

Castlehaven Row Ltd
Camden Wharf
Sustainability Statement

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Description of Scheme

This report is the Sustainability Statement, produced by Arup on behalf of Castlehaven Row Ltd, to support a planning application for the extension of the existing building at 28 Jamestown Road (known as “Camden Wharf”). The report outlines how the scheme will respond to national, regional and local planning policy related to sustainable design and construction and includes a BREEAM pre-assessment.

The existing building is located in the London Borough of Camden and was completed in 2000. It has a total floor area of 5,550m² across basement and three storeys above ground which are currently occupied by a mixture of retail and office tenants.

The proposal concerns the addition of 575m² of flexible B1/A3 space on the 4th floor plus extension at levels 2 and 3 to provide a total additional floor area of 735m². The redevelopment will also include replacement of the existing plant at the 4th floor roof level serving the 3rd floor office, which will be relocated to the South arm of the building at 4th floor level.

2 Sustainability Assessment

2.1 Energy

London Plan Policy 5.2, the Mayor's SPG on Sustainable Design and Construction, Camden's Core Strategy Policy CS13 and the Camden Planning Guidance on Sustainability (CPG 3) all require carbon dioxide emissions from the development to be minimised by following the steps in the energy hierarchy below:

1. Be Lean: Use Less Energy
2. Be Clean: Supply Energy Efficiently
3. Be Green: Use Renewable Energy

The project team's response to the energy hierarchy is outlined fully in the Energy Strategy which is submitted as part of the application for planning permission. In total, it is proposed to reduce the regulated CO₂ emissions of the new extension by 19.4% against a Part L 2013 notional building baseline (regulated energy).

This section of the Sustainability Statement summarises the measures which are to be implemented in the design of the new extension and the effect of these measures on the overall CO₂ emissions of the development.

Although the new extension adds floor area to the existing building, the improvements proposed for the new and existing elements are expected to result in an overall carbon reduction of 2.2% against the pre-refurbishment condition.

2.1.1 Be Lean: Use Less Energy

The replacement plant in the existing building and the new upper extension incorporate a number of passive measures and efficient systems to improve the overall energy efficiency of the building. These include:

- Envelope performance beyond the level required for building regulations compliance;
- Gas fired boiler(s) with seasonal efficiency $\geq 96\%$;
- High efficiency water cooled chiller(s) with SEER ≥ 4.0 ;
- Low energy lighting i.e. T5 Fluorescent and LEDs with average luminaire efficacy of 60 lm/cW for all the areas;
- Auto Presence Detection for lighting control in the service areas;
- Efficient heat recovery on all air handling units (60%);
- Low Specific Fan Power (SFP) for air handling units and air distribution systems, target average SFP of 1.1W/l/s for mechanical ventilation systems and SFP of 1.6 W/l/s for VRF systems with mechanical ventilation;
- BMS system with automatic meter reading, energy monitoring and targeting facilities;
- Power factor correction within [0.90; 0.95].

The implementation of Energy Efficiency measures results in a 1.2% reduction in Regulated carbon dioxide emissions, from 42.4 tCO₂/annum to 41.9 tCO₂/annum.

2.1.2 Be Clean: Supply Energy Efficiently

London Plan Policies 5.5 and 5.6 and both the GLA and Camden Supplementary Planning Guidance support connection to existing decentralised energy networks or the creation of new networks where possible.

The use of district heating or CHP for the building was considered. No existing or proposed heat networks were identified within the vicinity of the building. Furthermore, the size and profile of the load was found to be too small for a stand-alone CHP system to be viable.

2.1.3 Be Green: Use Renewable Energy

London Plan Policy 5.7 Camden's Core Strategy policy CS13 and development policy DP22 support the use of renewable energy technologies in developments. CPG 3 states that developments should aim to achieve a 20% reduction in CO₂ emissions through the use of on-site energy generation unless it can be demonstrated that such provision is not feasible. The feasibility of various renewable technologies is considered in full in the Energy Statement.

Photovoltaics were found to be the only feasible and practical renewable energy technology for the development. It is estimated at this stage that a 17kWp PV system can be accommodated on the roof of the building's North wing.

The panels provide an 18.2% reduction in CO₂ emissions from the baseline. When combined with the energy efficiency measures outlined in section 2.1.1, regulated CO₂ emissions reduction over the Part L 2013 baseline is 19.4%.

2.2 Water

London Plan Policy 5.15, Camden's Core Strategy Policy CS13 and Development Policy DP23 require developments to be designed to be water efficient and to minimise the need for further water infrastructure.

Where water fittings are installed as part of the base-build, these will be of the low-flow variety.

The building will have water metering and leak detection within the toilet and shower areas provided by the developer will be fitted with shut-off valves linked to presence detectors to shut off the water supply when the areas are unoccupied to prevent minor leaks.

Rainwater and greywater harvesting are not proposed for the development due to lack of space for plant within the existing building.

Any irrigation systems used will be designed to minimise the consumption of potable water.

2.3 Materials and Waste

London Plan policy 5.16 aims to minimise waste generation and encourage the reuse, recycling/composting and reduction in the use of materials. In addition, policy 5.17 states that developments should include suitable waste and recycling storage facilities. Policy 5.20 sets targets for, and encourages the recycling or re-use of construction, demolition and excavation waste.

