



Wokingham Borough Local Development Framework

Sustainable Design and Construction

Supplementary Planning Document

Adopted 28 May 2010

Wokingham Borough Sustainable Design and Construction Supplementary Planning Document and Companion Document

Foreword

The Sustainable Design and Construction Supplementary Planning Document (SPD) and Companion Document provide an up to date and comprehensive approach to considering sustainable design and construction in new development. It is a material planning consideration for all planning applications.

The Sustainable Design and Construction SPD promotes the use of sustainable techniques (including renewable energy technologies) and materials in the construction of buildings and structures. The SPD provides guidance to help improve the sustainability performance of buildings and spaces through their design and subsequent use.

The SPD also forms part of the suite of documents guiding the Core Strategy Strategic Development Locations (SDLs). These are Arborfield Garrison, South of the M4, North and South Wokingham. The SDL's provide significant opportunities to design in measures to mitigate and deal with the effects of climate change and to deliver innovative and integrated sustainable solutions.

This SPD also provides guidance to householders on their permitted development rights to install limited forms of renewable energy/ low carbon technology on their home, without the need to apply for planning permission. Renewable energy/ low carbon technology can not only save energy and money but any excess energy fed back into the grid could generate revenue.

The SPD also covers other matters such as waste, pollution control, transport and access, water supply, biodiversity and health, safety and well-being. It also promotes the sustainable use of resources and reduce further the environmental impact of new buildings. This will help to mitigate against the causes and adapt to the consequences of climate change.

The SPD also provides guidance for the production of future documents that form the Council's development plan. The key message running through all the Council's planning documents and other emerging planning guidance and policy is that I expect new development in the Borough to be of the highest possible design quality.

The SPD has been designed to help developers think through the impacts and will offer real (often cost effective), alternative solutions to developments. The 'life-time' benefits of these design features should be taken into account. It provides clear and accessible information that can steer choices towards sustainable development. The SPD enhances certainty and transparency of expectations to applicants and as a result is likely to secure the best planning outcome.

I aim to ensure that developers demonstrate conclusively that they will work with the Council and the community in delivery high quality sustainably designed and constructed developments. The SPD promotes the consideration of sustainability early within the design process. The challenge to them is not just to meet current sustainable design and construction standards but to exceed them and set new standards of excellence across our borough.

This SPD and other emerging documents will provide the framework through which developers will submit their planning applications. These applications will be tested against this guidance and those found wanting will be refused or re-negotiated in order to find the right solution.

I realise that new development will not please everyone but their input will be crucial in ensuring that development is sustainably designed and constructed. This can help to mitigate against the causes and adapt to the consequences of climate change and also bring significant social, environmental and economic benefits to Wokingham Borough.

Councillor Angus Ross

Executive Member for Planning, Wokingham Borough Council

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Executive Summary

Summary of Sustainability Issue Requirements

Sustainability Issue	Summary of Requirements	Scale	Summary Policy Link
Sustainability Issue 1 (page 29): Adhering to national codes on construction standards	Residential: <u>Mandatory</u> Meet mandatory Code for Sustainable Homes level requirement at time of construction <u>Aspirational (non mandatory) target</u> Achieve full Code level 4 or whatever higher Code is mandatory. Non-residential <u>Mandatory</u> Meet mandatory BREEAM Level requirements at time of construction.	Residential All residential development involving the creation of a new dwelling (including replacement dwellings where this involves substantial, or complete demolition of the existing house). Non-residential All relevant (see BREEAM) non-residential development (including new and/or replacement of new non-residential floorspace)	Core Strategy Policy CP1, CP3 Code for Sustainable Homes BREEAM
Sustainability Issue 2 (page 37): Minimising Energy Consumption	Seek to achieve highest practical standards of sustainable design and construction. Sustainable design aspects must be balanced with other Council design guidance.	All built development.	Core Strategy Policy CP1, CP3, CP18-21 South East Plan Policies CC2, CC3, CC4, NRM11 Code for Sustainable Homes BREEAM
Sustainability Issue 3 (page 43): On-site decentralised/ renewable/ low carbon Energy Generation	Major developments to secure at least 10% of their energy from decentralised, renewable or low carbon sources.	All major development – 10 or more dwellings or 1000m ² or more gross non-residential floorspace.	South East Plan Policy NRM11, CC2, CC3, CC4 Core Strategy Policy CP1, CP18-21 Code for Sustainable Homes BREEAM

Sustainability Issue 4 (page 47): Water Resource Management	Include water efficiency measures to reduce overall water consumption. Residential <u>Aspirational target (non-mandatory)</u> Achieve internal potable water consumption of 105 litres or less per person, per day. Non-residential <u>Aspirational (non mandatory)</u> Exceed statutory requirements for water efficiency.	All built development All residential development involving the creation of a new dwelling (including replacement dwellings where this involves substantial, or complete demolition of the existing house). All development involving the replacement or creation of new non-residential floorspace.	Core Strategy Policies CP1, CP3, CP18-21 South East Plan Policies CC2, CC3, CC4, NRM11, NRM1, NRM3
Sustainability Issue 5 (page 53): Flood Risk Management	Development be designed to be resilient to flooding as appropriate. Consider change in flood risk over lifetime of development because of climate change. Consider all sources of flood risk. Comply with Environment Agency Flood Risk standing advice, Council's SFRA, PPS25 and Flood and Water Management Bill. Produce Flood Risk Assessment and Surface water Drainage Strategy where required. Run-off from site must not increase as a result of development, and where possible it should be reduced. SUDs are expected to be used where appropriate. Green/ brown roofs should be considered on all buildings where appropriate. Developments with an existing or proposed garden or other green area should look to include provision for rainwater harvesting for irrigation purposes.	All development	Core Strategy Policy CP1, CP3, CP18-21 South East Plan Policies CC2, NRM4 PPS25 (and Practice Guide)
Sustainability Issue 6	Opportunities to be taken to retain and enhance existing	All development	Core Strategy Policy CP1, CP7,

(page 57): Biodiversity	habitats in addition to areas of new landscaping. Produce ecological assessment where a significant impact on biodiversity is likely or probable. Accord with Policy CP7 and CP8 of Core Strategy		CP8, CP18-21 Local Plan Saved Policies WBE4, WBE5, WBE6 South East Plan Policies CC8, NRM5, NRM7
Sustainability Issue 7 (page 60): Waste, recycling and composting	Waste Provide, or have access to appropriate facilities for the storage and collection of waste. Green Waste Include provision for on site composting of green waste.	All relevant residential and non-residential development Development providing a garden or other green areas.	Core Strategy Policy CP1, CP18-21 South East Plan Policies CC2, CC4, W1, W2 Berkshires Waste Local Plan/ Berkshire Emerging Minerals and Waste LDF.
Sustainability Issue 8 (page 63): Cyclist Facilities and parking	Appropriate provision or have access to secure and covered cycle storage.	All relevant residential and non-residential development	Core Strategy Policy CP1, CP3, CP6, CP18-21 South East Plan Policies CC2, T4 Local Transport 3
Sustainability Issue 9 (page 66): Air, Noise and Light Pollution and Land Affected By Contamination	Proposals must address issues of air, noise and light pollution to minimise their impact. Provide evidence of the measures that will enable developers to meet their obligations in respect of land affected by contamination. Where significant impacts from pollution to or from the proposed development is likely or probable, an assessment of existing levels pollution will be required. Comply with Appendix 3 (Air Quality Considerations for New Development)	All relevant development	Core Strategy Policy CP1, CP3, CP18-21 South East Plan Policies NRM9, NRM10

Sustainability Issue 10 (page 68): Responsibly sourced and Recycled Materials	Use of responsibly sourced and recycled materials. Use locally sourced materials, preferably within 35 miles. Onus on the developer to justify why locally sourced materials cannot be used. Achieve a minimum target of 25-30% of roads, pavements, public spaces and car parks to be from locally reclaimed or recycled materials in line with good practice? Ensure that any timber comes from certified sources, with a minimum target of 75% expected to be achieved in line with good practice?	All development	Core Strategy Policies CP1, CP18-21 South East Plan Policies CC3, CC4, M1
Sustainability Issue 11 (page 69): Site Waste Management Plans	Developments/ construction projects with estimated costs of greater than £300,000 excluding VAT to put in place Site waste Management Plan	Developments/ construction projects with estimated costs of greater than £300,000 excluding VAT	Core Strategy Policies CP1, CP18-21 South East Plan Policies CC4, W1, W2, M1 Berkshires Waste Local Plan/ Berkshire Emerging Minerals and Waste LDF.
Sustainability Issue 12 (page 70): Construction Pollution	Major developments to implement Site Construction Environmental Management Plan and operate under Considerate Constructors Scheme.	All major development – 10 or more dwellings or 1000m² or more gross non-residential floorspace.	Core Strategy Policies CP1, CP18-21 South East Plan Policies NRM2, NRM9, NRM10

Summary of what information is required

Step 1: Sustainability Issues

Sustainability Issues 1-12 clearly set-out the main issues, options and requirements.

Step 2: Sustainability Checklist

Sustainability Check list in Appendix 4 can help inform the final design and provides information for input into a Sustainability Statement.

Step 3: Sustainability Statement/ Energy Statement

With the use of Step 1 and 2, a Sustainability Statement and Energy Statement (where required) should be produced. The follow tables provide further information on when these are required.

Summary of when a Sustainability Statement is required

Development Type	Sustainability Statement Required	
	Outline	Full or Reserved Matters
Residential Development - involving the creation of a new dwelling (including replacement dwellings where this involves substantial, or complete demolition of the existing house).	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of the South East Plan and national policy.	Yes – detailed Sustainability Statement required
Non-residential development – over 100m ² floorspace	Design and Access Statement to set out framework to show how the application will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of the South East Plan and national policy.	Yes – detailed Sustainability Statement required
Change of use within an existing building	No	Design and Access Statement to set out framework to show how the application will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of

		the South East Plan and national policy.
Householder extensions	No	No

Summary of when an Energy Statement is required

Development Type	Energy Statement Required	
	Outline	Full or Reserved Matters
Residential Development – of more than 10 dwellings (major development) – including conversions, subdivisions and changes of use.	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of Policy NRM11 of the South East Plan. Best estimates of energy use at outline application stage will be acceptable.	Yes – detailed Energy Statement required
Non-residential development – of 1000m ² or greater – only new buildings and not extensions to existing buildings.	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of Policy NRM11 of the South East Plan. Best estimates of energy use at outline application stage will be acceptable.	Yes – detailed Energy Statement required
Householder extensions	No	No

- Further information on Sustainability Statement requirements can be found in Section 6 of this SPD.
- Further information on Energy Statement requirements can be found in the 'Developers Guidance Note for the 10% Renewable Energy Requirement of South East Plan Policy NRM11' which accompanies this SPD.
- Local mandatory requirements for developments to exceed statutory requirements for sustainable buildings may be included within the emerging MDD DPD, as indicated in paragraph 4.8 of the adopted Core Strategy.

