Adapting to climate change

8.30 Climate change adaptation involves changing the way we do things to prepare for the potential effects of climate change. We need to ensure that buildings and people can adapt to changes already evident within the climatic system.

8.31 Adapting to a changing climate is identified in Camden's environmental sustainability plan, Green Action for Change (2011-2020). The three key risks which require adaptation measures are flooding, drought and overheating. Specific design measures and 'green infrastructure' such as green roofs, green walls and open spaces can help mitigate some of these risks.

8.32 Changes to our climate could also lead to:

- subsidence, due to increased shrinking and expanding of Camden's clay base;
- poorer air quality;
- a hotter microclimate;
- increased summer electricity use due to increased demand for cooling; and
- threats to the quantity and quality of our water supply.

8.33 Such risks impact upon the health and wellbeing of Camden residents, have financial implications and can have impacts upon whether plant and animal species thrive or decline. Ensuring new developments are designed to adapt to these risks should be a key consideration when assessing applications for development in the borough.

Policy CC2 Adapting to climate change

The Council will require development to be resilient to climate change.

All development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;
b. not increasing, and wherever possible reducing, surface water run-off through increasing permeable surfaces and use of Sustainable Drainage Systems;
c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

Sustainable design and construction measures

The Council will promote and measure sustainable design and construction by:

e. ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
f. encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;
g. encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve "excellent" in BREEAM domestic refurbishment; and
h. expecting non-domestic developments of 500 sqm of floorspace or above to achieve "excellent" in BREEAM assessments and encouraging zero carbon in new development from 2019.

Climate change adaptation measures

8.34 To minimise the risks connected with climate change we will expect the design of developments to consider anticipated changes to the climate. It is understood that some adaptation measures may be challenging for listed buildings and some conservation areas and we would advise developers to engage early with the Council to develop innovative solutions.

Green spaces

8.35 Camden is fortunate to have Hampstead Heath, Primrose Hill and Regent's Park which collectively help to temper the urban over-heating in the north of Camden and provide relatively cool space in hot weather. To the south of the Euston Road there is less green space available. Throughout Camden we shall continue to protect our open and green spaces and where possible seek to create additional open spaces. Please see "Policy A2 Open space" for further information on Camden's green spaces.

8.36 As well as limiting urban over-heating, green spaces help to slow the passage of rainwater to Camden's drainage network, which in turn reduces the risk of surface water flooding during intense rainfall events. The planting of trees as part of new developments is encouraged but species selection and location will need to be carefully considered to avoid risks of subsidence, drying out the soil or excessive maintenance.

Sustainable drainage and biodiversity

8.37 To support a sustainable approach to drainage, all development should install green roofs, permeable landscaping, green walls and combination green and blue roofs, where appropriate. Further information on these systems can be found in our supplementary planning document Camden Planning Guidance on sustainability.

8.38 As well as playing a vital role in slowing the speed at which rainwater enters the drainage network, green roofs provide valuable habitats which promote biodiversity, cool the local microclimate and can provide visual amenity. Green roof specifications should be tailored to realise the benefits most suitable for the site and should consider appropriate drought resistant planting to ensure that they can survive hot summers with minimal maintenance.

Urban heat island

8.39 The Council will discourage the use of air conditioning and excessive mechanical plant. In addition to increasing the demand for energy, air conditioning and plant equipment expel heat from a building making the local micro-climate hotter. Where the use of this equipment is considered acceptable by the Council, for example where sterile internal air is required, we will expect developments to provide an appropriate level of mitigation towards cooling the local environment. Cooling measures could be passive or active, such as introducing planting in the public realm, green walls and roofs or other measures as recommended in the Mayor's Sustainable construction and design supplementary planning document.

8.40 Trees near buildings to mitigate the urban heat effect are best placed to the west, south-west or south of buildings with small leafed species likely to offer the greatest impact. Green spaces and wider green infrastructure should be a minimum of 0.5ha in order to achieve cooling at significant distances beyond site boundaries (Forestry Commission, Air temperature regulation by urban trees and green infrastructure, 2013).

Cooling

8.41 All new developments will be expected to submit a statement demonstrating how the London Plan's 'cooling hierarchy' has informed the building design. Any development that is likely to be at risk of overheating (for example due to large expanses of south or south west facing glazing) will be required to complete dynamic thermal modelling to demonstrate that any risk of overheating has been mitigated.

