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Sustainability Statement

Homes for Lambeth

Former Coral Day Nursery, Wootton Street

Final

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ABOUT HODKINSON CONSULTANCY

Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry and tailor teams to suit each individual project.

We are able to advise at all stages of projects from planning applications to handover.

Our emphasis is to provide innovative and cost-effective solutions that respond to increasing demands for quality and construction efficiency.

Executive Summary

The purpose of this Sustainability Statement is to demonstrate that the proposed development at Former Coral Day Nursery, Wootton Street by Homes for Lambeth in the London Borough of Lambeth is considered sustainable, as measured against relevant local, regional and national planning policies.

The proposed development will comprise 36 residential dwellings, approximately 380sqm of community floorspace and associated cycle parking and landscaping.

Through the incorporation of sustainable design and construction methods, energy and water saving measures, waste reduction techniques as well as measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

The key sustainability features outlined in this Sustainability Statement are listed below:

- **BREEAM**: The community floorspace (Use Class E) will be designed and built to achieve a BREEAM 'Excellent' rating under the New Construction 2018 Shell Only Scheme.
- **Energy efficiency:** The development will target a 56% reduction in Regulated CO_2 emissions over Part L 2013 Baseline through energy efficiency measures and individual Air Source Heat Pumps.
- **Overheating:** The scheme has been designed to ensure overheating risk is reduced to acceptable levels in accordance with CIBSE TM59:2017 requirements.
- **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day.
- **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling.
- **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible.
- **Pollution:** Mitigation measures have been proposed to minimise the impact of noise.
- **Flood Risk and SUDs:** The proposed development site will benefit from SUDs such as green roofs and attenuation tanks.
- **Security:** Consultation with a Security Specialist will take place to ensure the development is safe and secure for its residents.
- **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors.

- **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3).

- **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 66 cycle storage spaces for the residential units.

- **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas and additional tree and shrub planting. The scheme will achieve a net gain in biodiversity beyond the existing conditions.

- **Sustainable construction:** The site will aim to achieve a 'Beyond Best Practice' score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

CONTENTS

1. INTRODUCTION

1.1 This Sustainability Statement has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by Homes for Lambeth.

1.2 This Statement sets out the sustainable design and construction measures included in the planning application for the proposed development at Former Coral Day Nursery, Wootton Street in the London Borough of Lambeth.

Sustainability Statement Structure and Methodology

1.3 The formulation of the Sustainability Strategy for the proposed development has taken into account several important objectives, including:

> To achieve a viable reduction in CO_2 emissions with an affordable, deliverable and technically appropriate strategy;

> To address all national, regional and local planning policies and requirements;

> To provide a high quality development that is adaptable to future changes in climate;

> To minimise the negative impact of the proposed development on both the local and wider climate and environment;

> To achieve the highest viable levels of sustainable design and construction;

> To minimise emissions of pollutants such as oxides of nitrogen and particulate matter; and

> To create a pleasant, safe and friendly living environment that will be flexible to its occupants' needs.

1.4 This Sustainability Statement does not duplicate the work of the technical reports prepared in support of the application, but presents the findings in the overall context of sustainability.

1.5 **Chapter 2** provides an introduction to the site and the proposed development. **Chapter 3** sets out the relevant national, regional and local policy documents which have been used to guide and inform the sustainability strategy for the proposed development.

1.6 **Chapters 4 to 15** outline the sustainability strategy of the proposed development in relation to the policy documents listed in Chapter 3. **Chapter 16** provides a summary of the key sustainability features associated with the proposed development.

2. DEVELOPMENT OVERVIEW

Site Location

2.1 The proposed development site at the site currently occupied by the former Coral Day Nursery, Wootton Street in the London Borough of Lambeth is bound by Wootton Street to the north, Great Street to the east, Ethelm Street to the south and Windmill Walk House to the west. The site location is shown in Figure 1 below.

Figure 1: Site Location – Map data © 2020 Google

2.2 The site currently comprises of a single storey block which has previously been a special education needs school (Use Class D1), a play area and a car park are also located within the site boundary.

Proposed Development

2.3 The proposed development is described as follows:

"Demolition and clearance of existing structures and redevelopment comprising construction of a part 5/8/10 storey mixed use building comprising replacement community floorspace on ground floor, 36 no. residential units (Class C3) above with associated residents' amenities, cycle parking, car parking and public realm enhancement."

2.4 Figure 2 below illustrates the proposed site layout.

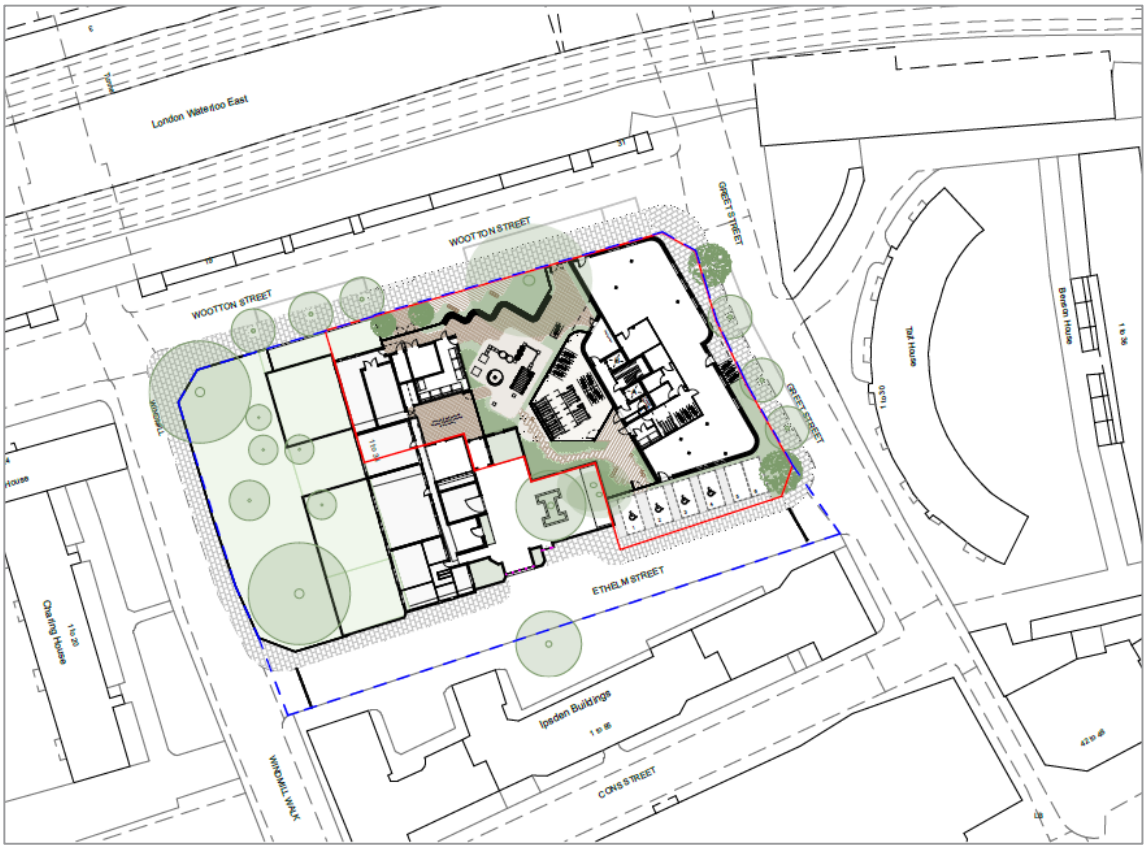


Figure 2: Proposed Site Layout – Stockwool Architects (December 2020)

3. RELEVANT PLANNING POLICY

3.1 The following planning policies and requirements have informed the sustainable design of the proposed development.

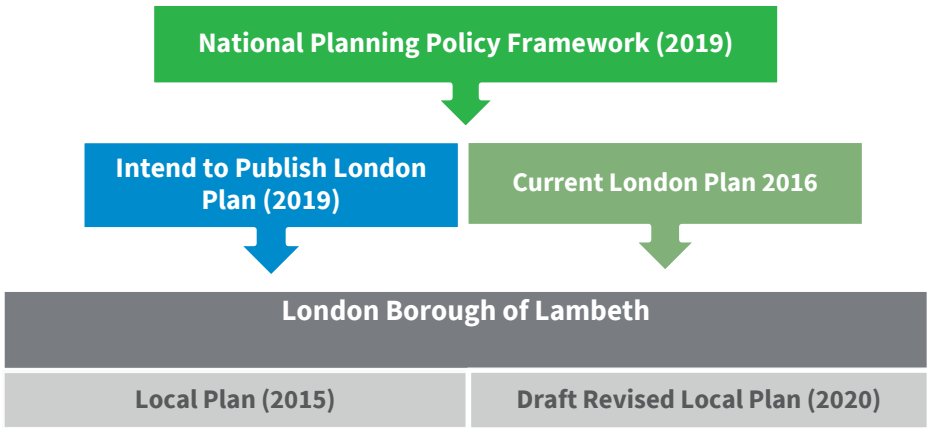


Figure 3: Relevant Planning Policy Documents

National Policy: NPPF

3.2 The revised National Planning Policy Framework (NPPF) was published on the 19th June 2019 and sets out the Government's planning policies for England.

3.3 The NPPF provides a framework for achieving sustainable development, which has been summarised as "*meeting the needs of the present without compromising the ability of future generations to meet their own needs*" (Resolution 42/187 of the United National General Assembly). At the heart of the framework is a **presumption in favour of sustainable development**.