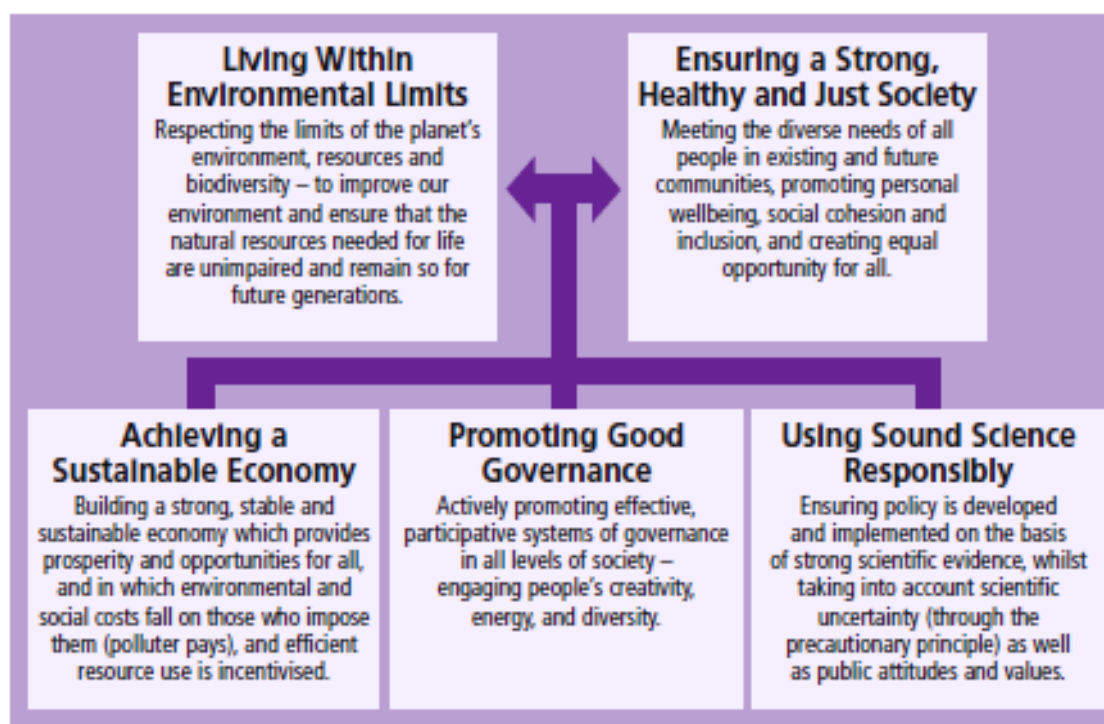
Section 1: Introduction

- 1.1 This SPD focuses on design and construction of the building and site. It also covers issues of spatial planning and location, such as transport and biodiversity. This SPD will promote the use of sustainable techniques and materials in the construction of buildings and structures. It will be designed to help developers think through the impacts and will offer real (often cost effective), alternative solutions to developments. It will provide clear and accessible information that can steer choices towards sustainable development.
- 1.2 This SPD provides assistance with those aspects of sustainable design and construction pertinent to the wider planning context in Wokingham Borough. Climate change is widely recognised as the most significant long-term challenge the world faces today. Planners have a key role to play in assisting the delivery of sustainable development and energy and adapting to the consequences of climate change. This is highlighted within national planning statements.
- 1.3 ***Delivering on sustainable design and construction can bring significant social, environmental and economic benefits to Wokingham Borough.***
- 1.4 This document is wide ranging and comprehensive, however, it is recognised that the subject of sustainability, particularly related to development, is rapidly changing, so the information will change over time.
- 1.5 Once the SPD is adopted, planning applications will need to show that the proposed development meets the requirements of the SPD and regional and national mandatory sustainable development requirements (e.g. decentralised, renewable or low carbon energy). This SPD includes aspirational targets for exceeding regional and national requirements. Local mandatory requirements for developments to exceed statutory requirements for sustainable buildings may be included within the emerging Managing Development Delivery Development Plan Document, as indicated in paragraph 4.8 of the adopted Core Strategy. Policy CP1 (Sustainable Development) of the Core Strategy requires development proposals to contribute towards the goal of reaching zero carbon developments as soon as possible.
- 1.6 The Council will encourage new development in the Borough to not just meet current mandatory sustainable design and construction standards but exceed them and set new standards of excellence. The sustainable design aspects of planning applications must be balanced with other Council design guidance.
- 1.7 A companion document to this SPD is the 'Developers Guidance note for the 10% renewable energy requirement of the South East Plan policy NRM11'.

Section 2: Sustainable Design and Construction

- 2.1 Sustainable development is a wide concept, encompassing the management of social and economic change within an environmental capacity. The most common definition is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland 1987).
- 2.2 Sustainable development is the core principle underpinning planning and at the heart of this, is the ‘simple idea of ensuring a better quality of life for everyone, now and for future generations’¹. The guiding principles for sustainable development (as indicated in the Government’s sustainable development strategy, ‘Securing the Future’ (2005)) are highlighted in Figure 1 below.

Figure 1: Guiding Principles of UK Sustainable Development



Source: *Securing our Future* (2005 pg16)

- 2.3 The shared priorities for the UK can therefore be summarised as:
- Sustainable Consumption and Production;
 - Climate Change and Energy;
 - Natural Resource Protection and Environmental Enhancement;
 - Sustainable Communities.
- 2.4 New homes and buildings provide a real opportunity to deliver substantial cuts in carbon emissions. Government energy policy recognises the role that energy saving and renewable energy technologies will need to play in both reducing emissions of greenhouse gases and reducing the UK's dependence on fossil fuels.

¹ Planning Policy Statement 1: Delivering Sustainable Development.

- 2.5 Sustainable design and construction is therefore integral to the role of achieving sustainable development. There are numerous drivers for this, such as adapting to the consequences of climate change and decreasing the amount of waste generated. There is particular focus on the long term benefits of developments, rather than the short term saving, with the whole life cycle of buildings being assessed. Over its lifetime, a sustainably designed and constructed building will cost less to heat and light than a conventional building. It will therefore have a smaller impact on the environment.
- 2.6 Designing with sustainability in mind has implications for site layout, form and aesthetics of a building or the spaces in between. Where possible, the Council would like quality buildings to be retained and re-used in any development. Where demolition is necessary, valuable materials and components should be removed for re-use before demolition starts. Sustainability needs to be designed in from the outset.
- 2.7 One of the principle barriers to the wider acceptance of more sustainable forms of development is the perception that such measures incur additional costs. Research by the Building Research Establishment (BRE), the Housing Corporation and English Partnerships (now the Homes and Communities Agency) demonstrates that many performance improvements can be achieved at little or no additional cost. Reaching the highest standards does incur a cost premium, however, careful design and consideration of appropriate technologies at an early stage can minimise any cost premiums compared to 'bolt on' additional improvements².

² A Cost Review of the Code for Sustainable Homes, Report for English Partnerships and the Housing Corporation by Cyril Sweett, February 2007.

Section 3: The purpose of this SPD

3.1 This SPD will help to improve the sustainability performance of buildings and spaces through their construction and subsequent use. It will be a material planning consideration for all planning applications. The SPD enhances and is compatible with:

- national and regional guidance;
- the Council's Core Strategy;
- the suite of documents guiding the Core Strategy's Strategic Development Locations (SDLs);
- other documents that form the Council's Local Development Framework (LDF) including the emerging Managing Development Delivery Development Plan Document (which may allocate sites for a variety of uses), the Wokingham Town Centre SPD and the Design Guide SPD;
- the Council's other strategies on these topics.

Council's vision and priorities

3.2 This SPD aims to ensure that new development within the Borough is in line with the Council's Vision in that the good quality of life is maintained and that the Borough is a sustainable place to live and work. This SPD is also in line with the Council's identified priorities, in particular 'a cleaner and greener local environment' and 'sustainable, quality development'. Delivering on sustainable design and construction and energy efficiency can bring significant social, environmental and economic benefits to Wokingham Borough. The SPD will also help deliver the Council's emerging Sustainable Environmental Strategy. The Wokingham Borough Local Area Agreement (LAA) also includes tackling climate change in its vision.

3.3 In achieving this aim, the SPD has the following objectives:

- To make the Borough a more attractive, well designed and sustainable place;
- To help deliver Policy CP1 (Sustainable Development) of the Core Strategy;
- To complement the Borough's Design Guide SPD;
- To promote the sustainable use of resources;
- To raise awareness of sustainable design, construction and renewable energy technologies;
- To mitigate against the causes and adapt to the consequences of climate change;
- To promote the consideration of sustainability early within the design process;
- To expand upon or provide further guidance on national, regional and local requirements.

3.4 Through the Building Regulations, the Government is raising energy efficiency standards and reducing carbon dioxide emissions. The intention of this SPD is not to duplicate Building Regulations or other statutory requirements, but to ensure that developers have regard to best practice. The SPD encourages developments to exceed mandatory statutory requirements.

3.5 While the Council can only apply the SPD to developments which require formal planning permission, homeowners are strongly encouraged to consider what measures could be made to improve their

own property. Further advice on permitted development rights for renewable energy technologies can be found in Section 10 (On-site Renewable Energy Generation).

Section 4: How to use this SPD

- 4.1 This SPD clearly sets out the Council's agenda on sustainable design and construction. As it is seen that the two are interlinked, it is advisable for planning applicants to be familiar with the whole document itself, before honing in on the relevant topics. However, for ease of reference the first part of the document focuses on sustainable design, whilst the latter part focuses on sustainable construction methods.

Section 5: Policy Context

- 5.1 This SPD forms part of the Wokingham Borough LDF. In terms of the consultation process, this document will be prepared in line with the adopted Statement of Community Involvement

Sustainability Appraisal

- 5.2 The purpose of a Sustainability Appraisal (SA) is to promote sustainable development through the integration of social, environmental and economic considerations in the preparation of SPDs. It is now not mandatory to undertake a Sustainability Appraisal (SA) as part of the preparation of SPDs.

Commitment to tackling climate change

- 5.3 The policy context and drivers designed to ensure that new development is sustainable have been set at a global level to a local level. The 1997 Kyoto Protocol set internationally agreed targets for developed nations to cut greenhouse gas emissions. The UK is on track to reduce emissions to 12.5% below the 1990 levels by 2008-12 as agreed by the Kyoto Treaty.
- 5.4 The United Nations Climate Change Conference (UNCCC), Copenhagen 2009 took place in December 2009. At the final plenary session of the Conference on 18 December 2009, the delegates of the UNCCC agreed to take note of the Copenhagen Accord³. The Accord does not commit countries to agree to a binding successor to the [Kyoto Protocol](#). It is a draft decision, and once approved, will be operational immediately.
- 5.5 Climate change projections were updated in 2009 by the UK Climate Impacts Programme (UKCIP). These set out three global emission scenarios based on high, medium and low forecasts for a range of climate and weather related impacts such as temperature, rainfall, flooding and other extreme weather events.
- 5.6 The Renewable Energy Directive (RED) has set an EU-wide target for 20% of all energy (including heat and transport) to be provided by renewable sources by 2020. The UK contribution to this target

³ Further information on the Copenhagen Accord can be found at <http://unfccc.int>

is 15% of all energy from renewable sources. To meet the 2020 15% renewable energy target, the Department for Energy and Climate Change (DECC) will develop new ways of generating renewable energy in all sectors, including heat.