Camden's sustainability policies include Core Strategy policies CS13 and CS18, supported by Development Policy DP22, which seek to reduce waste and encourage recycling.

CPG 3 further sets out a hierarchy of 5 key measures for sustainable material use in developments:

1. Managing existing resources;
2. Specifying materials using the Building Research Establishment's "Green Guide to Specification";
3. Ensuring that materials are responsibly sourced;
4. Minimising the harmful effects of some materials on human health;
5. Ensuring that specified materials are robust and sensitive to the building type and age.

The design team's response to the above policies is set out below in line with this hierarchy.

2.4 Managing existing resources

The proposed development reuses most of the existing building structure and sub-structure in-situ. The RICS publication "Methodology to Calculate Embodied Carbon of Materials" (figure 6, page 9) gives a benchmark range for embodied carbon of a new mid-rise office buildings of between 655 and 1,550 kgCO_{2e}/m². Based on the possible single point value of 1,030kgCO_{2e}/m², this would put the amount of embodied carbon saved through retention of the existing building at approximately 5,500 tonnes; equivalent to more than 14 years of operational carbon emissions for the extended building.

The demolition contractor will be required to carry out a pre-refurbishment audit of the building to identify the materials on site which are to be removed and to identify how these will be reused or recycled. Although re-use on site will be restricted by the availability of storage space, the project will aim to achieve high rates of diversion from landfill.

The Principal Contractor will be required to develop a site waste management plan. This will outline measures to monitor the project's waste generation of non-hazardous waste and diversion of waste from landfill. Targets will be set that are in line with best practice. Co-mingled waste will be collected on site and will be removed by a licenced contractor to be sorted for recycling or disposal.

2.4.1 Green Guide to Specification

BREEAM requires major building materials to be assessed in terms of Green Guide to Specification performance.

CPG3 seeks for development projects of more than 500m² of any floorspace to achieve an area weighted average of A+ to B for the major building elements (roof, external walls, floor finishes, internal partitions and windows) in accordance with the BRE “Green Guide to Specification”.

Detailed material specifications for the new elements of the building have not yet been made but the following outline specifications and Green Guide Ratings are proposed at this stage.

Element	Green Guide Element Number	Green Guide Rating
Curtainwalling - opaque	1206510006	B
Curtainwalling - glazing	831500016	D
Rendered external walls	806450400	A+
Windows (aluminium)	1231500011	A+
Flat roof (warm deck)	1212540001	A+

In specifying materials, preference will be given to materials which have third party certified Environmental Product Declarations (EPDs).

2.4.2 Ensuring that Materials are Responsibly Sourced

Wherever possible, material specifications will call for materials to be sourced from suppliers with third party responsible sourcing certification. This will include the following:

- Timber (including temporary site timber) will be FSC or PEFC certified.
- Concrete will be certified to BES6001 (minimum Very Good level).
- Reinforcing steel will be certified by the CARES Sustainable Reinforcement or Eco-Reinforcement Schemes.
- Plasterboard and framing will be certified to BES6001 (minimum Very Good rating).

- Insulation will have ISO14001 certification for both the product manufacture and key supply chain process or BES6001 Certification.

As the design progresses, other options to incorporate materials which are responsibly sourced will be investigated. There will be a target for products to have ISO14001 certification for the product manufacture as a minimum where this is available from a number of suppliers in the market.

2.4.3 Minimising the harmful effects of some materials on human health

Paints used within the building will comply with the VOC content limits set out by EU Directive 2004/42/CE ('Paints Directive'). Emissions limits for further finishes materials, where these will be specified as part of the base build, will be considered during the detailed design stage.

2.4.4 Ensuring that specified materials are robust and sensitive to the building type and age

The project will target BREEAM materials credit 05 “Designing for Robustness”. During the detailed design stage, the Architect will carry out an assessment of the building to identify areas which are at particular risk of wear or damage such as vehicle movement areas and circulation spaces.

When these areas have been identified, appropriate protection measures and robust finishes will be specified.

2.4.5 Operational Waste

In addition to the above measures set out in the waste hierarchy, recycling of waste during the operation of the building has been considered and appropriate, accessible space for collection of recyclables has been included in the design.

2.5 Sustainability Assessment Tools

The Building Research Environmental Assessment Method (BREEAM) is an environmental assessment methodology for buildings. Most commonly, it is used to assess the design, procurement and construction of new buildings or buildings undergoing major refurbishment.

The assessment scheme considers site and building level environmental issues in the following categories: Energy, Water, Transport, Waste, Materials, Pollution, Ecology, Management and Health and Wellbeing.

Camden's Core Strategy policy CS13, notes that BREEAM provides helpful assessment tools for general sustainability. Camden's Development Policy DP22, *Promoting Sustainable Design and Construction*, requires applications for non-domestic developments of more than 500m² submitted to achieve BREEAM "Excellent" from 2016 with 60% of the unweighted energy and water credits achieved and 40% of the unweighted materials credits achieved.

The Mayor of London's SPG on Sustainable Design and Construction also references BREEAM as a means of demonstrating compliance with some regional planning policy. In particular, BREEAM is referenced in relation to responsible sourcing of materials, robustness of materials, "healthy" materials, water use and air quality (NOx emissions).