3.4 The document states that the planning system has three overarching objectives which are interdependent and need to be pursued in mutually supportive ways:

a) **An economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

b) **A social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with

accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

c) **An environmental objective** – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Regional Policy: The London Plan

Intend to Publish London Plan (2019)

3.5 The Panel of Inspectors report into the draft London Plan was published in October 2019. The Mayor considered the Inspectors' recommendations and, in December 2019, issued to the Secretary of State the Intend to Publish London Plan. The Secretary of State responded to this in March 2020. The GLA have advised the Secretary of State that there is an intention to progress publication of the Local Plan and publication is scheduled to commence prior to the end of 2020.

3.6 The following policies in the Intend to Publish London Plan are considered relevant to the proposed development and this Statement:

3.7 **Policy SI2 Minimising Greenhouse Gas Emissions** states that major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand.

3.8 **Policy SI3 Energy Infrastructure** states that energy masterplans should be developed for large-scale development locations which establish the most effective energy supply options.

3.9 **Policy SI4 Managing Heat Risk** states that major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the cooling hierarchy.

3.10 **Policy SI5 Water Infrastructure** states that in order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner. Development proposals should minimise the use of mains water in line with the Optional Requirement of the Building Regulations (residential development) achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption).

Adopted London Plan (2016)

3.11 The existing London Plan sets out an integrated economic, environmental, transport and social framework for the development of London. The following policies are considered relevant to the proposed development and this Statement:

3.12 **Policy 5.3 – Sustainable Design and Construction** states that the highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime.

3.13 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.

3.14 Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated within a design and access statement. The standards include measures to achieve other policies in the London Plan and sustainable design principles.

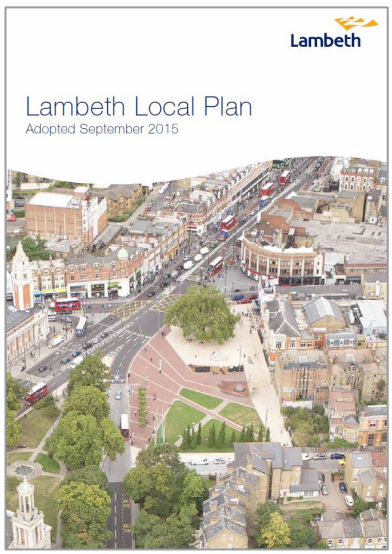
3.15 **Policy 5.11 – Green Roofs and Development Site Environs** requires major development proposals to include roof, wall and site planting, especially green roofs and walls where feasible.

3.16 **Policy 5.13 – Sustainable Drainage** requires that development should use sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the drainage hierarchy.

3.17 **Policy 5.15 – Water Use and Supplies** requires that development should minimise the use of mains water by incorporating water saving measures and equipment and that residential development is designed so that mains water consumption meets a target of 105 litres/person/day or less.

Local Policy: London Borough of Lambeth

Local Plan (2015)



3.18 The London Borough of Lambeth's Local Plan document was adopted in September 2015. The following policies are considered relevant to this Statement:

3.19 **Policy H5: Housing Standards** – Community amenity space should receive natural light and incorporate sustainable landscape principles and practices including effective water management, efficient energy use, use of sustainable materials and promotion of biodiversity.

3.20 **Policy T1: Sustainable Travel** – Development that generates a significant number of trips will be required to be located in an area with an appropriate level of public transport accessibility.

3.21 **Policy T3: Cycling** – Development proposals are expected to provide appropriate secure and covered cycle parking facilities in accordance with the minimum standards set out in the London Plan and exceed the standards where possible. Development proposals will be expected to contribute towards improvements to cycle routes, where appropriate, to ensure that new development has exceptional links to cycle routes and key destinations.

3.22 **Policy T7: Parking** – Development should provide car parking within the maximum standards in the London Plan.

3.23 **Policy EN1: Open Space and Biodiversity** – Development proposals should wherever possible protect, enhance, create or manage nature conservation and biodiversity interest in accordance with the borough's Biodiversity Action Plan (BAP) and the Mayor's Biodiversity Strategy.

3.24 **Policy EN3: Decentralised Energy** – All major developments will be expected to connect to, and where appropriate extend, existing decentralised heating, cooling or power networks in the vicinity of the site, unless a feasibility assessment demonstrates that connection is not reasonably possible. Where networks do not currently exist, developments should make provision to connect to any planned future decentralised energy network in the vicinity of the site, having regard to opportunities identified through the London Heat Map and area specific energy plans.

3.25 **Policy EN4: Sustainable design and construction** – Proposals should demonstrate in a supporting statement that sustainable design standards are integral to the design, construction and operation of the development.

3.26 **Policy EN5: Flood Risk** - A Flood Risk Assessment (FRA) will be required for major development proposals within Flood Zone 1, all development within Flood Zones 2, 3a and 3b, or where the development may be subject to other sources of flooding.

3.27 **Policy EN6: Sustainable drainage systems and water management** – Development proposals should demonstrate that there will be a net decrease in both the volume and rate of run-off leaving the site by incorporating sustainable drainage systems (SuDS).

3.28 **Policy EN7: Sustainable Waste Management** - Major development sites should recycle construction, excavation and demolition (CED) waste on-site wherever practicable. For all development, CED waste should be minimised through reuse and recycling within London as far as possible. Disposal of CED waste in landfill should only take place in exceptional circumstances, where it has been demonstrated that alternative, more sustainable fates are not feasible.

3.29 **Policy Q2: Amenity** – Development will be submitted if:

> Visual amenity from adjoining sites and from the public realm is not unacceptably compromised;

> Acceptable standards of privacy are provided without a diminution of the design quality;

> It would not have an unacceptable impact on levels of daylight and sunlight on the host building and adjoining property;

> The adverse impact of noise is reduced to an acceptable level through the use of attenuation, distance, screening, or internal layout/orientation;

> Adequate outdoor amenity space is provided free from excessive noise or disturbance, pollution or odour, oppressive enclosure, wind/downdraught and/or overshadowing.

3.30 **Policy Q9: Landscaping** – Landscaping must retain and enhance existing planting and landscape features of value and protect them during construction. Opportunities for greening, such as planting of trees and other soft landscaping, should be maximised.

3.31 **Policy Q12: Refuse/recycling storage** - Adequate refuse and recycling storage should be provided for all development.

3.32 **Policy Q13: Cycle Storage** – Cycle storage in all development should be fully integrated into proposals from the initial design stage; directly and conveniently accessed from outside the building; inclusive, secure and safe to use; in individual lockers/cupboards or if necessary, in cycle stores shared by small groups of immediate neighbours; and covered, fully ventilated, robustly constructed and easy to maintain.

Draft Revised Local Plan (2020)

3.33 Consultation on the Draft Revised Lambeth Local Plan and Proposed Changes to the Policies Map took place between October and December 2018. The revised local plan has been the subject of an ongoing sustainability appraisal during its preparation, which includes assessment of equalities and health and wellbeing impacts and was published for consultation at each stage of the plan preparation process. The proposed submission version was published in January 2020 and the local plan is now at examination. The following policies are considered relevant to this Statement:

3.34 **Policy EN3: Decentralised Energy** - All major developments will be expected to connect to, and where appropriate extend, existing decentralised heating networks in the vicinity of the site, unless a feasibility assessment demonstrates that connection is not reasonably possible. Minor new-build developments should be designed to be able to connect wherever reasonably possible. Where networks do not currently exist, developments should make provision to connect to any planned future decentralised energy network in the vicinity of the site, having regard to opportunities identified in Heat Network Priority Areas of the London Heat Map and area specific energy plans. Major development proposals that cannot immediately connect to an existing heating or cooling network should follow the heating and cooling hierarchies set out in London Plan policies SI3(D) and SI4(B).

3.35 **Policy EN4: Sustainable design and construction** – Lambeth will follow the approach set out in London Plan policies SI1 Improving air quality, SI2 Minimising greenhouse gas emissions, SI4 Managing heat risk, SI5 C and E Water Infrastructure. Development will be required to be resilient to climate change by including appropriate climate change adaptation measures. The council encourages all development to achieve 20% reduction in CO_2 emissions from on-site renewable energy generation.

3.36 **Policy EN7: Sustainable waste management** – All developments will be expected to recycle construction, demolition and excavation waste on-site wherever practicable. For all development, 95% of construction and demolition waste should be reused, recycled or recovered and 95% of excavation waste should be put to beneficial use. Disposal of waste in landfill should only take place where it has been demonstrated that alternative, more sustainable fates are not feasible. Circular economy principles will be supported.

4. BREEAM SUMMARY

4.1 In accordance with Policy EN5 of Lambeth's Local Plan, the Community Centre will be assessed under the BREEAM New Construction 2018 assessment with a target of achieving the required 'Excellent' rating.

4.2 A full BREEAM Pre-Assessment has been presented in **Appendix A** and provides an illustrative route to achieving the 'Excellent' rating. The predicted score at this stage is 71.79 %, where a 'Very Good' score is ≥55% and an 'Excellent' score is ≥70%. This represents a high level of sustainable design and construction.

4.3 The principles and requirements of many of the individual credits feature throughout this Sustainability Statement, where appropriate, however the mandatory credits for BREEAM 'Excellent' are listed as follows:

> **Man 03: Responsible Construction Practices** – A minimum of one credit is to be achieved, requiring a Considerate Constructors Scheme score of between 25 and 34.

> **Ene 01: Reduction in CO_2 emissions** – An Energy Performance Ratio (EPR) is to be compared against benchmark figures to minimise operational energy demand and carbon emissions in buildings. A minimum of four credits are to be achieved.

> **Wat 02: Water Monitoring** – A water meter is to be provided on the mains water supply which should have a pulsed output connected to a Building Management System (BMS).

> **Mat 03: Responsible Sourcing** – All timber used on the project must be sourced in accordance with the UK Government's Timber Procurement Policy.