- 5.7 In February 2010, DECC published a consultation on the proposed design of the [Renewable Heat Incentive \(RHI\) scheme](#), which it aims to introduce in April 2011. The consultation sought views on a number of aspects of the proposed scheme, including tariff levels. Powers in the [Energy Act 2008](#)⁴ allow the setting up of a Renewable Heat Incentive (RHI). DECC's aim is to make the RHI as accessible, flexible and user-friendly as possible to potential investors in renewable heat at all scales.
- 5.8 The Climate Change Act 2008 puts into statute the government's target to reduce CO₂ emissions through domestic and international action to 80% below 1990 levels by 2050.
- 5.9 The Energy Performance of Buildings Directive was adopted by the European Union in December 2002. Its aim is to lead to substantial increases in investment in energy efficiency measures within buildings. The Directive is implemented in the UK through, among other measures, the use of revised Building Regulations (2006).
- 5.10 The Government Low Carbon Transition Plan (White Paper) was published in July 2009. This plan covers how the UK will begin to transform to a low carbon society by 2020.
- 5.11 The Household Energy Management Strategy was published in March 2010, and placed a great emphasis on district heating schemes.
- 5.12 The Warm Homes, Greener Homes Strategy (March 2010) is aimed at cutting emissions from the UK's homes by 29 per cent by 2020. The strategy will help people make smarter use of energy in homes, making it easier to take action and reduce bills.

Local level:

- 5.13 In November 2007, the Leader of the Council and the Council's Chief Executive signed the [Nottingham Declaration on Climate Change](#), demonstrating a strong corporate commitment and political leadership in confronting the issues of climate change.
- 5.14 Signing the Nottingham Declaration is a significant step towards improving the Borough's environmental impact in a number of different ways. It will help the Council and its partners to co-ordinate efforts more effectively and make the Wokingham Borough greener.
- 5.15 The Council is also committed to producing a Sustainable Environment Strategy. The aim of the strategy is to improve the quality of life, now and for future generations, by respecting the Borough's environment and protecting it from the impact of our activities and from growth. The Council is also

⁴ The Energy Act 2008 introduced powers for Feed-In Tariff and the Renewable Heat Incentive. On 8 April 2010, the Energy Bill received Royal Assent becoming Energy Act 2010. It implements some of the key measures required to deliver DECC's low carbon agenda.

- 5.16 Local Plan Survey 4 (Results of Community Aspirations Survey – 2004), which formed part of the Council's Core Strategy Examination evidence base, provides evidence of the importance of climate change and the local environment for Wokingham residents. 39.8% of respondents are very concerned about the earth's climate and changes of long term weather patterns. 54.5% of residents are very concerned about their local environment.

Sustainable development

- 5.17 Sustainable development remains one of the key principles of the planning system in England, and the Government views the planning system as an effective means of delivering more sustainable buildings and places, through effective sustainable design and construction policies.
- 5.18 To guide this, the Government has a sustainable development strategy, and a range of planning policy guidance on delivering sustainable development. Detailed information on the policy framework at a national, regional and local level can be found in Appendix 1.

NATIONAL POLICY GUIDANCE

- 5.19 A number of national, regional and local planning policies influence sustainable design and construction requirements for future development in Wokingham Borough:

Planning Policy Statement 1 (Sustainable Development) and PPS on Planning and Climate Change – Supplement to PPS1

- 5.20 PPS1 sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system and instructs planning authorities to prepare robust policies on design and access. Tackling the causes and predicted effects of climate change within the planning system has received significant attention by the Government which has published a supplement to PPS1 on 'Planning and Climate Change' (2007). This PPS sets out a number of key objectives for the planning system in respect of climate change, expecting large developments to gain a significant proportion of energy supply through on-site low carbon and/or renewable energy sources.

Draft PPS (Planning for a Low Carbon Future in a Changing Climate (March 2010)

- 5.21 This consultation document brings together the PPS: Planning and Climate Change (Supplement to PPS1) and PPS22: Renewable Energy into a new draft PPS on Planning for a Low Carbon Future in a Changing Climate. This new PPS will replace the PPS1 Supplement and PPS22 and it is proposed

⁵ The Climate Change Act paves the way for carbon trading and introduces the Carbon Reduction Commitment, which is a mandatory cap and trade scheme for the 5000 or so largest energy using organisations in the country

that it will become a consolidated supplement to PPS 1. This will support and provide an overarching framework for PPS 25 on Development and Flood Risk and emerging planning policies on green infrastructure (to be consulted on separately). The draft PPS should be read alongside other national policy including the overarching National Policy Statement for Energy and the National Policy Statement for Renewable Energy Infrastructure.

PPS22 (Renewable Energy)

5.22 PPS22 sets out the Government's planning policies on land use and renewable energy. PPS22 states that local development documents (LDDs) should contain policies to promote and encourage the development of renewable energy sources, the wider benefit of such and the design and planning implications of incorporating renewable energy onto new development schemes.

5.23 Additional summaries on PPS1 (including the Supplement) and PPS22 and the following additional PPS's can be found in Appendix 1:

- PPS9 (Biodiversity and Geological Conservation);
- PPS10 (Planning for Sustainable Waste Management);
- PPS23 (Pollution Control);
- PPS24 (Planning and Noise);
- PPS25 (Development and Flood Risk).

REGIONAL POLICY GUIDANCE

South East Plan

5.24 The adopted South East Plan (May 2009) forms part of the Council's development plan. Planning applications received by the Council have to be assessed against the South East Plan. The Plan is a key tool to achieving sustainable development, helping to protect the environment and combating climate change.

5.25 Policy NRM11 (Development design for energy efficiency and renewable energy) of the South East Plan requires residential development of more than 10 dwellings and non-residential development of 1000m² or greater (major development) to secure at least 10% of their energy from decentralized, renewable or low-carbon technologies. The Council has already produced a 'Developers Guidance note for the 10% renewable energy requirement of the South East Plan policy NRM11' which provides guidance and options on how to ensure compliance with this policy. This will become a companion document to the Sustainable Design and Construction SPD.

5.26 The South East England Partnership Board has undertaken research to identify where there is the most potential for developing Combined Heat and Power (CHP) and Distributed Heat systems in the

South East of England. The opportunities identified are based on an assessment of waste heat sources and potential heat demand.⁶

LOCAL POLICY GUIDANCE

Wokingham Borough Core Strategy Development Plan Document (DPD)

- 5.27 This SPD is consistent with and based upon policy within the adopted Core Strategy DPD. This was found sound by an independent Government Inspector following an Examination. It was adopted in January 2010.
- 5.28 The principle of sustainable development is embedded within Core Strategy Policy CP1 (Sustainable Development) and is supported by additional policies such as Policy CP3 (General Principles for Development) and Policy CP7 (Biodiversity). The Aspirations and Spatial Issues (ii) for the Borough, as indicated in paragraph 2.66 of the Core Strategy, promote sustainable use and disposal of resources while mitigating and adapting to climate change. The Sustainability Appraisal of the Core Strategy identified that such policies were necessary to mitigate the environmental impacts of development.

Core Strategy Policies

- 5.29 Policy CP1 (Sustainable Development) of the Core Strategy sets out the sustainable development criteria which development proposals must accord with. Policy CP1 and the supporting text refers to key measures that can help towards addressing climate change. Policy CP1 serves as a necessary guide to the Council's rationale for seeking renewable energy from development proposals and signposts national guidance on this issue. It also requires development proposals to contribute towards the goal of reaching zero carbon developments as soon as possible. Policy CP1 and the supporting text can be viewed in Appendix 1 of this document.
- 5.30 In July 2007, the Government's "Building a Greener Future: Policy Statement" announced that all new homes will be zero carbon from 2016. In December 2008, the Government published "Definition of Zero Carbon Homes and Non-Domestic Buildings: Consultation". This proposed an approach, subsequently confirmed in a Written Ministerial Statement (by the Minister of Planning) in July 2009. It defined zero carbon homes⁷:

"A zero carbon home is one whose net carbon dioxide emissions, taking account of emissions associated with all energy use in the home, is equal to zero or negative across the year. Our definition of 'energy use' will cover both energy uses currently regulated by the Building Regulations and other energy used in the home [...] The net emissions of the home, taking account of its energy efficiency and on-site energy supply (including, where relevant, connections to heat networks) will meet a minimum "carbon compliance" standard

⁶ This can be viewed at: <http://www.se-partnershipboard.org.uk/page/5/view/147/sub/77/publications-and-research>

⁷ See: <http://www.communities.gov.uk/statements/corporate/ecozerohomes>

- in effect a regulatory level of carbon reduction to be achieved on-site compared to today's regulations".

- 5.31 The draft PPS (Planning for a Low Carbon Future in a Changing Climate), at paragraph 4, states that meeting the zero carbon standard involves a combination of energy efficiency measures and the use of decentralised energy solutions, to be set out through Building Regulations and through the use of a range of 'allowable solutions'. The Government is currently considering the scope and delivery mechanisms for allowable solutions. The Government's decision on allowable solutions will be reflected in the final PPS. The draft PPS describes allowable solutions as:

"The measures permitted for dealing with residual emissions remaining from a home or other building after taking account of carbon abated through on-site technologies and connections to low and zero carbon heat networks in order to achieve zero carbon status."

- 5.32 It is a concept that applies at point of build. The zero carbon standards are likely to be applied to non residential development (such as offices, shops, hotels and warehouses) from 2019⁸. This SPD will help planning applicants make this transition to achieving zero carbon development.
- 5.33 As a result of the rapidly changing situation the Council is taking a flexible approach to the provision of on-site renewables and other sustainable forms of development dealt with in CP1 (paragraph 4.6 of the Core Strategy).
- 5.34 The Core Strategy has not set a specific percentage of energy used in developments to be provided by on site renewable energy installations but highlights that the Council wants to achieve zero-carbon developments as soon as possible. However, the Council expects relevant development proposals to accord with Policy NRM11 of the South East Plan. Paragraphs 4.6 to 4.13 of the Core Strategy provide further guidance on the Council's approach and requirements.