The applicant has appointed a BREEAM Assessor and the new build extension of the development will be assessed using the BREEAM New Construction 2014 (Shell Only) Scheme. A pre-assessment for the scheme has been carried out and the proposed development will target BREEAM Excellent, with a score of 72.31%. All of the mandatory credits for BREEAM Excellent are targeted. A full pre-assessment scorecard is provided in Appendix B.

The percentage of credits achieved in the Energy, Materials and Waste categories is as follows:

Category	Credits Available	Credits Targeted	% Targeted	Compliant with Policy DP22.
Energy	16	12	75%	✓
Water	3	2	67%	✓
Materials	13	7	54%	✓

2.6 Biodiversity

London Plan Policies 2.18 and 5.10 seek to increase the provision of green space in the region. Policy 5.11 specifically encourages developers to include planting and green roofs on their developments. In addition, London plan policy 7.19 directs that development should avoid areas of ecological value and should seek to promote and enhance the ecological value of existing sites.

Camden's development policy 22 states that schemes must incorporate green or brown roofs and green walls wherever suitable. This is supported by section 10 of CPG 3. Core Strategy Policy CS15 also aims to protect and enhance open spaces and promote biodiversity.

An Ecologist has been appointed for the project and a Phase 1 habitat survey has been carried out which indicated that the site is of low ecological value. Very small areas of ephemeral vegetation were identified which included buddleia. This is listed on the London Invasive Species Initiative as a species of concern and a recommendation was made to remove the plant at the beginning of the development works. The contractor will be required to follow this recommendation.

A number of further general recommendations were also made to enhance the ecological value of the site including guidance on measures to be taken to protect nesting birds during construction, the use of native species or species with value to wildlife in landscaping and the incorporation of bird boxes.

A green roof of is proposed on the new extension to the building as well as a living wall on the Jamestown Road elevation. Planting has not yet been specified but will be made in line with the Ecologist's recommendations for species. Bird boxes will also be provided.

The principal contractor will be required to comply with the ecologist's recommendations during the construction stage.

2.7 Flooding and Drainage

London Plan Policy 5.12 Flood Risk Management requires developments to comply with the flood risk assessment and management requirements set out in NPPF and associated technical guidance over the lifetime of the development and to have regard to measures proposed in Thames Estuary 2100 and Catchment Flood Management Plans.

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

1. Store rainwater for later use
2. Use infiltration techniques, such as porous surfaces in non-clay areas
3. Attenuate rainwater in ponds or open water features for gradual release
4. Attenuate rainwater by storing in tanks or sealed water features for gradual release
5. Discharge rainwater direct to a watercourse
6. Discharge rainwater to a surface water sewer/drain
7. Discharge rainwater to the combined sewer.

London Plan Policy 5.14 *Water Quality and Wastewater Infrastructure*, requires adequate provision to be made for waste water infrastructure, and that water quality is protected and improved.

Camden's Development Policy DP22 *Promoting Sustainable Design and Construction* requires developments to be resilient to climate change by including appropriate climate change adaption measures including reducing water consumption and limiting run-off.

Camden's Development Policy DP23 *Water*, encourages developments to reduce their water consumption, the pressure on the combined sewer network and the risk of flooding.

The Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction sets out the Mayor's priorities for developers as following the SUDs hierarchy, moving towards greenfield run-off rates, considering all sources of flooding and providing mitigation measures where appropriate.

The Camden Planning Guidance 3 document requires all sites in Camden over one hectare or 10,000m² to have a Flood Risk Assessment in line with Planning Policy Statement 25. Although the development site is less than one hectare, a Flood Risk Statement will have to be produced to fulfil the Flood Risk requirements for BREEAM. The statement will evaluate the risk of flooding from all relevant sources including fluvial, tidal, ground water, surface water and infrastructure failure.

The development site is not within the areas at risk from surface water flooding outlined in Camden's Development Policies Map 2.

Based on the Environment Agency maps the flood risk is low and the risk of all sources of flooding will be assessed in the Flood Risk Statement, which will be produced at a later stage. The conclusions will inform the detailed drainage design.

The SUDs hierarchy set out in CPG 3 has been addressed in the design of the building as shown below:

1. Store rainwater for later use

No rainwater harvesting is provided due to space constraints in the existing building.

2. Use Infiltration Techniques

The landscaping strategy includes some soft landscaping including a green roof that will provide a degree of attenuation.

3. Attenuate rainwater in ponds or open water features for gradual release

Due to the central London site location and space restrictions, soakaways can not be installed.

4. Collect and store rainwater in tanks or sealed water features for gradual release

Attenuation is not proposed for the development given that the impermeable area of the site will not be increased from the existing condition.

5. Discharge rainwater direct to a watercourse

The only local watercourse is the Regent's Canal. Guidance from the Canal and River Trust¹ states that discharges are not usually permissible directly above and below locks or at mooring sites due to the potential for the discharge to result in navigational difficulties. Given the proximity of the Hampstead Road Locks to the development, the canal has not been considered further as a receiving water for surface water discharge from the site.

6. Discharge rainwater to a surface water sewer/drain

7. Discharge rainwater to the combined sewer

As is the case at present, rainwater will eventually run off to the surface water drain although the existing local drainage infrastructure is such that this subsequently joins the combined sewer.

In summary, the proposed surface water discharge rate will not change as a result of the proposed development.