> **Wst 03: Operational Waste** – A dedicated space(s) for the segregation and storage of operational recyclable waste is to be provided. This is to be clearly labelled, easily accessible (to building users and for waste collection) and of an adequate size.

> **Le03: Mitigation Ecological Impact** – A suitably qualified ecologist is to carry out species calculations and at least one credit is to be achieved.

4.4 Whilst this has been determined as the most appropriate route to certification, the actual route to certification may vary as the detailed design progresses.

5. ENERGY AND CO_2 REDUCTION

Energy Strategy

5.1 An Energy Statement has been prepared by Hodkinson Consultancy and is submitted as part of this planning application. A summary of this statement has been outlined as follows however this document should be referred to for greater detail.

5.2 The energy strategy has been formulated following the current London Plan Energy Hierarchy: ***Be Lean, Be Clean*** and ***Be Green***. The overriding objective is the formulation of a strategy which effectively balances a number of key elements, including CO_2 emissions, affordability of heat, climate change adaption, and the provision of high-quality buildings. These elements need to work with the regulatory and planning requirements for the development.

5.3 The development of this energy strategy comes during a period of significant change in relation to the regulatory and policy energy landscape, with the New London Plan, The *Future Homes Standard*, and SAP methodology all challenging the more conventional energy strategy routes. It is becoming increasingly complex to develop an energy strategy which enables substantial CO_2 reductions both now and in the longer term, whilst ensuring residents' comfort or affordability of heat is not compromised.

5.4 In response to this, Homes for Lambeth have prioritised an energy strategy which emphasises the following:

> Energy demands to be reduced substantially through fabric '***Be Lean***' measures to achieve the New London Plan energy efficiency target. This locks in CO_2 savings irrespective of the source of the delivered energy;

> A holistic approach which balances further considerations such as daylighting, overheating, and noise to ensure resident comfort;

> A balanced strategy for the generation of low carbon heating. Homes for Lambeth are committed to the delivery of heat which is both low in CO_2 and not unreasonably costly. A strategy has therefore been proposed which utilises heat pumps in each dwelling.

> Provision of PV panels enabling on-site electrical generation.

5.5 The commitment to energy efficient design and renewable technologies will enable a reduction in Regulated CO_2 of 56% using SAP 10.0 CO_2 emissions factors, well above the minimum 35% site target. The remaining emissions shall be offset via the current Zero Carbon payment contribution.

Lighting

5.6 All external lighting, and any security lighting, will be energy efficient and adequately controlled using PIR sensors, daylight cut-off sensors or time switches where possible. This will ensure the conservation of energy when the lighting is not in use.

Appliances

5.7 The EU Labelling Scheme shows how appliances are rated according to their energy consumption. Due to improved energy efficiency in many new products, more appliances achieve A+, A++ and A+++. In January 2019, it was announced that A+ to A+++ will be phased-out over the coming years and the new grading system will revert back to A to G ratings. This should make it easier for consumers to understand how appliances compare against each other.

5.8 The choice of energy efficient appliances and the effective use of them will not only reduce unregulated CO_2 emissions but will save occupants money. Where provided, white goods will aim to be energy efficient with at least a B rating.

5.9 The purchasing of energy efficient white goods will also be promoted through the provision of information on the EU Labelling Scheme contained within the Home Information Manual.

Energy Monitoring

5.10 Energy display devices, which can monitor electricity and primary heating fuel consumption, will be provided to each of the dwellings. This can empower the occupants to be more aware of their usage and therefore make energy and cost savings, where possible.

6. WATER REDUCTION

Internal Water Efficiency

6.1 Increased frequency of drought across Europe lines up with climate change projections and water companies in the UK capture much less rain for our use than people assume. Each individual in the UK currently uses on average 140 litres/person/day and total UK demand for water in the 2080s is projected to increase by between 4-18% (CCRA2, 2015).

6.2 Reducing water consumption will not only help to preserve our water sources but will also save energy. Approximately 15% of a typical gas-heated household's heating bill is from heating water for showers, baths and taps and the energy used to heat water for devices and appliances emits an average of 875 kg of CO_2 per household per year (Energy Saving Trust, 2013). As such, internal water consumption will be significantly reduced through the use of practical and hygienic water saving measures.

Residential Water Use

6.3 All new dwellings will target a minimum internal water efficiency standard of **105 litres/person/day** in accordance with draft New London Plan Policy SI5 and the optional tighter Building Regulations Approved Document G requirement (110 litres/person/day). An evaluation of the proposed fixtures and fittings will be undertaken during the detailed design however an illustrative strategy to achieve this water target is set out in the Water Efficiency Calculator in **Appendix B.**

Leak Detection and Prevention

6.4 Another method of reducing water consumption is to ensure that water leaks do not go undetected. As such a leak detection system may be installed on the community centre which will be capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter.

Water Metering

6.5 A water meter with a pulsed output will also be installed on the mains supply of the community centre. This will allow the water consumption of the development to be monitored and managed and therefore encourage reductions.

7. WASTE MANAGEMENT

7.1 Waste reduction and recycling is another key challenge of sustainable development and something which is strongly encouraged in the London Plan (Policy 5.17). The waste hierarchy, illustrated in Figure 4 below, prioritises those waste management options which are best for the environment.

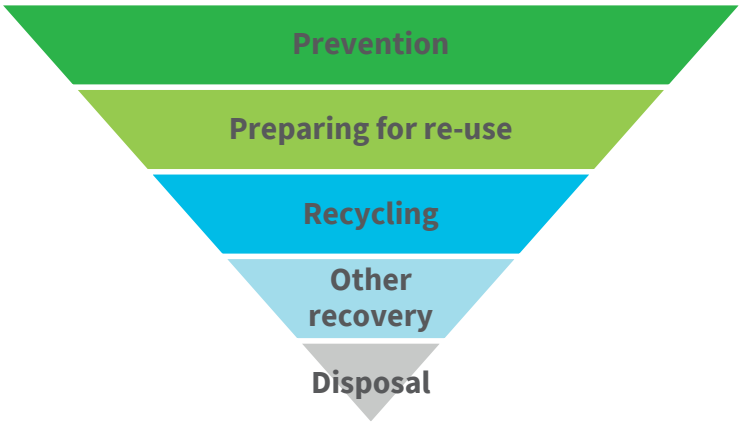


Figure 4: Waste Hierarchy

7.2 The waste hierarchy establishes waste management options according to what is best for the environment. It places great importance on preventing waste in the first place. When waste is created it prioritises preparing if for re-use, then recycling, recovery and lastly disposal (e.g. landfill).

Construction Waste

7.3 The reduction of construction waste not only minimises environmental impacts through ensuring the responsible use of resources and waste disposal but can also significantly reduce construction costs for the developer.

7.4 Prior to construction, Homes for Lambeth will develop a Site Waste Management Plan which will establish ways of minimising waste at source, assess the use, reuse and recycling of materials on and off-site and prevent illegal waste activities. This plan will then be disseminated to all relevant personnel on and off-site.

7.5 The following waste minimisation actions will be considered:

> Consider opportunities for zero cut and fill to avoid waste from excavation or groundworks;

> Design for standardisation of components and the use of fewer materials;

> Design for off-site or modular build;

> Return packaging for reuse;

> Consider community reuse of surplus materials or offcuts; and

> Engage with supply chains and include waste minimisation initiatives and targets in tenders and contracts.

7.6 As part of their commitment to divert construction waste from landfill, Homes for Lambeth will regularly monitor and record the site's waste reduction performance. This will be compared against a target benchmark where at least 85% (by volume) of non-hazardous waste is to be diverted from landfill.

Household Waste

7.7 Homes for Lambeth is committed to following the above waste hierarchy and reducing waste sent to landfill. As such, adequate storage is to be provided in a refuse store at ground floor level, where both recyclable and non-recyclable waste can be stored in accordance with Lambeth's waste collection service.

7.8 In addition, space will be provided for segregated recycling waste bins within the kitchen areas. This will involve the installation of recycling bins, where waste can be segregated into paper, glass, cans, plastic and cardboard, if necessary.

Commercial Waste

7.9 Adequate space for the segregation and storage of commercial waste and recycling will be provided in a designated communal store at ground floor level. This space will meet the following BREEAM requirements:

> Bins will be clearly labelled to assist with waste segregation, storage and collection;

> The stores will be accessible to building occupants and facilities operators; and

> The storage will be of a capacity that is appropriate to the building's type, size and predicted volumes of waste.

8. CIRCULAR ECONOMY

8.1 Current and future trends point toward the need for a fundamental shift in the way resources are consumed. A shift to a circular economy will provide considerable economic opportunities as a result.

8.2 In contrast to a linear economy (take, make, dispose), a circular economy keeps products and materials circulating through the system at their highest value for as long as possible, through re-use, recycling, refurbishment and remanufacturing. As 60% of total UK waste is generated from construction, demolition and excavation (Defra and Government Statistical Service, 2019) this transition from linear to circular is essential.