Core Strategy Strategic Development Locations

- 5.35 The Core Strategy envisages the majority of the housing needed to meet the South East Plan's targets will be provided for by four SDLs. These are identified in policies CP18-21 of the Core Strategy and each will have its own master plan and design approach. The SDL's will include a variety of mixed use development all of which should accord with this SPD.
- 5.36 Appendix 7 of the Core Strategy provides a concept statement for each SDL. The concept statements indicate that a strategy to deliver sustainable development, demonstrating current best practice, must be provided and implemented (for each SDL) in accordance with the Council's SPD on Sustainable Development (i.e the Sustainable Design and Construction SPD). The Development Brief (masterplan) SPD for each SDL includes the main principles which should be taken into account as part of the planning application process but highlights that this SPD will set out more detailed

⁸ A consultation on zero carbon for new non-domestic buildings was launched in November 2009.

guidance for proposals. Sustainability matters must be addressed through a Sustainability Statement accompanying each planning application within an SDL. The submission and content of a Sustainability and Energy Statement may satisfy paragraph A7.34 of the Core Strategy. Such statements are likely to differ in content and detail from the outline to reserved matters applications.

Emerging Managing Development Delivery DPD

- 5.37 The remaining housing requirement will primarily be developed on sites allocated in a subsequent Development Plan Document (called the Managing Development Delivery DPD).
- 5.38 The Council is looking to future-proof development in the Borough. The Council may seek over and above the minimum national and regional targets (i.e South East Plan Policy NRM11, Code for Sustainable Homes and BREEAM) through the Managing Development Delivery DPD (paragraph 4.8 of the Core Strategy). This will ensure that developments can be linked to consistent targets and allow the opportunity for the whole scheme to benefit from technology. This DPD will go through the same examination process as the Core Strategy and specific targets will be supported by an evidence base. One of the tests of soundness is consistency with national policy. **The Council is aware of the policies in the draft PPS: Planning for a Low Carbon Future in a Changing Climate.**

Climate Berkshire Study

- 5.39 The Berkshire Economic Strategy Board's Sustainable Prosperity sub group approved the commissioning of Thames Valley Energy to complete the following project as part of the work programme for Climate Berkshire (the Berkshire Climate Change Partnership):

'Climate Berkshire Report: Phase 1 of a strategy regarding future investments for renewable and low carbon power generation across Berkshire.'

- 5.40 The Climate Berkshire Report Phase 1 was completed in March 2009 and maps the existing opportunities for renewable and low carbon power within each of the 6 Boroughs/ District's within Berkshire and highlights opportunities for joint working on projects within the Boroughs/ District's and/or Sub regionally. Phase II (not yet complete) will explore these opportunities in more detail and will explore some of the issues and perceived issues associated with different solutions and frame these in a local context, highlighting key risks to projects. The Climate Berkshire Phase 1 Report can be viewed at:

http://www.reading.gov.uk/Documents/Committee_Services/Environment_Scrutiny_Panel/2009-2010/090709/Item10Appx.pdf

- 5.41 Climate Berkshire will facilitate a coordinated approach to developing a resilient low carbon economy that is well adapted to Climate Change. It will work across the sub-region to build additional capacity to the existing mechanisms of delivery and develop new innovative approaches. It will provide a

platform to strengthen economies and communities, encouraging ownership of climate change action through behavioural change and investment.

Section 6: What is required?

Step 1: Sustainability Issues

- 6.1 Sections 7 to 17 clearly set-out the main issues, options and requirements for developments. At the end of each section a coloured box indicates the Council's requirements which are often linked to best practice standards. Details are also provided on policy linkages and where additional information can be gained.

Step 2: Sustainability Checklist

- 6.2 These sustainability issues make up the sustainability checklist which can be found in Appendix 4 of this SPD. A completed checklist can help inform the final design and provides information for input into a Sustainability Statement.

Other guidance:

- 6.3 If necessary, the Sustainability Checklist in Appendix 4 can be combined with the South East England Development Agency (SEEDA) Sustainability Checklist. SEEDA's Sustainability Checklist is an online tool devised specifically to guide the design of new developments. The Checklist covers regionally specific sustainability and planning issues within the context of current policy, emphasising those of higher priority. The Checklist complements Building Research Establishment Environmental Assessment Method (BREEAM) and the Code for Sustainable Homes by looking at issues relevant to the overall development scale, as opposed to individual development sites. Further guidance can be found online at: www.sustainability-checklist.co.uk.

Step 3: Sustainability Statement/ Energy Statement

- 6.4 With the use of Step 1 and Step 2, a Sustainability Statement should be submitted evidencing the relevant information in support of the planning application. The report should show how a development is designed to meet the interpretation of sustainable development as set out in the:
- National planning guidance - in particular PPS1 Supplement;
 - South East Plan;
 - Wokingham Borough Core Strategy DPD;
 - This SPD and companion document; and
 - Other relevant policy documents.
- 6.5 A Sustainability Statement is required for the following developments:

- **Residential development** – involving the creation of a new dwelling (including replacement dwellings where this involves substantial, or complete demolition of the existing house);
- **Non-residential development** – over 100m² floorspace.

6.6 A Sustainability Statement is not required for the following developments:

- Household extensions;
- Change of use within an existing building.

Outline application (with all matters reserved)

6.7 Sustainable design and construction requires the principles of sustainability and efficient resource use to be applied from the outset and integrated throughout the development. Although specific development information may be limited at this early stage, an outline planning application will still need to set out a framework to show how the proposal will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of the South East Plan and national policy. This information can be included within the Design and Access Statement.

6.8 Further information on decentralised, low carbon and renewable technologies can be found in the 'Developers Guidance Notes for the 10% Renewable Energy Requirement of South East Plan Policy NRM11'.

Outline application (with layout and scale to be approved)

6.9 If submitting details for layout and scale as part of an outline application, the Council will expect more detailed information to be provided. Best estimates of energy use at outline application stage (with layout and scale to be approved) will be acceptable. This information can be included within the Design and Access Statement. The renewable energy and efficiency measures should be considered at a site-wide level in order to form the framework for considering reserved matters.

Full/ Reserved Matters application

6.10 Full/ Reserved Matters applications will need to address the sustainability issues (through a detailed Sustainability Statement and, where required, an Energy Statement) detailed in this SPD (and 'Developers Guidance Notes for the 10% Renewable Energy Requirement of South East Plan Policy NRM11'), as well as committing to all parts of Policy CP1 for the Core Strategy and national and regional policy. If the site has a previous outline permission the details being proposed as part of the full application should be in line with previous proposals. If different, a justification should be provided to the Council setting out any differences and reasons for change.

6.11 If a site has a previous outline permission prior to the adoption of the South East Plan, the full or reserved matters application will be expected to accord with Policy NRM11 where appropriate.

6.12 Table 1 below summarises when a Sustainability Statement is required. Table 2 below summarises when an Energy Statement is required:

Table 1: Summary of when a Sustainability Statement is required

Development Type	Sustainability Statement Required	
	Outline	Full or Reserved Matters
Residential Development - involving the creation of a new dwelling (including replacement dwellings where this involves substantial, or complete demolition of the existing house).	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of the South East Plan and national policy.	Yes – detailed Sustainability Statement required
Non-residential development – over 100m ² floorspace	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of the South East Plan and national policy.	Yes – detailed Sustainability Statement required
Change of use within an existing building	No	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of this SPD, Policy CP1 of the Core Strategy, Policy NRM11 of the South East Plan and national policy.
Householder extensions	No	No

Table 2: Summary of when an Energy Statement is required

Development Type	Energy Statement Required	
	Outline	Full or Reserved Matters
Residential Development – of more than 10 dwellings (major development) – including conversions, subdivisions and changes of use.	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of Policy NRM11 of the South East Plan. Best estimates of energy use at outline application stage will be acceptable.	Yes – detailed Energy Statement required
Non-residential development – of 1000m ² or greater – only new buildings and not extensions to existing buildings.	Design and Access Statement to set out framework to show how the proposal will achieve the requirements of Policy NRM11 of the South East Plan. Best estimates of energy use at outline application stage will be acceptable.	Yes – detailed Energy Statement required
Householder extensions	No	No

6.13 For outline applications with some reserved matters and full applications, planning conditions will be imposed to achieve the outcomes of the sustainable design and construction standards including sustainable energy commitment and their implementation. The Council will impose planning

conditions to ensure that reserved matter applications follow the same route and provide the same documentation that is expected for full applications.

Sustainability Statement

6.14 Any Sustainability Statement should follow these principles:

- The level of information should be proportionate to the scale of the proposed development (in accordance with paragraph 11 of PPS1 Supplement);
- Sustainability Statements for residential developments must reflect the SPD Sustainability Issues and those topic areas of the Code for Sustainable Homes where not covered by a Sustainability Issue (to avoid unnecessary repetition);
- Instead of duplicating information, the Statement can cross-refer to sections within other assessments submitted with the planning application, such as those submitted for transport or Design and Access Statement;
- If an Environmental Impact Assessment (EIA) is required, there is no need to duplicate information within a Sustainability Statement;
- Sustainability matters must be addressed through a Sustainability Statement accompanying each planning application within an SDL (in line with the requirements of Table 1). The submission and content of a Sustainability and Energy Statement may satisfy paragraph A7.34 of the Core Strategy. Such statements are likely to differ in content and detail from the outline to reserved matters applications.
- Sustainability statements, where required, will be expected to provide details and justification for those options utilised, and those not included.

Energy Statement

6.15 As recommended by the companion document to this SPD ('Developers Guidance note for the 10% renewable Energy requirement of the South East Plan policy NRM11') an Energy Statement should be produced to ensure major development proposals accord with Policy NRM11 of the South East Plan. The Energy Statement should form part of the Sustainability Statement. Sustainability and Energy Statements will differ in content and detail from the outline to reserved matters applications

Flexibility

6.16 The Council recognises that in some circumstances it may not be reasonable to require a development to meet the standards set out in this SPD. Where an applicant considers that a specific requirement is not viable (based on reasonable market assumptions) on a particular site, the onus is on the applicant to demonstrate the reasoning behind this. Justification should be provided in the context of the overall development and in comparison with other design solutions. The sustainable design aspects of planning applications must be balanced with other Council design guidance.

- 6.17 A high purchase price for development land will not be regarded as sufficient justification. 'Viability' is taken to mean technical and/or economic viability of the available options to meet the relevant standards. The Council may choose to seek independent advice to verify the submissions.
- 6.18 The Council will consider applying a maximum possible requirement in the first instance before allowing relaxation. If viability is to be a determining factor then the site location and site characteristics will be considered when determining the planning application. The Council appreciates that viability may also need be considered alongside technically feasible and deliverable solutions. All sites are capable of achieving energy efficiency beyond the minimum Building Regulation requirements, whether through site layout, improvements to the building fabric, insulation and modern methods of construction and air tightness and should aim to reduce energy demand and resulting carbon emissions as much as possible even if full compliance cannot be achieved.
- 6.19 Any evidence must also consider the long-term, whole life costs associated with particular measures and not just address initial capital outlay. The likely timescale for the completions of the development will also be taken into account. Large schemes that will be built over several years will need to demonstrate a realistic viability case over the whole build period in order for the Council to consider any relaxation of the standards for those schemes, as these are the developments that will make the largest contributions to achieving the carbon and energy reduction objectives.
- 6.20 If full policy compliance cannot be provided then the developer will:
- Need to justify why the whole or part of the requirement cannot be met;
 - Be expected to set out and install measures that are viable and provide the relevant assessment required;
 - Demonstrate that all options have been explored and appraised.