¹ Detailed Information: Water Discharge, Canal and River Trust, available online at <https://canalrivertrust.org.uk/media/original/4505.pdf>

The foul discharge will increase due to the increased floor area of the building. However, Thames Water have confirmed that there is sufficient capacity within the existing sewer system to accommodate this change. The increase in volume will be minimised through the use of low flow fittings where these are installed as part of the base build development.

2.8 Pollution and Construction Impacts

This section is primarily concerned with the impact of the development on the local environment, particularly air quality and noise.

A draft Construction Management Plan (CMP) has been written to outline the practical aspects of delivering the redevelopment. The draft CMP outlines measures and protocols that will be put in place to ensure the scheme is delivered in a safe manner that causes minimal disruption to the local community.

2.8.1 Air Quality

Pollution issues are a consideration in addressing London Plan Policy 3.2 which considers health issues and promotes health equality.

In addition, London Plan Policy 7.14 aims to reduce exposure to poor air quality in London as well as to reduce emissions from development, including during the demolition and construction phases and seeks new development to be 'air quality neutral'.

Camden's Core Strategy Policy CS16 and Development Policy DP32 also support the assessment of air quality and mitigation measures where required.

It is not anticipated that construction of the proposed development will generate significant air quality effects in the surrounding area. However, the contractor will be required to control dust on site as part of the Construction Environmental Management Plan.

The replacement boiler plant serving the office space will be specified with low NOx emissions of less than 40mg/kWh.

2.8.2 Noise

London Plan Policy 7.15 seeks to reduce overall exposure to noise within London as well as to protect new occupiers from noise within their developments.

Camden's development policy 28 outlines the Council's desire to minimise the impact on local amenity from the demolition and construction phases of development. It also states that permission will not be granted to developments which exceed noise thresholds.

A Noise Impact Assessment (NIA), has been undertaken for planning. This assessed existing noise levels at the site and has set the allowable noise limits for plant associated with the development. Equipment will be sized, and where necessary, provided with attenuation to comply with the allowable noise levels.

3 Conclusion

This statement sets out the sustainability commitments and aspirations of the applicant for this scheme. Under a number of key sustainability headings, it explains the sustainable development considerations that have been taken into account in the design, and sets out the features, measures and technologies that have been included in the proposals in response to local Camden, London, and national policy requirements and targets.

The scheme will achieve a BREEAM 2014 rating of “Excellent,” with a current targeted score of 72.31%. It is considered that the scheme achieves an appropriate balance between social, economic and environmental considerations and will therefore make a positive contribution in terms of the sustainable development of the wider area.

Appendix A

Baseline Policy Review

A1 Baseline Policy Review

A1.1 National Policy

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. The policy constitutes the Government's view of what sustainable development in England means in practice for the planning system.

The Government believes that sustainable development can play three critical roles in England:

- An economic role, contributing to a strong, responsive, competitive economy;
- A social role, supporting vibrant and healthy communities; and
- An environmental role, protecting and enhancing our natural, built and historic environment.

The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.

The key principle applied as part of the NPPF is a presumption in favour of sustainable development. This is to be incorporated into both plan making and decision making at the local level.

The NPPF sets out 12 core planning principles which "should underpin both planmaking and decision-taking." These stipulate that planning should:

- Be led by local plans which set out a vision for the future of the area and provide a practical framework within which decisions on planning applications can be made efficiently;
- Emphasise enhancing and improving the places in which people live their lives, not scrutiny alone;
- Drive sustainable development to deliver homes, business and industrial units, infrastructure and support local vitality, objectively identifying local need and setting out a clear strategy for allocating land;
- Seek to secure a high-quality of design and a good standard of amenity for occupants;
- Protect the diversity of different areas of England, protecting Green Belts and recognising the "intrinsic character and beauty of the countryside";
- Support the transition to a low-carbon future, take account of flood risk and coastal change and encourage the reuse of existing and renewable resources;
- Help conserve and enhance the natural environment and reduce pollution, allocating land of "lesser environmental value";

- Encourage the re-use of land that has been previously developed (brownfield land);
- Promote mixed use developments, encouraging multiple benefits from urban and rural land;
- Conserve heritage assets "in a manner appropriate to their significance";
- Manage development to make full use of public transport, walking and cycling; and
- Take account of local strategies to improve health, social, and cultural wellbeing.

A1.2 Regional Policy

A1.2.1 The London Plan, March 2016

The London Plan is the spatial development strategy for London which sets out the overall strategic plan for the development of London over the next 20–25 years. It provides the London-wide policy context within which the 32 London boroughs and the Corporation of the City of London are expected to set their detailed local planning policies and is the framework for the Mayor's own decisions on the strategic planning applications referred to him.

