provided: | <input type="text"/> | sqm |
| An extensive green roof   | 5   | <input type="checkbox"/>            | Area provided: | <input type="text"/> | sqm |
| An intensive green roof   | 4   | <input checked="" type="checkbox"/> | Area provided: | see comments below   | sqm |
| Garden space  | 4   | <input checked="" type="checkbox"/> | Area provided: | see comments below   | sqm |
| Additional native and/or wildlife friendly planting to peripheral areas | 3   | <input checked="" type="checkbox"/> | Area provided: | see comments below   | sqm |
| Additional planting to peripheral areas                                 | 2   | <input checked="" type="checkbox"/> | Area provided: | see comments below   | sqm |
| A living wall   | 2   | <input type="checkbox"/>            | Area provided: | <input type="text"/> | sqm |
| Bat boxes   | 0.5 | <input checked="" type="checkbox"/> |                |                      |     |
| Bird boxes  | 0.5 | <input checked="" type="checkbox"/> |                |                      |     |
| Other   | 0.5 | <input checked="" type="checkbox"/> |                |                      |     |

**Subtotal**

Please give any additional relevant comments to the Biodiversity Section below

Chapter 13 of the Environmental Statement sets out the Ecology of the Proposed Development. Architects plans show the proposals for Green/Brown roofs on the Proposed Development.

**5 FLOODING AND DRAINAGE**

**5.1 Mitigating the risks of flooding and other impacts of climate change in the borough**

- a. Is your site located in a high flood risk zone (Zone 3)? (Indicate if yes)  -2  
Have you submitted a Flood Risk Assessment? (Indicate if yes)  -
- b. Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)
- |   |                                     |   |
|---|-------------------------------------|---|
| Store rainwater for later use   | <input checked="" type="checkbox"/> | 5 |
| Use of infiltration techniques such as porous surfacing materials to allow drainage on-site | <input checked="" type="checkbox"/> | 3 |
| Attenuate rainwater in ponds or open water features   | <input type="checkbox"/>            | 4 |
| Store rainwater in tanks for gradual release to a watercourse                               | <input checked="" type="checkbox"/> | 3 |
| Discharge rainwater directly to watercourse   | <input checked="" type="checkbox"/> | 2 |
| Discharge rainwater to surface water drain  | <input type="checkbox"/>            | 1 |
| Discharge rainwater to combined sewer   | <input checked="" type="checkbox"/> | 0 |
- c. Please give the change in area of permeable surfacing which will result from your development proposal:  
Please provide details of the permeable surfacing below  sqm  
*please represent a loss in permeable area as a negative number*

**Subtotal**

Please give any additional relevant comments to the Flooding and Drainage Section below

Chapter 12 of the Environmental Statement provides further detail on the Flooding and Drainage of the Site.

**6 IMPROVING RESOURCE EFFICIENCY**

**6.1 Reduce waste generated and amount disposed of by landfill though increasing level of re-use and recycling**

- a. Will demolition be required on your site prior to construction? [Points will only be awarded if 10% or greater of demolition waste is reused/recycled]  1
- If so, what percentage of demolition waste will be reused in the new development?  %
- What percentage of demolition waste will be recycled?  %
- b. Does your site have any contaminated land?
- |   |                                     |   |
|---|-------------------------------------|---|
| Have you submitted an assessment of the site contamination? | <input checked="" type="checkbox"/> | 1 |
| Are plans in place to remediate the contamination?          | <input checked="" type="checkbox"/> | 2 |
| Have you submitted a remediation plan?                      | <input type="checkbox"/>            | 1 |
| Are plans in place to include composting on site?           | <input type="checkbox"/>            | 1 |

**6.2 Reducing levels of water waste**

- a. Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):
- |   |                                     |   |
|---|-------------------------------------|---|
| Fitting of water efficient taps, shower heads etc | <input checked="" type="checkbox"/> | 1 |
| Use of water efficient A or B rated appliances    | <input checked="" type="checkbox"/> | 1 |
| Rainwater harvesting for internal use             | <input type="checkbox"/>            | 4 |
| Greywater systems                                 | <input checked="" type="checkbox"/> | 4 |
| Fit a water meter                                 | <input checked="" type="checkbox"/> | 1 |

**Subtotal**

Please give any additional relevant comments to the Improving Resource Efficiency Section below

Chapter 6 of the Environmental Statement provides information on the Construction, Demolition and Refurbishment of the buildings on the Proposed Development.

**7 ACCESSIBILITY**

**7.1 Ensure flexible adaptable and long-term use of structures**

a. **If the development is residential**, will it meet the requirements of the nationally described space standard for internal space and layout?  1  
 If the standards are not met, in the space below, please provide details of the functionality of the internal space and layout

GLA space standard

**AND**  
 b. **If the development is residential**, will it meet Building Regulation Requirement M4 (2) 'accessible and adaptable dwellings'?  2  
 If this is not met, in the space below, please provide details of any accessibility measures included in the development.

For major residential developments, are 10% or more of the units in the development to Building Regulation Requirement M4 (3) 'wheelchair user dwellings'?  1

**OR**  
 c. **If the development is non-residential**, does it comply with requirements included in Richmond's Design for Maximum Access SPG?  2  
 Please provide details of the accessibility measures specified in the Maximum Access SPG that will be included in the development

The Design and Access Statement provides more information on the accessibility measures specified at the Proposed Development.

Subtotal **6**

Please give any additional relevant comments to the Design Standards and Accessibility Section below

The Design and Access Statement provides more information on the design standards and accessibility of the Proposed Development.

**LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction (Non-Residential and domestic refurb)**

TOTAL **87.5**

Score	Rating	Significance
80 or more	A+	Project strives to achieve highest standard in energy efficient sustainable development
71-79	A	Makes a major contribution towards achieving sustainable development in Richmond
51-70	B	Helps to significantly improve the Borough's stock of sustainable developments
36-50	C	Minimal effort to increase sustainability beyond general compliance
35 or less	FAIL	Does not comply with SPD Policy

**LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction Residential new-build**

Score	Rating	Significance
81 or more	A++	Project strives to achieve highest standard in energy efficient sustainable development
64-80	A+	Project strives to achieve highest standard in energy efficient sustainable development
55-63	A	Makes a major contribution towards achieving sustainable development in Richmond
35-54	B	Helps to significantly improve the Borough's stock of sustainable developments
20-34	C	Minimal effort to increase sustainability beyond general compliance
19 or less	FAIL	Does not comply with SPD Policy

**Authorisation:**

I herewith declare that I have filled in this form to the best of my knowledge

Signature \_\_\_\_\_ Date \_\_\_\_\_

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