Section 7: Measuring and Demonstrating Sustainability

- 7.1 Applications for planning permission should be supported by evidence which demonstrates how the proposed development meets the sustainability issues (**Step 1**) contained within this SPD. Appendix 4 details a 'Sustainability Checklist' summary that developers should utilise before planning applications are submitted to the Council. This Checklist (**Step 2**) summarises the 11 Sustainability Issues identified in this SPD. A completed checklist can help inform the final design and provides information for input into a Sustainability Statement (**Step 3**).

The Code for Sustainable Homes and BREEAM Assessments

- 7.2 In addition to the various requirements specified in this document, there are nationally set targets that deal with sustainable construction and design. The Code for Sustainable Homes (the Code) and the Building Research Establishment Environmental Assessment Method (BREEAM) are certified assessment tools which measure the overall sustainability of a development. The Code only relates to newly constructed homes whereas BREEAM can be used to measures the sustainability performance of a wide range of uses including office, industrial, shops and school developments. Appendix 2 provides a detailed 'Summary of Design and Construction Codes'.

Residential - Code for Sustainable Homes

- 7.3 As from October 2010, residential development will need to be built to Code Level 3. From 2010, the Energy Saving Trust will be promoting the higher energy performance requirements of the Code, notably level 4. The Affordable Housing Viability Study (June 2008) undertaken by Levvels on behalf of Wokingham Borough Council (<http://www2.wokingham.gov.uk/index.asp?pgid=72582>) assumed homes would be built to (Full) Code Level 4. The study states that developments (of 5 or more units) would be viable taking into account Code Level 4 housing and all other assumptions indicated in Section 2 (Outline of Methodology) of the study.
- 7.4 Schemes of up to 4 dwellings built at national housing densities (30 dwellings per hectare) would not need to deliver affordable housing under Policy CP5 of the Core Strategy. Therefore they do not have the affordable housing requirement (i.e the associated costs) and should still be viable to deliver at least Code Level 4. This study formed part of the Council's evidence base for the Core Strategy Examination. The Communities and Local Government (CLG) report 'Cost Analysis of The Code for Sustainable Homes (July 2007)⁸ may be useful for cost estimates for meeting Code standards for different dwellings. An update of this cost analysis is due to be published by Government in 2010.
- 7.5 The Council therefore encourages all residential development schemes should seek to be built to full Code Level 4 or whatever mandatory Code Level is higher. **However, this is an aspirational (non-mandatory) target.** Developments will need to be built in line with mandatory Code timetable. Local mandatory requirements for developments to exceed statutory requirements for sustainable buildings may be included within the emerging MDD DPD, as indicated in paragraph 4.8 of the adopted Core

⁸ This can be viewed at <http://www.communities.gov.uk/documents/planningandbuilding/pdf/codecostanalysis.pdf>

Strategy. Policy CP1 (Sustainable Development) of the Core Strategy requires development proposals to contribute towards the goal of reaching zero carbon developments as soon as possible.

- 7.6 The 10% renewable or low carbon energy requirement of Policy NRM11 of the South East Plan is required for major development. However, the Council considers that renewable energy/ low carbon technology can be used as part of reaching the Code levels. Zero Carbon homes will be legally required by 2016.
- 7.7 Any viability assessment will need to take account of other requirements of the development plan (including affordable housing under Core Strategy Policy CP5). Therefore viability assessments for the 10% renewable or low carbon energy requirement should use the same assumptions underpinning the affordable housing levels (i.e development costs and professional fees).

Non-residential - BREEAM

- 7.8 Non-residential development should seek to be built to best practice standards which at the current time are the BREEAM (Building Research Establishment Environmental Assessment Method) 'very good' or 'excellent' standards. **However, this is an aspirational (non-mandatory) target.** Developments will need to be built in line with the BREEAM timetable. Local mandatory requirements for developments to exceed statutory requirements for sustainable buildings may be included within the emerging MDD DPD. The zero carbon standards are likely to be applied to non residential development (such as offices, shops, hotels and warehouses) from 2019. The Council considers that renewable energy/ low carbon technology can be used as part of reaching the BREEAM standards.

Mixed-use schemes

- 7.9 Where a development combines both residential and non-residential development, the applicant is advised to consult the Building Research Establishment (BRE) who will draw up a bespoke assessment which will incorporate both the residential and non-residential elements. Where feasible, and where development involves the re-use of existing buildings, developers should investigate the potential to retrofit the buildings with sustainable construction measures.
- 7.10 The methodologies require a greater level of information to be available as the development proceeds from its initial design through to its implementation. To ensure a development can reach the necessary standard, applications for full planning permission should be accompanied by a Pre-Assessment Estimator Report. Planning conditions will then be used to secure the subsequent Initial Post Construction Review Assessment and the Final Certification. However, at the pre-application stage, due to a lower level of information it may not be possible for an estimator report to be calculated. The Council would therefore utilise planning conditions to reach the necessary standard to support the reserved matters applications and subsequent stages. It is important at the outset that applicants satisfy themselves that the necessary standard can be reached to avoid difficulties as the scheme evolves.

Sustainability Issue 1: Adhering to national codes on construction standards

Residential developments will be assessed under the Code for Sustainable Homes and non-residential development will be assessed under whichever BREEAM version is applicable (e.g BREEAM offices, BREEAM Retail, BREEAM Healthcare).

Residential Developments

All residential development involving the creation of a new dwelling (*including replacement dwellings where this involves substantial, or complete demolition of the existing house*) must meet the mandatory Code for Sustainable Homes Level at the time of their construction.

Aspirational (non-mandatory) target:

The Council will encourage all residential development involving the replacement or the creation of a dwelling to meet the full Code for Sustainable Homes Level 4 or whatever higher Code is mandatory at the time of their construction.

Decentralised/ renewable energy/ low carbon technology can be used as part of reaching the Code Level for **all** residential development.

Non-Residential Developments

All non-residential development (including new and/or replacement of new non-residential floorspace) must meet the necessary mandatory BREEAM Level requirements at the time of their construction.

Renewable energy/ low carbon technology can be used as part of reaching BREEAM standards.

Mixed- use Developments

Where a development combines both residential and non-residential development the applicant is advised to:

Consult the Building Research Establishment (BRE) who will draw up a bespoke assessment which will incorporate both the residential and non-residential elements.

Developers will be encouraged to build dwellings to higher standards than those required at a regional and national level. The level by which sustainability performance exceeds these standards will be material factor in the determination of planning applications. The Council will assess planning applications on their own merits.

Local mandatory requirements for developments to exceed statutory requirements for sustainable buildings may be included within the MDD DPD.

Resources:

Other:

- Draft PPS: Planning for a Low Carbon Future in a Changing Climate
- Code for Sustainable Homes
- BREEAM
- Department for Energy and Climate Change

Section 8: Sustainable Design

- 8.1 To design an individual or group of buildings to a more sustainable method requires the consideration of a number of issues from the onset of a development proposal. This will ensure that costs are minimised. Whilst improvements can be achieved in sustainability performance at any stage, the net benefits that can be achieved are far greater from the onset and the design stage. It is more difficult and costly to retrofit.
- 8.2 This section provides guidance on how to maximise opportunities for creating more sustainable forms of development, including design principles and the use of technology. In all cases, the most sustainable approach should be to minimise resource use and then meet the remainder in the least environmentally damaging way.
- 8.3 When thinking about reducing carbon emissions, the energy hierarchy should be applied.
- 8.4 **The Energy Hierarchy**

A **Reduce the need for energy** – site layout and orientation of buildings can reduce the energy demand of buildings. This by capitalising on passive solar gain which utilises the energy from the sun to heat and provide light. It can also help keep buildings cool.

B **Use energy efficiently** – there are many measures that help to save and efficiently use energy. These include thermal efficient glazed windows, draught proofing, insulation, and energy efficient appliances (light fittings etc).

C **Supply energy efficiently** – by using existing supplies more efficiently greenhouse gas emissions can be significantly reduced (also termed low carbon sources) e.g Combined Heat and Power (CHP) networks.

D **Use renewable energy** – Developments can incorporate technologies that obtain energy from flows that occur naturally and repeatedly in the environment – such as from the wind (wind turbines), the fall of water (hydro), from the sun (photovoltaics) and from biomass.

Carbon Compliance and Allowable Solutions

- 8.5 The Government's "Definition of Zero carbon Homes and Non-Domestic Buildings: Consultation" proposed a 3 step approach to reaching zero carbon. This approach was subsequently confirmed in the Written Ministerial Statement in July 2009, further guidance on this approach is expected within the final PPS: Planning for a Low Carbon Future in a Changing Climate:
- High levels of energy efficiency in the fabric of the home;

- A minimum level of carbon reduction to be achieved onsite or through directly connected heat; and
- A list of allowable solutions for dealing with all the remaining emissions.

8.6 The range of allowable solutions may include:

- Further carbon reductions on site beyond the regulatory standard;
- Energy efficient appliances meeting a high standard which are installed as fittings within the home;
- Advanced forms of building control system which reduce the level of energy use in the home;
- Exports of low carbon or renewable heat from the development to other developments;
- Investments in low and zero carbon community heat infrastructure.

8.7 It is important that all developments have regard to this energy hierarchy and the Government's 3 step approach, to ensure that greenhouse gas emissions are minimised and that sustainability is placed at the heart of each development.

Passive Solar Gain

Orientation

8.8 The siting, orientation and internal layout of buildings can have significant impact on energy consumption. One of the simplest methods of reducing energy demand is to use passive solar designs to provide light and heat. Building orientation, materials and landscaping can also have a significant localised effect on climatic conditions. This helps to reduce the energy bills for the occupier, as well as increase the attractiveness by providing a pleasant living and/or working environment. It has been calculated that a combination of passive solar and energy conservation measures can reduce a new building's conventional heating requirement by 50-80%. Figure 2 highlights how orientation can help alter an areas sustainability.

Figure 2: Passive Solar Design in Estate Layout (Source: Energy Saving Trust) – Please note this diagram is for indicative purposes only



- 8.9 Keeping the main glazed orientation of the building within 30° of facing south will maximise the opportunity for solar gain. This orientation also makes the most of natural daylight for both lighting the building and for the use of solar technology for on-site energy generation and water heating. A slight south easterly orientation is generally preferable to south westerly as this maximises early morning gains and reduces the likelihood of overheating in the afternoon.

8.10 Road layout is a major factor determining the orientation of residential areas. To allow for the optimum orientation of housing plots, roads should preferably be aligned along an east-west axis.