The London Plan sets out six key objectives for London:

- A city that meets the challenges of economic and population growth in ways that ensure a sustainable, good and improving quality of life and sufficient high quality homes and neighbourhoods for all Londoners, and help tackle the huge issue of deprivation and inequality among Londoners, including inequality in health outcomes.
- An internationally competitive and successful city with a strong and diverse economy and an entrepreneurial spirit that benefit all Londoners and all parts of London; a city which is at the leading edge of innovation and research and which is comfortable with – and makes the most of – its rich heritage and cultural resources.
- A city of diverse, strong, secure and accessible neighbourhoods to which Londoners feel attached, which provide all of its residents, workers, visitors and students – whatever their origin, background, age or status – with opportunities to realise and express their potential and a high quality environment for individuals to enjoy, live together and thrive.
- A city that delights the senses and takes care over its buildings and streets, having the best of modern architecture while also making the most of London's built heritage, and which makes the most of and extends its wealth of open and green spaces, natural environments and waterways, realising their potential for improving Londoners' health, welfare and development.
- A city that becomes a world leader in improving the environment locally and globally, taking the lead in tackling climate change, reducing pollution,

developing a low carbon economy, consuming fewer resources and using them more effectively.

- A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames and supports delivery of all the objectives of the Plan.

The London Plan Policies which relate to sustainable design and construction are defined in Appendix 1 of the Mayor's Supplementary Planning Guidance on Sustainable Design and Construction (see section A1.2.2) and are reproduced below:

Policy 2.18 Green Infrastructure aims to protect, promote, expand and manage the extent and quality of, and access to, London's network of open and green spaces.

Policy 3.2: Addressing health and reducing health inequalities supports the provision and improvement of health facilities and encourages the design of buildings to promote healthy lifestyles.

Policy 5.1: Climate change mitigation sets out the Mayor's strategic target for the reduction of carbon dioxide emissions across London of 60% (below 1990 levels) by 2025. It expects the GLA group, the boroughs and other organisations to make a contribution towards this target and that all new development fully contributes towards the London wide reduction target.

Policy 5.2: Minimising carbon dioxide emissions sets out the Mayor's energy hierarchy which developers are to follow when designing their schemes. It also sets out carbon dioxide reduction targets that developers are to aim for from their developments over the lifetime of the Plan and that where these can't be achieved an off-site or financial contribution in lieu can be sought by the local borough.

Policy 5.3 Sustainable Design and Construction requires that developments demonstrate that sustainable design standards are considered at the beginning of the design process and are integral to proposals. It also requires major development proposals to meet the minimum standards outlined in the Mayor's Supplementary Planning Guidance.

Policy 5.4: Retrofitting encourages the retro-fitting of measures to reduce carbon dioxide emissions, improving the efficiency of resource use (such as water) and minimising generation of pollution and waste from existing building stock and states that any opportunities created by new development for retro-fitting should be identified.

Policy 5.5: Decentralised energy networks sets out the Mayor's strategic target for decentralised energy, which is that 25% of the heat and power used in London is to be from local sources by 2025. The policy sets out how plans can identify and support opportunities for decentralised energy networks.

Policy 5.6: Decentralised energy in proposals sets out a hierarchy for selecting a development's heating system and states that the feasibility of combined heat and power (CHP) should be evaluated for the proposed development as well as the potential for extending the heating network beyond the site boundary.

Policy 5.7: Renewable energy seeks to increase the proportion of energy generated from renewable sources, including through their incorporation into new developments and by identifying specific opportunities within London.

Policy 5.8: Innovative energy technologies encourages the use of innovative energy technologies that will provide an alternative energy source and reduce carbon dioxide emissions.

Policy 5.9: Overheating and cooling states that developments should be designed to limit their contribution to the heat island effect and encourages spaces to be designed to avoid overheating, including by following the cooling hierarchy set out in the policy.

Policy 5.10: Urban greening encourages the greening of London's buildings and spaces and specifically those in central London by including a target for increasing the area of green space (including green roofs etc) within the Central Activities Zone.

Policy 5.11: Green roofs and development site environs specifically supports the inclusion of planting within developments and encourages boroughs to support the inclusion of green roofs.

Policy 5.12: Flood risk management outlines the requirement for boroughs and developers to carry out flood risk assessments and that developments must comply with national planning policy on flood risk assessments and management to ensure they are designed and built to be resilient to flooding.

Policy 5.13: Sustainable drainage promotes the inclusion of sustainable urban drainage systems in developments and sets out a drainage hierarchy that developers should follow when designing their schemes.

Policy 5.14: Water quality and waste water infrastructure seeks to ensure that adequate provision is made for waste water infrastructure, and that water quality is protected and improved.

Policy 5.16: Waste self-sufficiency sets out how the Mayor will support London authorities to manage as much of their waste as possible within London including through minimising waste generation and encouraging the reuse, recycling/composting and reduction in the use of materials.

Policy 5.17: Waste capacity sets out criteria for assessing waste management facilities and states that developments should include suitable waste and recycling storage facilities.

Policy 5.20: Aggregates sets targets for, and encourages the recycling or re-use of construction, demolition and excavation waste within London.

Policy 5.21: Contaminated land supports the remediation of contaminated sites and seeks to ensure that developments don't activate or spread contamination.

Policy 6.1: Strategic approach stresses the importance of integrating development with transport and encourages the reduction of car dependence.

Policy 6.3: Assessing effects of development on transport capacity sets out the necessity of assessing development impacts on transport capacity and the transport network at both corridor and local level.

Policy 6.14: Freight focuses on improving freight distribution including servicing and deliveries.

Policy 7.6 Architecture encourages the highest architectural quality, including that the development does not harm privacy, overshadowing, wind and micro-climate and so they incorporate best practice in resource management and climate change mitigation and adaptation.