8.42 Active cooling (air conditioning) will only be permitted where dynamic thermal modelling demonstrates there is a clear need for it after all of the preferred measures are incorporated in line with the cooling hierarchy.

8.43 The cooling hierarchy includes:

- Minimise internal heat generation through energy efficient design;
- Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls;
- Manage the heat within the building through exposed internal thermal mass and high ceilings;
- Passive ventilation;
- Mechanical ventilation; and
- Active cooling.

Sustainable design and construction measures

8.44 When a building is constructed, the accessibility of its location; its density and mix of uses; its detailed design taking into account the orientation of the site; and the mechanical services and materials chosen can all have a major impact on its energy efficiency. The Council will require all schemes to consider sustainable development principles from the start of the design process and include these in their Design and Access Statement and/or Sustainability Statement. Developments of five or more dwellings or 500 sqm of any

floorspace should address sustainable development principles in an Energy and Sustainability Statement.

8.45 In all cases where assessment methods are changed or superseded, the Council will use the equivalent replacement standards.

BREEAM and BREEAM domestic refurbishment

8.46 BREEAM (Building Research Establishment Environmental Assessment Method) is a tool that enables us to assess the environmental sustainability of a development.

8.47 BREEAM and BREEAM domestic refurbishment contains the following categories: Energy, Water, Materials, Waste, Surface Water, Management, Transport, Land use, Ecology, Health and Wellbeing, and Pollution. Each category contains credits that can be obtained by implementing a sustainable design or construction measure. We have been successfully applying sub-targets, which we developed in consultation with the Building Research Establishment within the assessment categories of Energy, Water and Materials. The securing of the credits in these categories is considered to have the greatest environmental benefits and more information can be found in our supplementary planning document Camden Planning Guidance on sustainability.

8.48 The sustainability of residential development arising from conversions, extensions and changes of use can be assessed through the use of BREEAM domestic refurbishment. We will encourage developments of five or more dwellings or 500 sqm of residential floorspace or above resulting from conversions, extensions and changes of use to achieve an excellent rating in BREEAM domestic refurbishment.

8.49 The Council will expect the application of a BREEAM assessment to non-residential developments (including conversions, extensions and changes of use) of 500 sqm or more. We will expect these to achieve a BREEAM rating of excellent and will encourage zero carbon from 2019.

Other assessment measures

8.50 The Home Quality Mark, launched 2015, is one way of demonstrating the standard of a new residential dwelling, which includes measures for low CO2, sustainable materials, good air quality and natural daylight. The Council will strongly encourage schemes to use the Home Quality Mark. The use of Passivhaus standard is also encouraged in demonstrating energy efficient design. Further details on energy efficient design and principles and Passivhaus are set out in our supplementary planning document Camden Planning Guidance on sustainability.

Water and flooding

8.51 Our built environment plays a significant role in the way water is consumed, distributed and disposed of. The way water is used in a building and the pollutants it picks up running across a site affect the quality of the water that reaches the combined storm water and sewer system. In addition, the location of a development, and any flood mitigation measures used, can have an impact on local and downstream surface water flooding. Camden is a Lead Local Flood Authority, which means the Council has responsibility for managing flood risk from surface water and groundwater in the borough.

8.52 Areas at risk of flooding in Camden are identified in the Council's Surface Water Management Plan and Strategic Flood Risk Assessment. These areas are shown on "Map 6: Historic flooding and Local Flood Risk Zones" on page 241.

8.53 Camden experienced significant flooding in 1975 and 2002 and the probability of such events recurring is likely to increase as a result of climate change. As noted in "Policy CC2 Adapting to climate change", flooding and drought are key risks which require mitigation and adaptation measures in the borough. Changes to our climate can also threaten the quantity and quality of our water supply. Such risks impact upon the health and wellbeing of Camden residents.

Policy CC3 Water and flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible.

We will require development to:

a. incorporate water efficiency measures;
b. avoid harm to the water environment and improve water quality;
c. consider the impact of development in areas at risk of flooding (including drainage);
d. incorporate flood resilient measures in areas prone to flooding;
e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
f. not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

The Council will protect the borough's existing drinking water and foul water infrastructure, including the reservoirs at Barrow Hill, Hampstead Heath, Highgate and Kidderpore.

Water supply and quality

8.54 London has lower rainfall than the national average while having a very high population density. This combination of limited water resources and high demand has resulted in London being declared an area of serious water stress