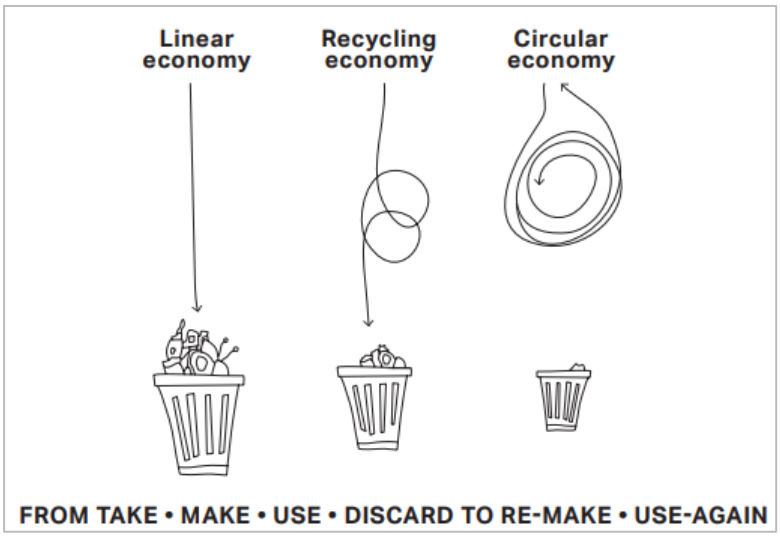


Figure 5: Linear, Recycling and Circular Economies (GLA, 2019)

8.3 A circular economy is defined in draft London Plan Policy SI7 'Reducing Waste and Supporting the Circular Economy' as one where materials are retained in use at their highest value for as long as possible and are then reused or recycled, leaving a minimum of residual waste.

8.4 The end goal is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible but will require a fundamental change in the way that buildings are designed, built, operated, and deconstructed.

8.5 Applying circular economy thinking to the built environment is complex, with many overlapping issues and trade-offs to consider. However, there are some core guiding principles that promote a regenerative and restorative whole systems approach that should be applied on every project. These are as follows:

> Conserve resources and source ethically;

> Design to eliminate waste (and for ease of maintenance); and

> Manage waste sustainably and at the highest value.

8.6 Homes for Lambeth will adopt these three core principles in order to significantly reduce the amount of raw and new materials required for the development. Alongside this, a reduction in vehicle movements, air pollution, noise and greenhouse gas emissions will also be beneficial.

9. MATERIALS

Environmental Impact

9.1 New building materials will be selected, where possible, to ensure that they minimise environmental impact and have low embodied energy – from manufacture, transportation and operational stages, through to eventual demolition and disposal.

9.2 All insulation materials will have an Ozone Depleting Potential (ODP) of zero and a Global Warming Potential (GWP) of less than 5. In addition, all decorative paints and varnishes will meet the relevant standards in order to reduce the emission levels of volatile organic compounds (VOCs).

Local and Responsible Sourcing

9.3 In accordance with London Plan Policy 5.3, preference will be given to the use of locally sourced materials and local suppliers, where viable. This will benefit the local economy as well as having environmental benefits through reduced transportation.

9.4 The main building materials will be responsibly and legally sourced from manufacturers with environmental management systems and/or responsible sourcing credentials, such as BES 6001.

9.5 Timber used on site, including timber used in the construction phase, such as hoarding, fencing and scaffolding, will be sourced from sustainable forestry sources (e.g. PEFC and FSC) where possible.

Recycled Materials

9.6 Where feasible, Homes for Lambeth will commit to using materials that have been recycled. The use of recycled materials (e.g. crushed concrete from waste, used for hard-standing) has less embodied energy impact, other than that expended in their processing or transport.

10.POLLUTION

Noise Pollution

10.1 Homes for Lambeth are committed to reducing noise disturbance to internal and external areas of dwellings to improve the health and wellbeing of the occupants and to help protect community cohesion.

10.2 A Noise Assessment has been by produced by Ardent Consulting Engineers and is submitted in support of this application. Noise levels have been measures at two locations across the site and measured levels have been used to calculate and assess suitable glazing specification. This is considered a 'low to medium risk site' when considered in accordance with guidance in ProPG. Please refer to the report for further detail.

Air Quality

10.3 Poor air quality is the greatest environmental risk to public health in the UK and is known to exacerbate the impact of pre-existing health conditions. It is not only a major risk to human health, but it also has significant damaging impacts on both plants and animals.

10.4 Between 1990 and 2017, the UK's estimated emissions of nitrogen oxides reduced by 70%, and the estimated emissions of PM_{10} particulate matter reduced by 55% (DEFRA, 2018). This must continue to fall in future years. Homes for Lambeth are committed to reducing the proposed development's negative impact on air quality during construction and operation.

10.5 An Air Quality Assessment has been undertaken by Mayer Brown and is submitted in support of this application. For the construction phase, mitigation measures have been proposed for construction traffic and stationary plant associated with the proposed development. Building emissions are considered to be compliant with the London's Sustainable Design and Construction – Supplementary Planning Guidance, due to the fact that Air Source Heat Pumps are not directly associated with any NOx or Particulate emissions. Please refer to the report for further detail.

Air Tightness and Ventilation

10.6 Air leakage is to be minimised and an air permeability of 3.5 $m^3/hr/m^2$ will be targeted.

10.7 It is proposed to install Mechanical Ventilation with Heat Recovery (MVHR). MVHR provides a constant supply of fresh air to dwellings which has been filtered to remove external pollutants. It operates regardless of external conditions and provides the additional benefit of incorporating boost modes for use during hot weather or when internal humidity levels increase beyond acceptable levels.

11. FLOOD RISK & SURFACE WATER RUN-OFF

Flood Risk

11.1 Developments in low flood risk areas are promoted to, not only protect homes and local communities and reduce the cost implications if flooding occurs, but to protect the environment from the transfer of pollutants during flooding events.

11.2 According to the Environment Agency's Flood Map shown in Figure 6 below, the proposed development lies in an area benefitting from flood defences.

Figure 6: Environment Agency Flood Map – https://flood-map-for-planning.service.gov.uk

Sustainable Drainage Systems

11.3 Sustainable drainage systems (SuDS) can deliver multiple benefits which broadly fit into four categories: water quantity, water quality, amenity and biodiversity, shown in Figure 7 overleaf. The overarching principle of SuDS design is that surface water runoff should be managed for maximum benefit.

11.4 Long term environmental and social factors must be included in decisions regarding sustainable drainage. Sustainable drainage takes account of the quantity and quality of runoff, and the amenity and aesthetic value of surface water in the urban environment.

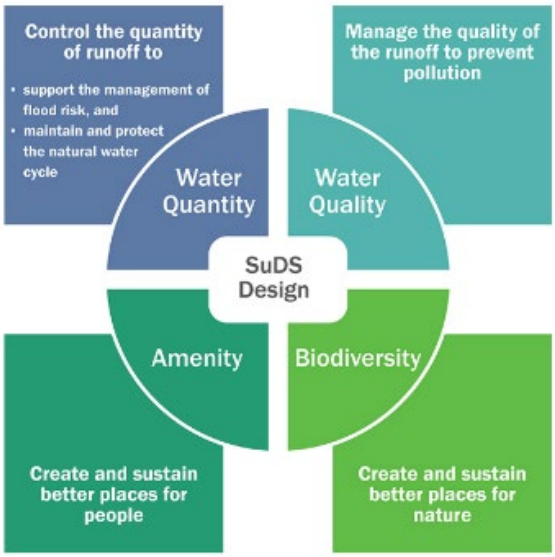


Figure 7: The four 'pillars' of SuDS – CIRIA SuDS Manual (2015)

11.5 The following listed SuDS are proposed. These will not only help to attenuate surface water but will provide the necessary water treatment –

> **Living roofs** will help to intercept and retain precipitation, reducing the volume of runoff and attenuating peak flows.

> **Attenuation tanks** will be used to control and retain excess surface water run-off until it can infiltrate into the ground naturally.

12. BUILDING QUALITY

Security

12.1 Homes for Lambeth are committed to ensuring the development is safe and secure for the occupants; reduce the risks and costs associated with crime; and improve occupiers' quality of life by reducing the fear of crime.

12.2 As such, the proposed development will be aiming to incorporate the principles of Secured by Design where appropriate. This may involve consultation with a Security Consultant during the detailed design stage.

Sound Insulation

12.3 In order to reduce the likelihood of noise complaints and to ensure a high quality development is created, the development will be aiming to achieve airborne sound insulation values that will improve upon the performance standards outlined within the Building Regulations for England and Wales, Approved Document E.

Inclusive Design

12.4 Homes for Lambeth's commitment to inclusivity will ensure that the proposed development is scaled appropriately so as to respond to the needs of all its users. Homes for Lambeth will endeavour to incorporate the requirements of the Equality Act (2010) into their design, making reasonable adjustments to enable disabled access, regularly reviewing whether the buildings are accessible and effective, and providing necessary design adjustments where it is practical to do so.

12.5 In addition, 90% of the new dwellings will be designed and built to Building Regulations Approved Document M4(2) standards, with 10% to Part M4(3) in accordance with London Plan Policy 3.8. These standards will ensure accessible and adaptable accommodation for everyone; young families, older people, individuals with a temporary or permanent physical impairment, and allow residents to stay in their home despite developing disabilities. They also enable flexibility, visitability (facilitating ease of visiting access to the homes by everyone, regardless of mobility or disability) and future-proofing i.e. the accommodation will be adaptable and able to respond to changing technological and environmental conditions.

Daylight and Sunlight

12.6 The promotion of good daylighting levels contributes to sustainability through improving the occupant's quality of life and reducing the building's energy consumption by minimising the need for artificial lighting.

12.7 Eb7 have undertaken a Daylight and Sunlight Assessment for the proposed development, in support of this application. This assessment has assessed the daylight and sunlight levels within the proposed units, demonstrating a high level of compliance against the BRE criteria of 98%. Please refer to the report for further detail.

Overheating

12.8 Minimising the risk of summer overheating and high uncontrollable temperatures is important so as to ensure that homes are comfortable for their occupants and remain comfortable in the future. Homes for Lambeth commits to ensuring that all dwellings will not have a high risk of summer overheating and will adopt appropriate measures to ensure this is delivered.