Policy 7.14: Improving air quality aims to reduce exposure to poor air quality in London as well as reduce emissions from development, including during the demolition and construction phases and seeks new development to be 'air quality neutral'.

Policy 7.15: Reducing noise and enhancing Soundscapes seeks to reduce overall exposure to noise within London as well as protect new occupiers from noise within their developments.

Policy 7.19: Biodiversity and access to nature seeks a proactive approach to the protection, enhancement, creation, promotion and management of biodiversity.

Policy 7.20: Geological conservation seeks to protect, enhance and enable access to areas of national, regional and locally important geological sites.

Policy 7.21: Trees and woodlands seeks to protect, maintain and enhance trees and woodlands on a strategic scale as well as protect and promote the provision of additional trees in the public realm as well as on development sites.

Policy 7.22: Land for food seeks to protect allotments and encourages the use of land for food growing close to urban areas.

A1.2.2 Supplementary Planning Guidance

The Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, published in April 2014, contains guidance on the implementation of relevant London Plan policies and forms part of the Implementation Framework to the London Plan. The document is a material planning consideration when determining planning applications made to the Mayor.

The SPG provides guidance in three main areas as shown below and links these to this guidance to the relevant London Plan Policies:

1. Resource management
 - Land
 - Site layout and building design
 - Energy and carbon dioxide emissions
 - Renewable energy

- Water efficiency
 - Materials and Waste
 - Nature conservation and biodiversity
2. Adapting to climate change and greening the city
 - Tackling increased temperature and drought
 - Increasing green cover and trees
 - Flooding
 3. Pollution management - land, air, noise, light and water
 - Land contamination
 - Air pollution
 - Noise
 - Light pollution
 - Water pollution

A1.3 Local Policy

A1.3.1 Camden Core Strategy, November 2010

Section three of Camden's Core Strategy document relates to tackling climate change, protecting the environment and improving quality of life.

Policy CS13 Tackling climate change through promoting higher environmental standards, requires all developments to take measures to minimise the effects of, and adapt to, climate change and to meet the highest environmental standards that are financially viable during construction and occupation. This includes a target that 20% of energy demand is to be generated from renewable sources on site.

Developments must also demonstrate that they incorporate efficient water and foul water infrastructure and that they avoid harm to the water environment, water quality or drainage systems and prevents or mitigates local surface water and downstream flooding.

The policy also promotes use of the energy hierarchy approach set out in the London Plan and encourages local energy generation and connection to energy networks.

Policy CS15 Protecting and improving our parks and open spaces and encouraging biodiversity, seeks to protect and enhance the borough's green and open spaces and biodiversity. Developers are expected to provide opportunities for biodiversity within the fabric and curtilage of buildings.

Policy CS18 Dealing with our waste and encouraging recycling contains a requirement for developments to provide adequate facilities for recycling and the storage and disposal of waste. The policy also seeks to secure the re-use of

construction waste on development sites to reduce resource use and the need to transport materials.

A1.3.2 Camden Development Policies

Camden’s Development Policies are part of the Local Development Framework and contribute towards delivering the Core Strategy by setting out detailed planning policies that the Council use when determining applications for planning permission in the borough to achieve the vision and objectives of the Core Strategy.

Policy DP22 Promoting sustainable design and construction requires the inclusion of sustainable development principles, BREEAM assessment, green/brown roofs and resilience to climate change.

Policy DP23 Water requires the inclusion of water efficient fixtures, limits to run-off, assessment of flood risk, reducing pressure of the water and sewer network and encouraging water features.

A1.3.3 Camden Planning Guidance CPG3 Sustainability

CPG3 supports the policies in the Core Strategy and is an additional “material consideration” in planning decisions. The key areas and messages and council expectations set out in CPG3 are summarised below:

Section	Key Message	What does the council expect?
The Energy Hierarchy	All developments are to be design to reduce carbon dioxide emissions Energy strategies are to be designed following the steps set out by the energy hierarchy	All new developments are to be designed to minimise carbon dioxide emissions by being as energy efficient as is feasible and viable.

Section	Key Message	What does the council expect?
Energy Efficiency	<p>All new developments are to be designed to minimise carbon dioxide emissions</p> <p>The most cost-effective ways to minimise energy demand are through good design and high levels of insulation and air tightness.</p>	<p>A full model of the building should be carried out to ensure the building design optimises solar gain and daylight without resulting in overheating for developments comprising 5 dwellings or more or 500sq m or more of any floorspace</p> <p>Consider maximising the use of natural systems within buildings before any mechanical services are considered.</p> <p>Any development proposing electric heating (including heat pumps) will need to demonstrate the carbon efficiency of the proposed heating system. Specifications of the electric heating system and calculations will need to be provided to demonstrate that the proposed electric heating system would result in lower carbon dioxide emissions than an efficiency gas fuelled heating system.</p> <p>Where traditional mechanical cooling e.g. air conditioning units are proposed applicants must demonstrate that energy efficient ventilation and cooling methods have been considered first, and that they have been assessed for their carbon efficiency.</p> <p>Air source heat pumps will be considered to provide air conditioning in the summer unless it can be demonstrated that the model chosen is not capable of providing cooling.</p>