8.11 When buildings are in proximity to each other, consideration should be given to minimising overshadowing between buildings. Full advantage should be taken if the site is southern facing, so ensuring that these elevations are not obstructed by other buildings. According to the Energy Saving Trust, overshadowing can be minimised by:

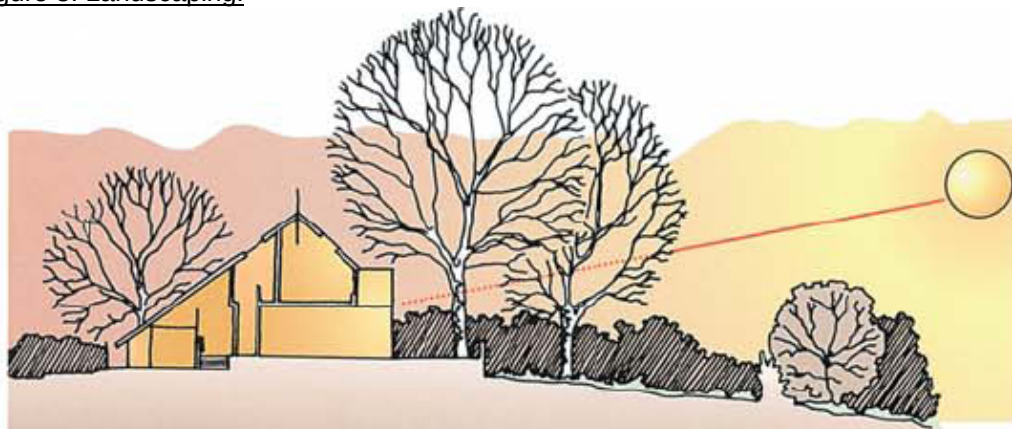
- Locating taller buildings to the north of the site or to the south of road intersections or open spaces, such as car parking – which require less sunlight;
- Locating low-rise buildings, such as bungalows, on the south side of the site;
- Locating semi-detached and detached housing to the south of the site, to allow some penetration of sunlight between housing;
- Avoiding obstructions such as projecting garages and porches on the south sides of houses;
- Locating car parking and garages to the north of housing where possible;
- Using low-pitched and hipped roofs; and
- Designing planting with height limits in mind.

Landscaping

8.12 Vegetation can both help and hinder solar energy in a site's location. It can provide shelter from cold prevailing winds, thus helping to create a sun trap within a scheme. Yet, if tall trees and shrubs are positioned so that they overshadow a south facing elevation of a house, then this will negate many of the benefits of a passive solar design layout.

8.13 While overshadowing should be avoided, appropriate landscaping could help a site's sustainability. Trees which would cast a shadow over a building should be deciduous as these allow light to pass through during the winter months, so allowing passive solar gain, whilst also offering shade and protection from the summer months. Evergreen trees can be used to provide year round shelter where solar gain is not required (figure 3). Trees on the Southern side of a house can provide shading in summer, but with some loss in daylight and solar gain in the heating season

Figure 3: Landscaping.



Source: BRE Greenspec

Internal Layout

- 8.14 **Residential buildings** should be designed to ensure that the most frequently used rooms are on the southern side of the building, where feasible. The northern side of the buildings should be used for rooms that are utilised less frequently, such as kitchens, utility rooms and bathrooms. This should not be done to the detriment of natural surveillance. In general, southern elevations should incorporate a large proportion of glazing than other elevations to take advantage of natural solar gain. However, it is important to remember that additional glazing should be used with caution, as heat loss can occur. The need for natural light should therefore be balanced off with heat loss.
- 8.15 **Commercial/ non-residential buildings** should be designed with consideration to their usage. Whilst offices should have good ventilation and sunlight, it is important to remember that these spaces tend to be warmer than residential dwellings due to the number of people utilising the space, as well as the heating, lighting and technical equipment that can be found. The use of a higher proportion of glazing on the northern elevation compared with the south elevation can help achieve a good balance between good daylight, without too much solar glare.

Thermal Mass

- 8.16 Material selection and sourcing affects the sustainability of a building in several ways. The choice of materials used is important as materials with a high thermal mass can act as a buffer against heat fluctuations. Materials with a high thermal mass absorb heat and release it slowly over time, preventing overheating in the summer and cooler conditions during the winter. Materials with a high thermal mass are ones such as stone and concrete.

Section 9: Energy Efficiency

- 9.1 Greenhouse gas emissions, particularly Carbon Dioxide, are the main causes of climate change. In the UK each person produces approximately 12 tonnes of CO₂ per annum – a large percentage of this is from energy used in domestic dwellings. According to the Energy Saving Trust, around 27% of the UK's total carbon emissions come from the domestic housing sector through energy use in the home for heating, hot water, lighting and appliances. New homes and buildings provide a real opportunity to deliver substantial cuts in carbon emissions.
- 9.2 The Council will require all developments to address the causes of climate change by reducing predicted CO₂ emissions through a combination of built-in energy efficiency measures, the efficient supply of energy for heating, cooling and power, in particular by prioritising decentralised energy⁹ generation and low carbon and renewable energy sources generated on site. **By reducing energy demand through energy efficiency measures the total amount of energy needed to be provided through sustainable energy technologies will be reduced.**

Heat Loss

- 9.3 Heat loss from buildings should be minimised in order to maximise the efficiency with which energy is used. A typical house loses 10% of its heat through the windows alone¹⁰. Minimising loss can be achieved through insulating roofs, walls and floors. For windows, double or triple glazing should be used. Ventilation must also be built into the design so that condensation is avoided, yet this must be balanced out with any heat loss that any natural ventilation can bring to a development.
- 9.4 More information on insulating against heat loss can be found through the Energy Saving Trust¹¹ website and on the Greenspec website¹².

Energy Efficient Appliances

- 9.5 The Council would encourage the use of energy efficient appliances in residential and commercial developments, such as “A” rated white goods and energy efficient light bulbs. Heating, lighting and domestic appliances are essential in every day lives. However, they consume a significant proportion of energy with lights and appliances accounting for the largest growth in residential energy use (2% per annum) over the last 30 years¹³.

⁹ Decentralised energy - Local renewable energy and local low-carbon energy usually but not always on a relatively small scale. It is a broad term used to denote a diverse range of technologies, including micro-renewables, which can locally serve an individual building, development or wider community and includes heating and cooling energy (CLG, 2010).

¹⁰ Greenspec – Insulation information at <http://www.greenspec.co.uk/html/refurb/windows.html>

¹¹ Energy Saving Trust – Insulation guidance <http://www.energysavingtrust.org.uk/Home-improvements-and-products/Home-insulation-glazing>

¹² Greenspec- <http://www.greenspec.co.uk/index.html>

¹³ Code for Sustainable Homes: technical guide

Natural Lighting

- 9.6 Utilising natural daylight not only assists in energy efficiency but can also have social well-being benefits and can help reduce energy costs.
- 9.7 Building designs should attempt to distribute daylight evenly to avoid glare and overheating. It is important to remember that the use of glazing needs to be balanced against the possible overheating (through solar gain) and heat loss. This can be minimised by utilising a higher proportion of glazing on the northern elevation compared with the south elevation which can help achieve good daylight without excessive solar gain. Commercial buildings may also benefit from other design features such as movable shutters and external blinds to provide shade but still allow daylight to penetrate the building.
- 9.8 Natural day-lighting is controlled not only by the position and amount of glazing, but also by the depth of rooms. Rooms should be designed to provide natural lighting and ventilation via windows. However, in some instances, the use of sun pipe technologies, internal glazing and atriums can be an appropriate way to improve natural lighting.

Natural Ventilation

- 9.9 As buildings are increasingly being constructed more air tight, it is essential to build in good quality ventilation to allow for an exchange of fresh for stale air. Systems need to be designed to enable the internal environment to be controlled responsively and locally.
- 9.10 Natural ventilation should be used in preference to mechanical systems, which can have a high energy demand. Natural ventilation can be increased by:
- Cross Ventilation – openings on opposite or adjacent walls can help draw air through a space to reduce overheating in the summer. Windows should also be openable and trickle vents or other such devices should be installed to provide controllable background ventilation.
 - Passive Stack Effect – using pressure differentials to bring cool fresh air from outside the building in, without the use of mechanical systems.
- 9.11 Where mechanical ventilation is required to supplement natural ventilation, it should be energy efficient – such as through the use of motorised windows, which open and close automatically using a thermostat.

Improving the energy efficiency of existing buildings

- 9.12 Homes currently account for 27 per cent of the UK's carbon emissions. Commercial properties and public buildings currently account for nearly 25 per cent of the UK's carbon emissions. The way in

which we light, heat and use buildings all contribute to this. Even small improvements to the energy performance and the way we use our buildings could have a significant effect on our fuel bills and carbon emissions. Improving the energy efficiency of a building can mean either making changes to the building, or simply changing your behaviour to save energy.

- 9.13 Energy Performance Certificates have been introduced to help improve the energy efficiency of all buildings - including homes. If you are buying or selling a home it is now law to have an Energy Performance Certificate. Since October 2008 commercial and public buildings must have one whenever the building is sold, built or rented.
- 9.14 The Energy Saving Trust website (<http://www.energysavingtrust.org.uk>) provides guidance for home owners, businesses and the public sector on ways to make existing buildings more energy efficient.

Sustainability Issue 2: Minimising Energy Consumption

All developments (including new builds, extensions, conversions and change of use) should seek to achieve the highest practical standards of sustainable design and construction to reduce energy demand throughout the lifetime of the development. The Council will encourage all developments to be built to higher standards than those required at a regional or national level. The Council will encourage developers to set new standards of excellence.

It is also important that the sustainable design aspects of planning applications must be balanced with other Council design guidance.

Resources:

National:

- PPS: Planning and Climate Change – Supplement to PPS1
- Draft PPS: Planning for a Low Carbon Future in a Changing Climate

Regional:

- South East Plan Policies CC2 (Climate Change), CC3 (Resource Use), CC4 (Sustainable Design and Construction), NRM11 (Development Design for Energy Efficiency and Renewable Energy).

Local:

- Developers Guidance note for the 10% renewable Energy requirement of the South East Plan policy NRM11;
- Core Strategy Policy CP1 (Sustainable Development), CP3 (General Principles for Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)

Other:

- Code for Sustainable Homes
- BREEAM
- Department for Energy and Climate Change
- Notes for further guidance can also be obtained from the Energy Saving Trust (www.energysavingtrust.org.uk) and Greenspec (www.greenspec.co.uk)

Section 10: On-site Renewable Energy Generation

- 10.1 Once energy use in a building has been minimised, it is important to consider the source of the energy used. There are many ways in which developments can utilise low impact energy sources, such as solar energy for water heating and electricity generation, wind energy, biomass, heat pumps and hydropower.