12.9 A Dynamic Overheating Assessment of representative units across the proposed scheme has been undertaken by Hodkinson Consultancy. The analysis has been undertaken in line with the draft London Plan (2019) Policy SI 4: *Managing heat risk* and current London Plan (2016) Policy 5.9: *Overheating and Cooling*.

12.10 The representative units tested demonstrate an acceptable level of overheating based on the CIBSE TM59:2017 criteria. The results are based on some key design features that follow the London Plan Policy SI 4 cooling hierarchy:

> A G-value of 0.37 (south-east facades) and 0.45 (all other facades).

> External shading through balcony overhangs.

> Passive measures: Windows and glazed doors assumed fully openable. Varying schedules for low noise risk and medium noise risk facades. Please refer to the report for further detail on this.

> Mechanical measures: To meet minimum Part F requirements in all dwellings.

13. TRANSPORT AND LOCAL AMENITIES

Sustainable Transport

13.1 Sustainable transport links are central to the sustainability debate. They provide a positive contribution to environmental, societal and economic sustainability of the places they serve.

13.2 The provision of alternative sustainable transport options and associated facilities reduces dependency on traditionally fuelled cars and has the following benefits:

> Encourages active travel and helps improve people's health and wellbeing;

> Reduces congestion and encourages clean travel which helps to improve the air quality of the local area; and

> Provides cost savings compared with maintaining and running traditionally fuelled cars.

13.3 The site is located in a highly sustainable urban location, with a high level of connectivity to public transport (PTAL 6B). The scheme has been designed to achieve car free standards for residential units, aside from disabled access bays in line with the priorities outlined in the London Plan. Uptake in sustainable modes of travel are encouraged through provision of secure cycle storage facilities for the residential and community use along with visitor parking. The site is located in an area with a good level of connectivity to public transportation, with Waterloo, Waterloo East and Southwark rail stations located within walking distance of the site. In addition, the site is located within walking distance of resident amenities located off 'The Cut'. Pedestrian based modes of travel will be promoted where practical.

Local Amenities

13.4 The proposed development sites have access to the following key amenities within walking distance in the local area, which will help to reduce dependency on private transport:

> Administrative services (e.g. post office, banks and cash points);

> Health services (e.g. GP practices, health centres and pharmacies);

> Small/large scale retail services (e.g. shops and restaurants);

> Recreation and leisure facilities (e.g. sports centres and cinemas); and

> Education and community facilities (e.g. nurseries, schools and community centres).

Public Transport

13.5 The sites are well located within close proximity to a number of transport links, such as:

> **Waterloo Railway Station** provides National Rail and London Underground Services. The National Rail Services and served by South Western Railway to the south coast and south-west of England. For London Underground services, the station is on the Jubilee, Northern and Bakerloo Lines

> **Local bus services** within the immediate vicinity of the site, providing frequent trips in all directions. The sites have access to nine regular bus services and three high bus services

Cycle Parking

13.6 Encouraging cycling not only makes a positive contribution to health and well-being, but also reduces pressure on existing transport systems in accordance with Policy 6.9 of the London Plan.

13.7 All of the dwellings will have access to secure cycle stores, located at ground floor level. A total number of 64 long-stay and 2 visitor cycle parking spaces will be provided.

13.8 Cycle parking spaces for the community centre will be provided in line with standards outlined in the Intend to Publish London Plan.

Working from Home

13.9 The concept of working from home will be promoted by the provision of internal services and infrastructure, enabling a home office to be established in each dwelling. This will contribute to the vibrancy of the scheme, whilst offering additional environmental benefits in terms of potentially reducing the demand for transportation.

13.10 The home office space will likely comprise the provision of two double electric sockets, a broadband connection, good ventilation and adequate internal daylight levels.

14. BIOVERSITY AND ECOLOGY

Brownfield Site

14.1 The current site is occupied by a single storey community building and area of low-quality public realm classified as `brownfield'. The NPFF supports re-developing previously developed or `brownfield' land.

Protection of Ecological Value

14.2 An Ecological Report has been produced by AA Environmental Ltd. The site is of overall low ecological value, with the species recorded described as common or abundant. Habitats present include amenity grassland, hedge, planted shrubbery, scattered trees and semi-improved natural grassland. A range of mitigation measures have been suggested and would ensure that there would be no adverse impact on local wildlife. Please refer to the Ecological Report for further detail.

14.3 To protect existing biodiversity, a series of measures will be implemented to reduce any impact on local wildlife. These include the following:

> All site operatives to be made aware of current legislation, including the protection of certain species;

> Site clearance works to be timed to avoid the main bird nesting season. If this is not possible, a check should be carried out prior to the works to determine the presence of any active nests;

> Suitable fencing should be erected to reduce the possibility of any damage to established vegetation; and

> Native species, or species of known wildlife value, should be used for the proposed new planting.

Enhancement of Ecological Value

14.4 Enhancing a site's ecological value not only helps to reduce a development's environmental impact but improves the health and wellbeing of the occupants through their interaction with the natural environment.

14.5 The proposed landscaping strategy includes landscaped areas and additional tree and shrub planting.

14.6 The strategy for the new planting will include the following where possible:

> Promote local ecology through the use of native seed and fruit bearing species;

> Attract pollinators such as bees and butterflies through the use of flowering, nectar rich species;

> Combine natural and ornamental species to enrich the planting mix and promote local biodiversity;

> Create new habitats to attract local fauna; and

> Interconnect existing and proposed habitats of the site and its surroundings where possible.

Living Roofs

14.7 Living roof is to be provided in order to meet Policy 5.11 of the London Plan. Green/brown/living roofs have demonstrable sustainability benefits, including:

> Reduction in urban heat island effect (localised cooling through increased evaporation);

> Provision of ecological habitats for fauna and flora, particularly where these roofs can replicate pre-existing ecological conditions; and

> Reduction in surface water run-off.

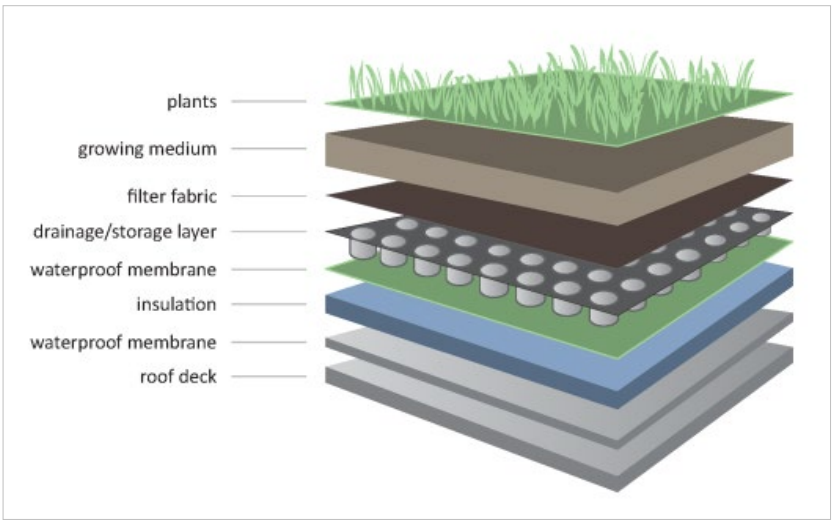


Figure 8: Indicative Build-up of Living Roof

15. SUSTAINABLE CONSTRUCTION

15.1 Sustainable construction involves the prudent use of existing and new resources and the efficient management of the construction process. This includes the following measures:

> Reducing waste during construction and demolition and sorting waste on site where practical;

> Reducing the risk of statutory nuisance to neighbouring properties as much as possible through effective site management;

> Controlling dust and emissions from demolition and construction; and

> Complying with protected species legislation.

Considerate Constructors Scheme

15.2 The development site will be registered with the Considerate Constructors Scheme. This is designed to encourage environmentally and socially considerate ways of working, to reduce any adverse impacts arising from the construction process. As commonly known, the Considerate Constructors Scheme aims are as follows:

> Enhancing the appearance;

> Respecting the community;

> Protecting the environment;

> Securing everyone's safety;

> Caring for the workforce.

15.3 The site will target *'Beyond Best Practice'* certification, achieving a score of at least 35 out of 50, with all of the five sections scoring at least seven points.

Monitoring Construction Site Impacts

15.4 During the construction processes, control procedures will be put in place to minimise noise and dust pollution and roads will be kept clean. The management systems will generally comprise procedures and working methods that are approved by the development team together with commercial arrangements to ensure compliance.

15.5 Further to the above, additional measures will be adopted to minimise the impact on the local area during construction. This will include the limiting of air and water pollution in accordance with best practice principles, as well as the recording, monitoring and displaying of energy and water use from site activities during construction.

15.6 In terms of construction traffic, this will be minimised by restricting deliveries and arrival times in order to manage potential impacts on existing and future occupants. Work will be limited to appropriate hours to be agreed with the Council, and suppressors will be used to reduce noise from machinery.

16.CONCLUSION

16.1 The issue of sustainable development has been considered throughout the design of the proposed development at Former Coral Day Nursery, Wootton Street by Homes for Lambeth in the London Borough of Lambeth. In particular, the incorporation of sustainable design and construction methods, energy and water saving measures, waste reduction techniques as well as measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

> **BREEAM**: The commercial floorspace (Use Class D1) will be designed and built to achieve a BREEAM 'Excellent' rating under the New Construction 2018 Shell Only Scheme.

> **Energy efficiency:** The development will target a 56% reduction in Regulated CO_2 emissions over Part L 2013 Baseline through energy efficiency measures and individual Air Source Heat Pumps.

> **Overheating:** The scheme has been designed to ensure overheating risk is reduced to acceptable levels in accordance with CIBSE TM59:2017 requirements.

> **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day.

> **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling.

> **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible.

> **Pollution:** Mitigation measures have been proposed to minimise the impact of noise.