Section	Key Message	What does the council expect?
<p>Energy Efficiency – Existing Buildings</p>	<p>As a guide, at least 10% of the project cost should be spent on environmental improvements.</p> <p>Potential measures are bespoke to each property</p> <p>Sensitive improvements can be made to historic buildings to reduce carbon dioxide emissions</p>	<p>All buildings, whether being updated or refurbished, are expected to reduce their carbon emissions by making improvements to the existing building. Work involving a change of use or an extension to an existing property is included. As a guide, at least 10% of the project cost should be spent on the improvements.</p> <p>Where retro-fitting measures are not identified at application stage we will most likely secure the implementation of environmental improvements by way of condition. Appendix 1 sets out a checklist of retro fit improvements for applicants.</p> <p>Development involving a change of use or a conversion of 5 or more dwellings or 500sq m of any floorspace, will be expected to achieve 60% of the un-weighted credits in the Energy category in their EcoHomes or BREEAM assessment, whichever is applicable. (See the section on Sustainability assessment tools for more details).</p> <p>Special consideration will be given to buildings that are protected e.g. listed buildings to ensure that their historic and architectural features are preserved.</p>
<p>Decentralised energy networks and combined heat and power</p>	<p>Decentralised energy could provide 20% of Camden’s heating demand by 2020.</p> <p>Combined heat and power plants can reduce carbon dioxide emissions by 30-40% compared to a conventional gas boiler.</p> <p>Where feasible and viable your development will be required to connect to a decentralised energy network or include CHP.</p>	<p>Where there is more than one occupier, use or building a community heating network will be expected.</p> <p>When demonstrating the feasibility and viability of not connecting to a decentralised energy network or including a combined heat and power plant developers will be required to address the relevant considerations in section 5.22.</p> <p>Where a development is not connecting immediately to a network the following measures need to be included in your scheme:</p> <ul style="list-style-type: none"> • space in the plant room for a heat exchanger, any other plant and pipe and electricity connections; and • pipes from the plant room to the property boundary where the decentralised energy pipe is most likely to be located.

Section	Key Message	What does the council expect?
Renewable energy	<p>There are a variety of renewable energy technologies that can be installed to supplement a development's energy needs.</p> <p>Developments are to target a 20% reduction in carbon dioxide emissions from on-site renewable energy technologies.</p>	<p>All developments are to target at least a 20% reduction in carbon dioxide emissions through the installation of on-site renewable energy technologies. Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.</p> <p>When assessing the feasibility and viability of renewable energy technology, the Council will consider the overall cost of all the measures proposed and resulting carbon savings to ensure that the most cost-effective carbon reduction technologies are implemented in line with the energy hierarchy.</p> <p>Individual technology references not listed here.</p>
Water	<p>At least 50% of water consumed in homes and workplaces does not need to be of drinkable quality re-using water</p> <p>All developments are to be water efficient</p> <p>Developments over 10 units or 1000sq m should include grey water recycling.</p>	<p>The Council expects all developments to be designed to be water efficient by minimising water use and maximising the re-use of water. This includes new and existing buildings.</p> <p>The Council will require buildings with gardens or landscaped areas that require regular maintenance to be fitted with water butts.</p> <p>The Council will require developments over 10 units or 1000sq m and/or intense water use developments, such as hotels, hostels, student housing etc to include a grey water harvesting system, unless the applicant demonstrates to the Council's satisfaction that this is not feasible.</p>
Sustainable Use of Materials	<p>Reduce waste by firstly re-using your building, where this is not possible you should implement the waste hierarchy.</p> <p>The waste hierarchy prioritises the reduction, re-use and recycling of Materials.</p> <p>Source your materials responsibly and ensure they are safe to health.</p>	<p>All developments should aim for at least 10% of the total value of materials used to be derived from recycled and reused sources. This should relate to the WRAP Quick Wins assessments or equivalent as (highlighted in the waste hierarchy information section).</p> <p>Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.</p> <p>Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.</p>

Section	Key Message	What does the council expect?
<p>Brown roofs, green roofs and green walls</p>	<p>All developments should incorporate green and brown roofs</p> <p>The appropriate roof or wall will depend on the development, the location and other specific factors</p> <p>Specific information needs to be submitted with applications for green/brown roofs and walls</p>	<p>The Council will expect all developments to incorporate brown roofs, green roofs and green walls unless it is demonstrated this is not possible or appropriate. This includes new and existing buildings. Special consideration will be given to historic buildings to ensure historic and architectural features are preserved.</p> <p>What information will the council expect?</p> <ul style="list-style-type: none"> • a statement of the design objectives for the green or brown roof or green wall • details of its construction and the materials used, including a section at a scale of 1:20 • planting details, including details of the planting technique, plant varieties and planting sizes and densities. • a management plan detailed how the structure and planting will be maintained.