Renewable Electricity Feed-in Tariff

- 10.2 In the 2008 Energy Act, the Government committed to introducing a Feed-in-Tariff (FIT) for small generators of low carbon electricity. The scheme is designed to bring about a significant increase in the amount of locally produced green energy. FIT's¹⁴ are a mechanism by which owners of renewable electricity systems are paid a premium price for any excess electricity production that is fed back into the grid. From April 2010, householders and communities who install low carbon electricity technology up to 5 megawatts or less (small energy producers) will be paid for the electricity they generate. The scheme guarantees a minimum payment for all electricity generated by the system, as well as a separate payment for the electricity exported to grid. These payments are in addition to the bill savings made by using the electricity generated on-site. FIT's will change the way householders and communities think about their future energy needs and are likely to greatly improve the pay-back period of the costs of the renewable energy technology.
- 10.3 The scheme covers the following electricity-generating technologies, up to an installation size of 5 Mega Watts:
- Solar electricity (roof mounted or stand alone);
 - Wind turbine (building mounted or free standing);
 - Hydroelectricity;
 - Anaerobic digestion;
 - Micro combined heat and power (limited to a pilot at this stage).

The Government indicated in its response of February 2010 to the summer 2009 consultation on FITs that Biomass CHP is excluded from FITs.

Ways to introduce on-site renewable Energy Generation to a scheme

- 10.4 As stated in 'Sustainability Issue 1', renewable energy technology can be used as part of reaching the Code Level for Sustainable Homes level.
- 10.5 A companion document to this SPD is the 'Developers Guidance note for the 10% renewable energy requirement of the South East Plan policy NRM11'. The Developers Guide includes the following:

¹⁴ Further information can be found at <http://www.energysavingtrust.org.uk/Generate-your-own-energy/Sell-your-own-energy/Feed-in-Tariff-Clean-Energy-Cashback-scheme>

- Introduction and the requirements of Policy NRM11 of the South East Plan;
- Guidance on Improving the energy efficiency;
- Decentralised, renewable or low carbon technologies;
- Required information for the selected technology;
- Calculation summary tables (to incorporate in the Energy Statement):
 - o Calculating total energy demand of development (and 10% requirement)
 - o Calculating total energy from renewable technology
 - o Calculating the percentage from renewable energy

10.6 Developers should therefore consult with the companion document for guidance on decentralised, renewable or low carbon technologies and what associated information should be submitted with a planning application. Sometimes the best solution can be a mix of renewable energy technology. As outlined in paragraphs 1.9 of the Policy NRM11 Developers Guide, it is appreciated that it will be difficult to calculate the 10% energy requirements for outline applications. However, an outline planning application will still need to set out a framework to show how the proposal will achieve the requirements of Policy NRM11. The Council would expect planning applications to have considered the following renewable energy/ low carbon technologies:

Renewable technologies:

Solar thermal (Solar Water Heating)

10.7 Solar water heating systems use heat from the sun to warm domestic hot water. There are two main types of collector, flat plate or evacuated tube.

Photovoltaics (PVs)

10.8 Photovoltaics is one of the easiest renewable energy systems to install and should be considered, where viable. Solar electricity systems capture the sun's energy using photovoltaic (PV) cells. The cells convert the sunlight into electricity, which can be used to run household appliances and lighting.

Wind Turbines

10.9 Wind turbines work by converting the energy of wind into electricity to drive a generator. For these to be effective, the location of the turbine is important. It is important to locate these turbines at a reasonable distance from physical obstructions such as buildings and trees.

Ground Source heating/ cooling

10.10 Ground source heating/ cooling works by extracting solar thermal heat from the ground. A heat pump extracts solar thermal heat from the ground and moves it to an area of lower or higher temperatures. The technology can be used to cool a building during the summer months removing the need for artificial air conditioners.

Air/Water Source Heat Pumps

- 10.11 Air source heat pumps absorb heat from the outside air. An air-to-water system uses the heat to warm water. Heat pumps heat water to a lower temperature than a standard boiler system would, so they are more suitable to underfloor heating systems than radiator systems. An air-to-air system produces warm air which is circulated by fans to heat your home.

Biomass

- 10.12 Biomass technology uses organic materials to generate heat. The most common forms of biomass technology are biomass boilers. Biomass is considered to be carbon neutral as the energy released from biomass on burning is the same as that absorbed during its production.

Energy from water (hydroelectricity/ micro-hydro)

- 10.13 Hydroelectricity systems use running water to turn a turbine which generates electricity. According to research conducted by Thames Valley Energy, there is limited potential to use hydro technology for electricity generation within the Thames Valley.

Low carbon technologies

Combined Heat and Power (CHP)/ District Heating

- 10.14 CHP uses the heat generated from traditional fossil fuel boilers to increase efficiency. The heat can be exported to both residential and non-residential schemes. There are various sizes of CHP systems ranging from single homes to whole districts and towns. Large scale mixed use developments would benefit the most from CHP and/ or district heating systems. District systems can also supply cooling, as well as heating and electricity, to buildings.
- 10.15 Consideration should also be given to setting up community-owned or public-private partnership structures such as Energy Service Companies (ESCO) or Multi-utility Service Companies (MUSCO) to deliver energy. These structures can install, finance and manage community energy systems more efficiently and cheaply and reduce carbon emissions. Further information on ESCO's can be found in the 'Making ESCO's work: Guidance and Advice on Setting Up and Delivering an ESCO'¹⁵ produced by the London Energy Partnership (c/o Greater London Authority) in February 2007.

Permitted Development Rights for Renewable Energy Technologies

- 10.16 In England, changes to permitted development rights for renewable technologies introduced on April 2008 and March 2009 respectively, have lifted the requirements for planning permission for most domestic microgeneration technologies.
- 10.17 The General Permitted Development Order (GPDO), grants rights to carry out certain limited forms of development on the home, without the need to apply for planning permission. The scope of the

¹⁵ This can be viewed at: http://www.lep.org.uk/uploads/lep_making_escos_work.pdf

GPDO in England now extends to the following technologies. Guidance on improving the energy performance of an existing building can be found in Section 9.

Solar PV and solar thermal (roof mounted):

10.18 Permitted unless;

- panels when installed protrude more than 200mm.

Solar PV and solar thermal (stand alone):

10.19 Permitted unless:

- more than 4 metres in height;
- installed less than 5 metres away from any boundary;
- above a maximum area of array of 9m²; or
- situated on a wall within any part of the curtilage of the dwelling house and would be visible from a highway in Conservations Areas.

Micro and small wind

10.20 Due to legal technicalities the current statutory instrument does not cover micro or small wind. Once these issues have been resolved, it is expected that roof mounted and free standing wind turbines will be permitted at detached properties that are not in conservation areas.

Ground source heat pumps:

10.21 Permitted.

Water source heat pumps:

10.22 Permitted.

Air source heat pumps

10.23 Air source heat pumps are in a similar situation to micro wind. Once the legal technicalities have been resolved, it is expected that air source heat pumps will be permitted developments.

Wood burning boilers and stoves, and CHP:

10.24 Permitted unless:

- flue exceeds 1m above the roof height (excluding the chimney);
- installed on the principal elevation and visible from a road in buildings in Conservation Areas.

10.25 Note that the permitted development rights are not extended to Listed Buildings which are covered by other planning regulations.

Potential changes to small scale renewable/ low carbon technologies

10.26 At present only certain small scale renewable/ low carbon technologies are permitted development (subject to certain limitations/conditions) on domestic premises. Permitted development rights currently do not extend to non-domestic premises.

10.27 The Government has consulted¹⁶ on extending permitted development to further small scale renewable / low carbon technologies for domestic premises and also allowing permitted development rights for small scale renewable/ low carbon technologies for non-domestic premises:

On domestic premises (subject to certain limitations/conditions):

- Wind turbines;
- Air source heat pumps.

On non-domestic premises (subject to certain limitations/conditions):

- Wind turbines;
- Air source heat pumps;
- Solar panels;
- Ground and water source heat pumps;
- Flues for biomass systems and combined heat and power systems;
- With regard to wind turbines, air source heat pumps and solar panels, the Government is proposing to be more permissive in terms of granting permitted development rights for Class B2: General Industrial premises.

Agricultural and forestry premises only:

- Structures to house anaerobic digestion systems and biomass boilers; and associated fuel stores;
- Structures to house hydro-turbines (for hydro systems);
- The Government propose to clarify that these structures should be considered to benefit from the same permitted development rights / prior approval procedures as other agricultural and forestry land, by making this explicit in legislation.

10.28 Homeowners can find advice on what alterations can be undertaken without formal planning permission on the Planning Portal website (www.planningportal.gov.uk) – see the Planning Portal Interactive House. Further advice on micro-renewables can be found on the Energy Saving Trust website (www.energysavingtrust.org.uk) and also the Thames Valley Energy website

¹⁶ Permitted development rights for small scale renewable and low carbon energy technologies, and electric vehicle charging infrastructure (Nov 2009)

(www.tvenergy.org). The Energy Saving Trust has micro-generation co-ordinators who may also be able to provide further advice.

Electric Vehicle Charging Points

10.29 The use of alternative fuels, like electricity, can help reduce these emissions. The Climate Committee on Climate Change has set a target of 1.7 million electric/ plug-in hybrid cars by 2020. The Government proposes to introduce a new class to the General Permitted Development Order to permit the installation of infrastructure for charging points within both public and private car parking areas. The emerging MDD DPD may include local requirements for electric vehicle charging point infrastructure.

10.30 The following website can help create a low carbon/ renewable energy system design and explains how it will work:
www.systemdesinger.co.uk

Sustainability Issue 3: On-site decentralised/ renewable/ low carbon Energy Generation

In line with the South East Plan policy NRM11, all developments involving 10 or more dwellings or 1,000m² or more gross non-residential floorspace (major developments) will be expected to secure at least 10% of their expected energy demand from decentralised, renewable or low carbon sources.

Non-residential development of 1000m² criteria applies to all proposals outside use class order C3. This means that nursing homes and residential institutions are included.

See the Council's 'Developers Guidance note for the 10% renewable energy requirement of the South East Plan policy NRM11'.

- An Energy Statement should be submitted with a planning application as part of a wider Sustainability Statement or the Design and Access Statement.
- The Energy Statement should also include detailed information on the selected technology e.g layout plan, floor plans and elevations and visual impact etc.

On-site renewable energy/ low carbon technologies are encouraged on all sizes and types of development. As stated in 'Sustainability Issue 1', renewable energy technology can be used as part of reaching Code for Sustainable Homes levels and BREEAM standards.

Policy NRM11 (of the South East Plan) requirements are not 'in addition' to any requirements of the Code for Sustainable Homes or BREEAM. Unless this is a requirement of the subsequent MDD DPD.

In some situations, decentralised/ renewable/ low carbon energy generation may not be appropriate. Development can deliver on carbon reduction targets without requiring the use of renewable energy.