> **Flood Risk and SUDs:** The proposed development site will benefit from SUDs such as green roofs and attenuation tanks.

> **Security:** Consultation with a Security Specialist will take place to ensure the development is safe and secure for its residents.

> **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors.

> **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3).

- **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 66 cycle storage spaces for the residential units.

- **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas and additional tree and shrub planting. The scheme will achieve a net gain in biodiversity beyond the existing conditions.

- **Sustainable construction:** The site will aim to achieve a 'Beyond Best Practice' score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

17. REFERENCES

> Greater London Authority (2016) The London Plan: The Spatial Development Strategy for London Consolidated with Alterations Since 2011. GLA: London

> Greater London Authority (2019) Draft New London Plan Intend to Publish.

> Ministry of Housing, Communities & Local Government (2019) National Planning Policy Framework. MHCLG: London

> HM Government (2016) The Building Regulations Approved Document L1A: Conservation of Fuel and Power. NBS: London

> HR Wallingford (2015) *CCRA2: Updated projections for water availability for the UK*

> Energy Saving Trust (2013) *At home with water*

> Department for Environmental Food and Rural Affairs (2018) *Air Pollution in the UK 2017*

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APPENDICES

Appendix A

BREEAM New Construction 2018 Community Centre Shell Only ‘Excellent’ Pre-Assessment

Appendix B

Water Efficiency Calculator

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Appendix A

BREEAM New Construction 2018 Community Centre Shell Only ‘Excellent’ Pre-Assessment

BREEAM 2018 TRACKER

Former Coral Day Nursery, Wootton Street - Community Centre

Project name & number	FormerCoral Day Nursery, Wootton Street - 03484	**BREEAM assessor**	Zoe Lowther
Client	Homes for Lambeth	**Project manager**	Zoe Lowther
Local authority & postcode	London Borough of Lambeth	**Rating required**	Excellent
Reason for BREEAM	Planning requirement	**Building type**	Community Centre
Status of project	Pre Assessment	**Assessment scope**	Shell Only
Development description	Shell Only Community Centre on the ground floor with 36 residential units above.		

BREEAM assessment details	
Reference number	N/A
Scheme	New Construction 2018
Version	v.2
GIFA	380 sqm

Target score
71.79%
Excellent

Awarded score
0.00%

BREEAM rating benchmarks	
Pass	≥ 30
Good	≥ 45
Very Good	≥ 55
Excellent	≥ 70
Outstanding	≥ 85

Meeting log

Date	Location	Key actions from DTM

BREEAM credits

Section	Available credits	Target credits	Section weighting	% credits targeted	Category score
Management	15	8	12.00%	53.33%	6.40%
Health & Wellbeing	8	5	7.00%	62.50%	4.37%
Energy	13	5	9.50%	38.46%	3.65%
Transport	12	10	14.50%	83.33%	12.08%
Water	2	2	2.00%	100.00%	2.00%
Materials	14	9	22.00%	64.29%	14.14%
Waste	10	7	8.00%	70.00%	5.60%
Land Use & Ecology	13	12	19.00%	92.31%	17.53%
Pollution	6	5	6.00%	83.33%	5.00%
Innovation	10	1	10.00%	10.00%	1.00%
Rating	**Excellent**				

Revision	Date	Revision details	Author	QA
v1	27.11.20	Planning Pre-Assessment	ZL	ZW

Producing BREEAM Evidence:
- All pieces of information need to have a clear source for the audit trail i.e. company branding, name of author and date;
- The BRE require calculator tools to be completed for specific issues. These will be completed by the assessor once all information required for the calculation is provided;
- Drawings produced for BREEAM should be annotated to show how each criterion is met. Notes can be added directly to the drawing, or annotated by hand.

Hodkinson Consultancy can provide you with a wide range of templates to help demonstrate compliance. Your assessor will discuss these with you.

BREEAM New Construction 2018 Tracker

	Issue				Credits				
	Issue		Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	Notes
Management	Man 01	Project brief and design	Project delivery planning	RIBA 2	The project delivery stakeholders will meet to identify and define roles, responsibilities and contributions for each key phase of project delivery. The project team will demonstrate how the project delivery stakeholders' contributions and the consultation process outcomes influence the Initial Project Brief, Project Execution Plan, Communication Strategy and Concept Design.	1	1		
			Stakeholder consultation	RIBA 2	All interested parties will be consulted and the design team will demonstrate how the consultation exercise influences the Project Brief and Concept Design. Prior to completion of the detailed design all interested parties give and receive consultation feedback.	1	1		
			Prerequisite - BREEAM Advisory Professional	RIBA 1	The project team, including the client, formally agree strategic performance targets early in the design process.	-	-		
			BREEAM Advisory Professional - Concept Design	RIBA 2	A BREEAM AP will work with the project team to maximise the project's overall performance against BREEAM. They will monitor progress against the performance targets and identify risks and opportunities related to the achievement of the rating.	1	1		
			BREEAM Advisory Professional (AP) - Detailed Design	RIBA 3	A BREEAM AP will continue to work with the project team to maximise the project's overall performance against BREEAM. Feedback will be provided to support them in taking corrective actions and achieving their agreed rating.	1	0		
	Man 02	Life cycle cost and service life planning	Elemental Life Cycle Cost (LCC)	RIBA 2	An entire asset LCC Plan will be produced with design options appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865: 2008. This will include an indication of future replacement costs over a period of analysis and will include service life, maintenance and operation cost estimates. Details of how the LCC Plan has been used to influence building and systems design and specifications to minimise life cycle costs and maximise critical value will be demonstrated by the team.	2	0		
			Component level life options appraisal	RIBA 4	A component level LCC options appraisal will be produced in line with PD 156865: 2008 and will include details on the building envelope, building services, finishes and external spaces. Appropriate examples provided by the design team will be used to demonstrate how this appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.	1	0		
			Capital cost reporting		Report the capital cost for the building in pounds per square metre of gross internal floor area (£k/ m^2).	1	1		
	Man 03	Responsible construction	**Prerequisite -** Legally harvested and traded timber		All timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber'.	-	-		
			Environmental management		The principal contractor will operate an Environmental Management System covering their main operations (e.g. ISO 14001). All parties who manage the construction site will also implement best practice pollution prevention policies and procedures on site.	1	0		
			Prerequisite - BREEAM Advisory Professional		The client and the contractor formally agree performance targets.	-	-		
			BREEAM Advisory Professional - Site		The BREEAM AP will also monitor construction progress throughout all stages where decisions critically impact BREEAM performance and will proactively identify risks and opportunities related to the procurement and construction process.	1	0		
			Responsible construction management		The principal contractor evaluates the risks (on site and off site), plans and implements actions to minimise the identified risks. Compliance with Considerate Constructors is required for 1 credit.	1	1	1 credit - Excellent 2 credits - Outstanding	
					Compliance with Considerate Constructors is required whilst also undertaking additional responsible construction practices.	1	1		
			Monitoring of construction site impacts - Utility		Assign responsibility to an individual for monitoring, recording and reporting energy use and water consumption from all on-site construction processes throughout the build programme.	1	1		
			Monitoring of construction site impacts - Transport		Assign responsibility to an individual for monitoring, recording and reporting transportation data resulting from all on-site construction processes throughout the build programme.	1	1		
	Man 04	Commissioning and handover	Testing and inspecting building fabric		Post-construction testing and inspection will be undertaken by a suitably qualified professional who will undertake the survey and testing in accordance with the appropriate standard. Any defects identified during post-construction testing and inspection will be rectified prior to building handover and close out.	1	0		
					Total for management	**15**	**8**		

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BREEAM New Construction 2018 Tracker

	Issue				Credits				
	Issue		Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	Notes
Health and wellbeing	Hea 01	Visual comfort	View Out		95% of the floor area in 95% of spaces for each relevant building area will be within 8m of an external wall. The external wall must have a window or permanent opening that provides an adequate view out. The window or opening must be ≥ 20% of the surrounding wall area.	1	0		
			Daylighting		At least 80% of floor area in occupied spaces (or 35% in retail sale areas) is adequately day lit with an average daylight factor of 2% or more.	2	0		
			External lighting		All external lighting located within the construction zone will be specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:20145 Light and lighting - Lighting of work places - Part 2: Outdoor work places.	1	1		
	Hea 05	Acoustic performance	Acoustic performance		Demonstrate that all spaces in the building achieve, and for the relevant areas exceed, the performance standards required by BS for sound insulation, indoor ambient noise levels and reverberation times.	1	1		
	Hea 06	Security	Security of site and building	RIBA 2	A Suitably Qualified Security Specialist (SQSS) will conduct an evidence-based Security Needs Assessment (SNA). This SNA will be used to identify attributes of the site and surroundings which may influence the approach to security for the development. The SQSS will develop a set of security controls and recommendations and these will be incorporated in the design.	1	1		
	Hea 07	Safe and healthy surroundings	Safe access		Dedicated and safe cycle paths will be provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. Also, dedicated and safe footpaths are provided on and around the site providing suitable links. Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths and it will ensured that any delivery areas are not accessed through general parking areas and do not cross or share pedestrian and cyclist paths. There will be dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. Also, parking and turning areas will be designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.	1	1		
			Outdoor space		There will be outside space providing building users with an external amenity area.	1	1		
					Total for health and wellbeing	**8**	**5**		
Energy	Ene 01	Reduction of energy use and carbon emissions	Energy performance		An Energy Performance Ratio for New Construction (EPR_{NC}) will be calculated. The EPR_{NC} achieved will be compared with the benchmarks below in order to award the corresponding number of BREEAM credits.	9	4	4 credits - Excellent 6 credits - Outstanding	
	Ene 03	External lighting	External lighting		External light fittings within the construction zone will have an average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt, automatic control to prevent operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	1	1		
	Ene 04	Low carbon design	Passive design analysis	RIBA 2	Note - To achieve this the first credit under Hea 04 Thermal Modelling must be achieved. The project team will analyse the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures. Passive design measures will be implemented to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings and the reduced total energy demand and carbon dioxide (CO_2) emissions resulting from the passive design measures will be calculated.	1	0		
			Free cooling		Note - To achieve this credit the passive design analysis credit must be awarded. A free cooling analysis will be included in the passive design analysis and it will identify opportunities for the implementation of free cooling solutions. The building will be naturally ventilated or will use a combination of free cooling strategies.	1	0		
			Low and zero carbon technologies	RIBA 2	An energy specialist will completes a feasibility study by the end of Concept Design, this will establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy sources for the building or development. The LZC technologies for the building will be specified in line with the feasibility study recommendations. The reduced regulated carbon dioxide (CO_2) emissions resulting from the feasibility study will be quantified.	1	0		
					Total for energy	**13**	**5**		