Section	Key Message	What does the council expect?
<p>Flooding</p>	<p>All developments are required to prevent or mitigate against flooding.</p> <p>All developments are expected to manage drainage and surface water.</p> <p>There is a hierarchy you should follow when designing a sustainable drainage system</p>	<p>Developments must not increase the risk of flooding, and are required to put in place mitigation measures where there is known to be a risk of flooding.</p> <p>Within the areas shown on Core Strategy Map 5 (Development Policies Map 2) we will expect water infrastructure to be designed to cope with a 1 in 100 year storm event in order to limit the flooding of, and damage to, property.</p> <p>All sites in Camden over one hectare or 10,000sq m require a Flood Risk Assessment in line with Planning Policy Statement 25. The assessment should be site specific and concentrate on the management of surface water run-off, and / or ground water where applicable, and should address the amount of impermeable surfaces resulting from the development and the potential for increased flood risk both on site and elsewhere within the catchment. These must be prepared by a suitably qualified professional and should be submitted with a planning application.</p> <p>All developments are expected to manage drainage and surface water on-site or as close to the site as possible, using Sustainable Drainage Systems (SUDS) and the hierarchy set out below.</p> <p>The Council will expect plans and application documents to describe how water will be managed within the development, including an explanation of the proposed SUDS, the reasons why certain SUDS have been ruled out and detailed information on materials and landscaping.</p> <p>The Council will expect developments to achieve a greenfield surface water run-off rate once SUDS have been installed. As a minimum, surface water run-off rates should be reduced by 50% across the development.</p>
<p>Adapting to climate change</p>	<p>All development should consider how it can be occupied in the future when the weather will be different.</p> <p>The early design stage is the most effective time to incorporate relevant design and technological measures.</p>	<p>All development is expected to consider the impact of climate change and be designed to cope with the anticipated conditions.</p>

Section	Key Message	What does the council expect?
Biodiversity	Proposals should demonstrate: <ul style="list-style-type: none"> • how biodiversity considerations have been incorporated into the development; • if any mitigation measures will be included; and • what positive measures for enhancing biodiversity are planned. 	Lighting can have particular negative impacts on biodiversity. Unnecessary lighting should be avoided. Where lighting may harm biodiversity timers or specific coloured lighting will be required to minimise any disturbance.
Local food growing	We encourage food to be grown wherever possible and suitable Rooftops and shared spaces such as gardens and parks provide opportunities for food growing.	

A1.3.4 Emerging Camden Local Plan

The emerging Camden Local Plan sets out the Council's proposed policies to replace the current Core Strategy and Development Policies adopted in 2010. The Local Plan will cover the period from 2016- 2031. The Submission Draft of the Local Plan document was subject to public consultation from the 8th February to the 4th April 2016 and was submitted to the Secretary of State for public examination by a Planning Inspector in June 2016.

Although the Local Plan is not yet adopted policy, it can be given limited consideration when determining planning applications because it has reached the submission stage. Relevant policies from the Local Plan are referenced in this Sustainability Statement only where there is a significant change from the existing policies.

Appendix B

BREEAM Pre-Assessment Scorecard

B1 BREEAM Pre-Assessment Scorecard

Target Score		72.31%	
Target Rating		Excellent	
		Available	Targeted
Management			
Man 01	Project brief and design	4	4
Man 02	Life cycle cost and service life planning	4	4
Man 03	Responsible construction practices	6	6
Man 04	Commissioning and handover	1	1
		15	15
Health and Wellbeing			
Hea 01	Visual Comfort	4	4
Hea 02	Indoor Air Quality	1	0
Hea 05	Acoustic Performance	1	1
Hea 06	Safety and Security	2	1
		8	6
Energy			
Ene 01	Reduction of energy use and carbon emissions	12	5
Ene 03	External Lighting	1	1
Ene 04	Low carbon design	3	2
		16	8
Transport			
Tra 01	Public Transport Accessibility	5	5
Tra 02	Proximity to amenities	1	1
Tra 03	Cyclist facilities	2	2
Tra 05	Travel Plan	1	1
		9	9
Water			
Wat 02	Water Monitoring	1	1
Wat 03	Leak Detection	1	1
Wat 04	Water Efficient Equipment	1	1
		3	3
Materials			
Mat 01	Life Cycle Impacts	5	2
Mat 02	Hard Landscaping and Boundary Protection	1	0
Mat 03	Responsible Sourcing of Materials	4	2
Mat 04	Insulation	1	1
Mat 05	Designing for durability and resilience	1	1
Mat 06	Material efficiency	1	1
		13	7

Waste			
Wst 01	Construction Waste Management	4	3
Wst 02	Recycled Aggregates	1	1
Wst 03	Operational Waste	1	1
Wst 05	Adaptation to climate change	1	0
Wst 06	Functional adaptability	1	1
		8	6
Land Use and Ecology			
LE 01	Site Selection	2	1
LE 02	Ecological Value of Site and Protection of Ecological Features	2	2
LE 03	Minimising impact on existing site ecology	2	2
LE 04	Enhancing site ecology	2	1
LE 05	Long Term Impact on Biodiversity	2	2
		10	8
Pollution			
Pol 03	Surface Water Run Off	5	3
Pol 04	Reduction of Night Time Light Pollution	1	1
		6	3
Innovation			
Man 03	Responsible construction practices	1	0
Hea 01	Visual Comfort	1	0
Mat 01	Life Cycle Impacts	3	0
Mat 03	Responsible Sourcing of Materials	1	0
Wst 01	Construction Waste Management	1	0
Wst 02	Recycled Aggregates	1	0
AI	Approved Innovation	1	0
		9	0

The BREEAM pre-assessment was carried out for the new build extension using the BREEAM New Construction 2014 (Shell Only) scheme. The pre-assessment is based on information available at RIBA Stage 2 and is not a formal assessment or certification of the scheme.