BREEAM New Construction 2018 Tracker

	Issue				Credits					
	Issue		Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	Notes	
Transport	Tra 01	Transport assessment	Travel plan	RIBA 1	A travel plan is developed based on a site-specific travel assessment or statement.	2	2			
	Tra 02	Sustainable transport	Transport options implementation		Note - At least one credit must be achieved for Tra 01 for any credits to be awarded in this issue. Credits will be awarded based on the Accessible Index (AI) of the project, and the number of transport measures implemented.	10	8			
					Total for transport	**12**	**10**			
Water	Wat 02	Water meter	Water meter		A pulsed water meter is installed on the mains water supply to each building. This includes instances where water is supplied via a borehole or other private source. For water-consuming plant or building areas consuming 10% or more of the building's total water demand sub meters should be used or water monitoring equipment should be used. The water meter should connect to a BMS or utility monitoring system or should be capable of connecting to one.	1	1	Good Very Good Excellent Outstanding		
	Wat 03	Leak detection	Leak detection system		A leak detection system capable of detecting a major water leak on the utilities water supply within the building will be installed AND A leak detection will be installed between the buildings and the utilities water supply. This leak detection will be a permanent automated water leak detection system that alerts the building occupants to the leak and is activated when the flow of water passing through the water meter. Also, it will be able to identify different flow and therefore leakage rates and also programmable to suit the owner's or occupier's water consumption criteria.	1	1			
					Total for water	**2**	**2**			
Materials	Mat 01	Environmental impacts - LCA	Environmental impacts from construction products - Building life cycle assessment (LCA)		During the Concept Design and Technical Design, demonstrate the environmental performance of the building as follows: - Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology Submit the Mat 01/02 Results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for (that includes external material or product specifications).	7	3			
	Mat 02	Environmental impacts – EPD	Specification of products with a recognised environmental product declaration (EPD)		Construction products with an EPD that achieve a total EPD points score of at least 20 will be undertaken. Enter the details of each EPD into the Mat 01/02 Results Submission Tool, including the material category classification. The Mat 01/02 Results Submission Tool will verify the EPD points score and credit award.	1	1			
	Mat 03	Responsible sourcing of construction products	**Prerequisite**		All timber and timber-based products used on the project will be legally harvested and traded as per the UK Government's Timber Procurement Policy (TPP)	-	-	All ratings		
			Enabling sustainable procurement	RIBA 2	A sustainable procurement plan will be used to guide the specification towards sustainable construction products. This plan will include sustainability aims, objectives and strategic targets to guide procurement activities and will also include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible. Details of the checking and verifying the effectiveness of the procurement plan will also be included. In addition, if the plan is applied to several sites or adopted at an organisational level it will identify the risks and opportunities of procurement against the process set out in BS ISO 20400:2017.	1	1			
			Measuring responsible sourcing		Superstructure, internal finishes, substructure and hard landscaping are responsibly sourced in accordance with the below targets: 3 credits > 30% of points achieved 2 credits > 20% of points achieved 1 credit > 10% of points achieved	3	2			
	Mat 05	Designing for durability and resilience	Protecting vulnerable parts of the building from damage		Protection measures will be incorporated into the building's design and construction to reduce damage to the building's fabric or materials.	1	1			
			Protecting exposed parts of the building from material degradation		Provide a detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors and provide convenient access to the roof and façade for cost-effective cleaning, replacement and repair in the building's design will be implemented and the design the roof and façade to prevent water damage, ingress and detrimental ponding will also be undertaken.					
	Mat 06	Material efficiency	Material efficiency	RIBA 1	Targets will be set and opportunities and methods to optimise the use of materials will be reported for all RIBA stages. The implementation of material efficiency will be reported on during developed design through to construction.	1	1			
					Total for materials	**14**	**9**			

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	Issue				Credits				Notes
	Issue		Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	
Waste	Wst 01	Construction waste management	Pre demolition audit	RIBA 2	A pre-demolition audit of any existing buildings, structures or hard surfaces will be carried out This will be used to determine whether refurbishment or reuse is feasible and to maximise the recovery of material for subsequent high grade or value applications.	1	1	1 credit - Outstanding	
			Construction resource efficiency		A compliant Resource Management Plan (RMP) covering non-hazardous waste materials, demolition and excavation waste will be produced. The site will meet or improve on the benchmarks as shown below: - One credit - <11.1 tonnes per 100m^2 - Two credits - <6.5 tonnes per 100m^2 - Three credits - <3.2 tonnes per 100m^2	3	1		
			Diversion of resources from landfill		Waste materials will be sorted into separate key waste groups either on-site or through a licensed contractor for recovery. The diversion from landfill benchmarks for non-hazardous construction waste and demolition and excavation waste generated will meet the following: - Non Demolition - 80% (tonnage) - Demolition - 90% (tonnage)	1	1		
	Wst 02	Recycled aggregates	**Pre-requisite**	RIBA 2	To encourage the reuse of site material, a pre demolition audit of any existing buildings, structures or hard surfaces will be undertaken.	-	-		
			Project Sustainable Aggregate Points		Aggregate uses, types and quantities will be identified for each identified use and aggregate type. The region in which the aggregates are sourced will be calculated (km).	1	0		
	Wst 03	Operational waste	Operational waste		Provide a dedicated space for the segregation and storage of operational recyclable waste generated. This will be appropriately labelled, accessible to building users and waste management contractors and be of a sufficient size. If large amounts of waste are expected, waste compactors or balers will be provided and if appropriate, organic waste facilities (with a water outlet).	1	1	Excellent Outstanding	
	Wst 05	Adaptation to climate change	Resilience of structure, fabric, building services and renewables installation	RIBA 2	A climate change adaptation strategy appraisal will be undertaken using a systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. Following this study develop recommendations or solutions based on the climate change adaptation strategy appraisal that aim to mitigate the identified impact.	1	1		
				RIBA 4	An update will be provided during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective.				
	Wst 06	Design for disassembly and functional adaptability	Design for disassembly and functional adaptability - recommendations	RIBA 2	A study to explore the ease of disassembly and the functional adaptation potential of different design scenarios will be carried out. Following this recommendations or solutions will be developed, based on the study that aim to enable and facilitate disassembly and functional adaptation.	1	1		
			Disassembly and functional adaptability – implementation	RIBA 4	The team will provide an update on how the recommendations or solutions have been implemented where practical and cost effective. Omissions will also justified in writing to the assessor. Any changes to the recommendations and solutions during the development of the Technical Design should also be recorded. A building adaptability and disassembly guide will be produced to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.	1	1		
					Total for waste	10	7		

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	Issue				Credits				Notes
	Issue		Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	
Land Use and Ecology	Lue 01	Site selection	Previously occupied land		At least 75% of the proposed development's footprint is on an area of land which has previously been occupied.	1	1		
			Contaminated land		A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified the degree of contamination, contaminant sources or types and the options for remediating sources of contamination. The remediation of the site will be carried out in accordance with the remediation strategy.	1	1		
	Lue 02	Risks and opportunities	**Prerequisite -** Assessment route selection		An assessment route for the project has been determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist.	-	-		
			Survey and evaluation	RIBA 1	Route 2 only: An appropriate individual is appointed at an early stage for the involvement of site configuration and to ensure that they can influence strategic planning decisions. An appropriate level of survey and evaluation will be carried out to determine the ecological baseline of the site, taking account of the zone of influence to establish: - Current and potential ecological value and condition of the site, and related areas within the zone of influence; - Direct and indirect risks to current ecological value; - Capacity and feasibility for enhancement of the ecological value of the site and areas within the zone of influence.	1	1		
			Determining the ecological outcomes for the site	RIBA 2	To achieve this credit the survey and evaluation criteria must have been achieved. The project team will liaise and collaborate with representative stakeholders to identify and consider ecological outcome for the sites for the project. When determining the ecological impact of the site this will involve the identification, appraisal and selection of specific solutions and measures sufficiently early to influence key project planning decisions. The optimal ecological outcome for the site will be selected after liaising with representative stakeholders and the project team.	1	1		
	Lue 03	Managing negative impacts on ecology	**Prerequisite –** Identification and understanding the risks and opportunities		To achieve this credit the credits under LE 02 must be achieved.	-	-		
			Planning, liaison, implementation and data	RIBA 2	Roles and responsibilities will be clearly defined, allocated and implemented to support successful delivery of project outcomes at an early enough stage to influence the concept design or design brief. Site preparation and construction works will be planned and implemented at an early project stage to optimise benefits and outputs. The project team will implement the solutions, and measures that have been selected (see LE 02) during site preparation and construction works.	1	1		
			Managing negative impacts of the project		Route two only: Negative impacts from site preparation and construction works will be managed according to the hierarchy and either: - No overall loss of ecological value has occurred (2 credits) OR - The loss of ecological value has been limited as far as possible (1 credit)	2	2		
	Lue 04	Change and enhancement of ecological value	**Prerequisite -** Identifying and understanding the risks and opportunities		To achieve this credit the credits under LE 03 must be achieved.	-	-		
			Liaison, implementation and data collation		Route two only: The project team will implement the solutions and measures selected in a way that enhances ecological value in the following order: - On site, and where this is not feasible; - Off site within the zone of influence.	1	1		
			Enhancement of ecology		Route two only: Credits will be awarded on a scale of 1 to 3, based on the calculation of the change in ecological value occurring as a result of the project.	3	2		
	Lue 05	Long term ecology management and maintenance	**Prerequisite -** Roles and responsibilities, implementation, statutory obligations		The client or contractor will confirm that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.	-	-		
			Planning, liaison, data, monitoring and review management and maintenance		The project team will liaise and collaborate with representative stakeholders to: - Monitor and review implementation and the effectiveness; - Develop and review management and maintenance solutions, actions or measures. The monitoring and reporting of on the ecological outcomes/successes for site implemented at the design and construction stage and the arrangements of ongoing management of the new landscape and habitats will be reviewed. Also, he ecological value of the site and its relationship to its zone of influence and any linked sustainable activities will be maintained. As part of the tenant or building owner information supplied a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features will be included.	1	1		
			Landscape and ecology management plan		A landscape and ecology management plan will be developed in accordance with BS 42020:20131 covering the first five years. The landscape and management plan will be updated as appropriate to support maintenance of the ecological value of the site.	1	1		
					Total for land use and ecology	**13**	**12**		

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	Issue			Credits				
	Issue	Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	Notes
Pollution	Pol 03 Flood and surface water management	**Prerequisite**		An appropriate consultant is appointed to carry out the following requirements; an appropriate consultant is one who has qualifications and experience relevant to designing SuDS and flood prevention measures and completing peak rate of run-off calculations.	-	-		
		Flood resilience		A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration.	2	2		
		Prerequisite - Surface water run-off		Surface water run-off design solutions must be bespoke.	-	-		
		Surface water run-off - volume		Drainage measures will be specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events. Relevant maintenance agreements for the ownership, long term operation and will also be in place and all calculations will include an allowance for climate change.	1	1		
		Surface water run-off - volume		Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND Drainage design measures will be specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change. Any additional predicted volume of run-off for this event will be prevented from leaving the site by using infiltration or other SuDS techniques.	1	1		
		Minimising watercourse pollution		Drainage strategy confirms that there is no discharge from the developed site for rainfall up to 5 mm and that areas with a low risk source of watercourse pollution will have an appropriate level of pollution prevention treatment provided. Areas with a high risk of contamination or spillage of substances have separators installed in surface water drainage systems. All water pollution prevention systems will be designed and installed in accordance with the recommendations of documents such as the SuDS manual and other relevant industry best practice. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS will also be in place.	1	0		
	Pol 04 Reduction of night time light pollution	Reduction of night time light pollution		The external lighting strategy has been designed in compliance with Table 2 (ILP) Guidance notes for the reduction of obtrusive light, 2011. Also All external lighting will have the capabilities to be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this will comply with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes. Illuminated advertisements will be designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements.	1	1		
				Total for pollution	6	5		

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	Issue				Credits				
	Issue		Issue sub-title	RIBA Stage	Credit description	Available	Targeted	Minimum standards	Notes
Innovation	Man 03	Responsible construction	Responsible construction management		The principal contractor evaluates the risks (on site and off site), plans and implements actions to minimise the identified risks, covering the items included in the Responsible Construction Management Template. All criteria must be met to achieve this credit.	1	1		
	Hea 01	Visual comfort	Daylighting		At least 80% of floor area in occupied spaces (or 50% in retail sale areas) is adequately day lit with an average daylight factor of 3% or more.	1	0		
	Hea 02	Indoor air quality	Emissions from construction products		Three of the product types noted below will meet the emission limits, testing requirements and any additional requirements as listed in the HEA02 table: - Paints and varnishes; - Wood based products; - Flooring materials; - Ceiling, wall, acoustic, thermal insulation materials; - Interior adhesives and sealants.	1	0		
	Hea 06	Security	Security of site and building		A compliant risk based security rating scheme has been used. The performance against the scheme has been confirmed by independent assessment and verification.	1	0		
	Ene 01	Reduction of energy use	Beyond zero net regulated carbon		The building will achieve an EPR NC ≥ 0.9 and zero net regulated CO_2 emissions. Energy generation from on-site and near-site LZC sources will be sufficient to offset carbon emissions from regulated energy use plus a percentage of emissions from unregulated energy use. The exemplary credits will be awarded as follows: 1 credit - 10% 2 credits - 50% 3 credits - 100% (carbon negative)	3	0		
	Wat 01	Water consumption	Water consumption		The standard Wat 01 methodology will be used to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. Exemplary credits will be awarded where a 65% improvement on the baseline has been achieved.	1	0		
	Mat 01	Environmental impacts	Third party verification		A suitably qualified third party will carry out the building LCAs OR produces a report verifying the building LCAs accurately represent the designs under consideration during Concept Design and Technical Design. For each LCA option, the findings of the verification checks made by the suitably qualified third party will be itemised in the report including. The suitably qualified third party's relevant skills and experience will be provided and a declaration of their third party independence from the project client and design team will be included in their report.	1	0		
	Mat 03	Responsible Sourcing	Measuring responsible sourcing		Superstructure, internal finishes, substructure and hard landscaping and core services are responsibly sourced in accordance with the below targets: 3 credits plus 1 exemplary credit > 50% of points achieved.	1	0		
	Wst 01	Construction waste management	Construction waste management		Prepare a compliant Resource Management Plan (RMP) covering non-hazardous waste materials, demolition and excavation waste and less than <1.9 tonnes of waste per 100m^2 will be generated. Sort waste materials into separate key waste groups either on-site or through a licensed contractor for recovery. Meet the diversion from landfill benchmarks for non-hazardous construction waste and demolition and excavation waste generated: Non Demolition - 95% (tonnage) Demolition - 85% (tonnage)	1	0		
	Wst 02	Recycled aggregates	Project sustainable aggregate points		Identify all aggregate uses and types on the project and determine the quantity in tonnes for each identified use and aggregate type. Identify the region in which the aggregate source is located and calculate the distance in kilometres travelled by all aggregates by transport type.	1	0		
	Wst 05	Adaptation to climate change	Responding to climate change		In addition to the Wst 05 criteria the following credits will also need to be achieved: - Hea 04 thermal comfort; - Ene 01 reduction of energy use and carbon emissions; - Ene 04 low carbon design; - Wat 01 water consumption; - Mat 05 designing for durability and resilience; - Pol 03 Flood and surface water management.	1	0		
	Le 02	Risks and opportunities	Determine the ecological outcomes for the site		When determining the optimal ecological outcome for the site the wider site sustainability-related activities and the potential for ecosystem service related benefits will be considered. This will include opportunities for integrating ecology with wider site sustainability-related activities and ecosystem service related benefits. The following must also be achieved: - Hea 07 Safe and healthy surroundings; - Pol 03 Flood and surface water management - Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution'; - Pol 05 Reduction of noise pollution.	1	0		
					Total for Innovation	**10**	**1**		

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Appendix B

Water Efficiency Calculator

Water Efficiency Calculator
Former Coral Day Nursery, Wootton Street

	Internal Water Consumption			
Installation Type	**Unit of Measure**	**Capacity / Flow Rate**	**Litres/person/day**	**Notes**
WC	Full Flush Volume (Litres)	**6**	8.76	Low flush WCs will be installed to reduce the volume of water consumed during flushing. All WCs will have dual flush cisterns which will provide both part (4L) and full (6L) flushes.
	Part Flush Volume (Litres)	**4**	11.84	
Basin Tap	Flow Rate (Litres/minute)	**4**	7.90	All taps (excluding kitchen taps) will be reduced to 4 litres/minute using flow restrictors. Where multiple taps are to be provided the average flow rate will be used.
Bath	Capacity (Litres to overflow)	**160**	17.60	All baths will have reduced capacities of 160 litres (excluding displacement). The bath taps are not included in this calculation as they are already incorporated into the use factor for the baths.
Shower	Flow Rate (Litres/minute)	**8**	34.96	Shower flow rates will be reduced to a maximum of 8 litres/minute using flow restrictors fixed to the shower heads. These contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure.
Kitchen Tap	Flow Rate (Litres/minute)	**5**	12.56	Kitchen taps will be reduced to 5 litres/minute using flow restrictors which will be fitted within the console of the tap or in the pipework.
Washing Machine	Water Consumption (Litres/kg)	**8.17**	17.16	Water efficient washing machines or washer-dryers will be specified. The make and model numbers of the appliances are unknown at this stage therefore a default figure of 8.17 litres/kg has been assumed.
Dishwasher	Water Consumption (Litres/place setting)	**1.25**	4.50	All dishwashers will be water efficient. The make and models numbers are unknown therefore a default figure of 1.25 litres/place setting has been assumed at this stage.
		Net Internal Water Consumption (Litres/person/day)	**115.3**	
		Normalisation Factor	**0.91**	
		Total Internal Water Consumption (Litres/person/day)	**104.9**	The total *internal* water consumption target of ≤105 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement Approved Document G.
		Allowance for External Water Consumption (Litres/person/day)	**5**	
		Total Water Consumption (Litres/person/day)	**109.9**	The *total* water consumption target of ≤110 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement of Approved Document G.