Resources:

National

- PPS: Planning and Climate Change – Supplement to PPS1
- PPS22: Renewable Energy & its companion guide
- Draft PPS: Planning for a Low Carbon Future in a Changing Climate

Regional

- South East Plan Policies CC2 (Climate Change), CC3 (Resource Use), CC4 (Sustainable Design and Construction), NRM11 (Development Design for Energy Efficiency and Renewable Energy).

Local

- Developers Guidance note for the 10% renewable Energy requirement of the South East Plan policy NRM11
- Core Strategy Policy CP1 (Sustainable Development), CP18-21 (Strategic Development Locations, Appendix 7 (Concept Statements for the SDL's)

Other

- Code for Sustainable Homes
- BREEAM
- Department for Energy and Climate Change
- Energy Saving Trust
- The Renewable Energy Centre

Section 11: Water Resource Management

- 11.1 UKCIP anticipates that global warming will lead to significant changes in rainfall distribution and intensity, with UK properties likely to suffer in the future from water shortages or flood damage. Climate change is predicted to lead to hotter, drier summers, with more erratic rainfall occurring in short storms. Water conservation and energy efficiency should therefore be an increased priority.
- 11.2 Minimising the use of water also ensures the Borough is effectively playing its part in reducing the need for water abstraction which could generate harmful effects upon those Natura 2000 sites within 15km of the Borough. Further information on this issue can be found in the Core Strategy Habitat Regulations Assessment:

www.wokingham.gov.uk

- 11.3 At each level of the Code for Sustainable Homes, minimum standards for water efficiency are required – as to achieve a higher rating against the Code, a higher level of water efficiency must be achieved. The targets are below:

Code Level	Litres per person per day
1	120
2	120
3	105
4	105
5	80
6	80

- 11.4 Sustainability Issue 1 includes an aspirational (non-mandatory) target for residential developments to meet full Code Level 4 or whatever higher Code is mandatory. The Council encourages the internal potable water consumption for Code Level 4, which is 105 litres or less per person per day (for residential developments). The Council may include local water efficiency targets, which are above mandatory regional and national requirements, within the emerging MDD DPD.

Water Saving Devices

- 11.5 Water efficiency measures can be designed into new buildings, as well as being retrofitted into existing ones. Examples of such devices are:
- Dual Flush/low flush toilets: water regulations require that new toilets have a maximum flush of only 6 litres, although best practice and dual flush toilets can have a flush volume of as low as 4 and 2 litres;
 - Waterless urinals: standard urinals use approximately 6-10 litres of water to flush. Buildings with high occupancy such as offices and schools benefit quickly from the installation of waterless urinals;
 - Spray/low flush/self closing taps: restrict and automatically close off flow are cost effective and minimise waste;
 - Efficient white goods: more efficient appliances help save water and often cost the same as less efficient ones.

- 11.6 Rainwater harvesting offers a sustainable solution to water shortages. It is essentially the collection of water that would otherwise end up in the drains, into the ground, or lost through evaporation. A rainwater harvesting system can be as simple as a water butt which collects water from a drainpipe. Larger units can be stored underground and can be used to supply toilets, outside taps and washing machines. This water is not suitable for drinking, however it does minimise water wastage.
- 11.7 While the use of water butts and efficiency measures are capable of significantly reducing domestic water needs, many commercial buildings and schools would benefit from larger scale rainwater harvesting schemes.
- 11.8 Systems should always be connected to the main systems to ensure that water is available if stored water levels become too low.

Reclaimed water

- 11.9 There are two types of reclaimed water – Greywater and Blackwater:
- *Greywater* is water that has been used in wash basins, showers and baths which can be treated and disinfected on site and used again for uses such as flushing the toilet and watering the garden. It is not suitable for cooking, drinking, or washing.
 - *Blackwater* is water that is used for flushing the toilet and washing up. This can be reclaimed by passing it through a system that breaks down solids and purifies the water ready for reuse. Treated blackwater is not suitable for drinking, washing, cooking or food production. This also has high maintenance costs and can be impractical on small or confined sites. It is, however, more suitable for large developments.

Sustainable Landscape Design

- 11.10 Landscaping may require regular watering during periods of hotter or drier weather, which places a greater demand on mains water supply. This demand can be reduced by:
- Using drought resistant plants;
 - Use of water retaining mulches;
 - Avoid over dense planting;
 - Use of rainwater harvesting and reclaimed water. Rainwater harvesting, is a way of reducing discharge volumes from a site, and thus decreasing flood risk arising from the development. It should be noted, however, that at present the Environment Agency does not consider this as a calculable way of reducing volumes;
 - Automatic drip irrigation systems;
 - Close system fountains;
 - Plant selection taking into account the site's context, such as soil composition.

Sustainability Issue 4: Water Resource Management

All developments are expected to include water efficiency measures to reduce overall water consumption, in line with the requirements of the mandatory Code for Sustainable Homes and BREEAM levels. Applicants are encouraged to utilise water saving device designs and incorporate water reclaiming systems.

Aspirational (non-mandatory) Residential Development targets: All residential development involving the creation of a new dwelling (including replacement dwellings where this involves substantial, or complete demolition of the existing house) are encouraged to achieve internal potable water consumption of **105 litres** or less per person, per day (Code for Sustainable Homes Level 4). The calculation should be based on the water efficiency calculation for dwellings.

Aspirational (non-mandatory) Non-Residential Development targets: All developments involving the replacement or creation of new non-residential floorspace are encouraged to exceed statutory requirements. Savings should be calculated against benchmarks provided by CIRIA (Construction Industry Research and Information Association) and the BREEAM water calculator.

Developments with an existing or proposed garden or other green area should look to include provision for rainwater harvesting for irrigation purposes.

Resources:

National:

- PPS: Planning and Climate Change – Supplement to PPS1
- PPS25: Development and Flood Risk
- Draft PPS: Planning for a Low Carbon Future in a Changing Climate

Regional:

- South East Plan Policies CC2 (Climate Change), CC3 (Resource Use), CC4 (Sustainable Design and Construction), NRM11 (Sustainable Water Resources and Groundwater Quality), Policy NRM2 (Water Quality), Policy NRM3 (Strategic Water Resources Development).

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP3 (General Principles for Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)

Other:

- Code for Sustainable Homes
- BREEAM

Section 12: Flood Risk Management

- 12.1 Flooding can result not only in costly damage to property, but can also pose a risk to life and livelihood. It is essential that future development is planned carefully, steering it away from areas that are most at risk from flooding and ensuring that it does not exacerbate existing flooding problems. Policy CP1 (Sustainable Development) criteria 9) of the adopted Core Strategy states that planning permission will be granted for development proposals that avoid increasing (and where possible reduce) risks of or from all forms of flooding (including groundwater).
- 12.2 Wokingham Borough is subdivided into three flood zones:
- Flood Zone 1 (Low Probability): Land assessed as having a less than 1 in 1000 annual probability of flooding in any year;
 - Flood Zone 2 (Medium Probability): Land assessed as having between a 1 in 100 and 1 in 1000 annual probability of flooding in any year);
 - Flood Zone 3 (High Probability/ Functional Floodplain): Land assessed as having a 1 in 100 or greater annual probability of flooding in any year.
- 12.3 According to the borough's most recent flood data supplied (September 2009 – supplied by the Environment Agency), 3.3% of dwellings in the borough fell within Flood Zone 2 and 1.54% were in flood zone 3. Government guidance stipulates that any development in sensitive flood areas must be mitigated against, and the specific function of the development should accord with the guidelines set out in PPS25 (Development and Flood Risk), Appendix D.
- 12.4 Planning applications for development proposals of 1 hectare or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3 should be accompanied by a Flood Risk Assessment (FRA). A surface water drainage strategy is a requirement within the FRA for all sites over 1 hectare, and particularly those in Flood Zone 1.

Wokingham Borough Strategic Flood Risk Assessment

- 12.5 The Council has produced a Strategic Flood Risk Assessment (SFRA) (July 2007) for the borough. This is a strategic investigation that is intended to provide an overview of flood risk throughout the Borough, providing the framework within which future planning decisions, including development applications, are to be reviewed. The SFRA identifies zones of risk to help in the allocation of land for development, for Development Management decision making purposes, to develop emergency plans and highlight possible requirements that may be needed in a more detailed FRA.
- 12.6 It is essential that future development is planned carefully, in accordance with PPS25 (and the accompanying Practice Guide), the Flood Direction 2007, Flood and Water Management Bill and the Wokingham Borough SFRA, steering it away from areas that are most at risk from flooding and ensuring that it does not exacerbate existing flooding problems either on site or elsewhere. A planning solution to flood risk management should be sought wherever possible. At the planning

application stage, the developer/ applicant is responsible for preparing a detailed site based Flood Risk Assessment or Surface Water Drainage Strategy depending upon the location and scale of development.

- 12.7 The SFRA (at paragraph 5.59) makes clear that it is essential that developers consider the possible change in flood risk over the lifetime of the development because of climate change. The SFRA emphasises that the potential impacts of climate change will affect not only the risk of flooding posed to property as a result of river flooding, but it will also potentially increase the frequency and intensity of localised storms over the Borough. This may exacerbate localised drainage problems. It is important therefore that both the site based detailed FRA and the Surface Water Drainage Strategy prepared by the developer at the planning application stage take due consideration of climate change.

Flood Resilience and Resistance

- 12.8 Careful building design can help mitigate the potential impacts of flooding. Flood resilient buildings are designed to reduce the consequences of flooding, and facilitate recovery from the effects of flooding sooner than conventional buildings. There are essentially two types – dry and wet proofing. Dry proofing utilises water resistant materials for floors, walls and fixtures, as well as carefully locating electrical controls, cables and appliances. The layout of a property can also ensure that living accommodation and essential facilities that are provided are above non-habitable spaces. Wet proofing includes raising floor levels above those expected of predicted flood water and the use of flood barrier designs of boundary walls and fences. In areas of flood risk the Environment Agency sometimes condition that fences and walls allow the free drainage of water. The Environment Agency cautions against the encouragement of using these structures as flood barriers.

20) Sustainable Drainage Systems (SUDs)

- 12.9 Sustainable Drainage Systems (SUDs) can be used to minimise the risk and impact of flooding. New development should be designed to be resilient to flooding as appropriate. There should be a nil detriment situation, the run-off from the site (post development) must not increase and where possible be reduced.
- 12.10 The Council encourages the use of SUDs, which act as an alternative way to drainage in that they attempt to reduce the total amount, flow and rate of surface water run-off. They also aim to mimic the natural drainage patterns of a site.
- 12.11 SUDs can be designed into all development types and sizes. There are a myriad of types and techniques depending on the topography, geology, hydrology and soil conditions in the area. SUDs can improve the quality of water discharging into the environment. SUDs can encourage natural attenuation processes such as filtration, settlement and microbial degradation. This is particularly beneficial when the water may be more contaminated i.e. surface water from parking areas or roadways.

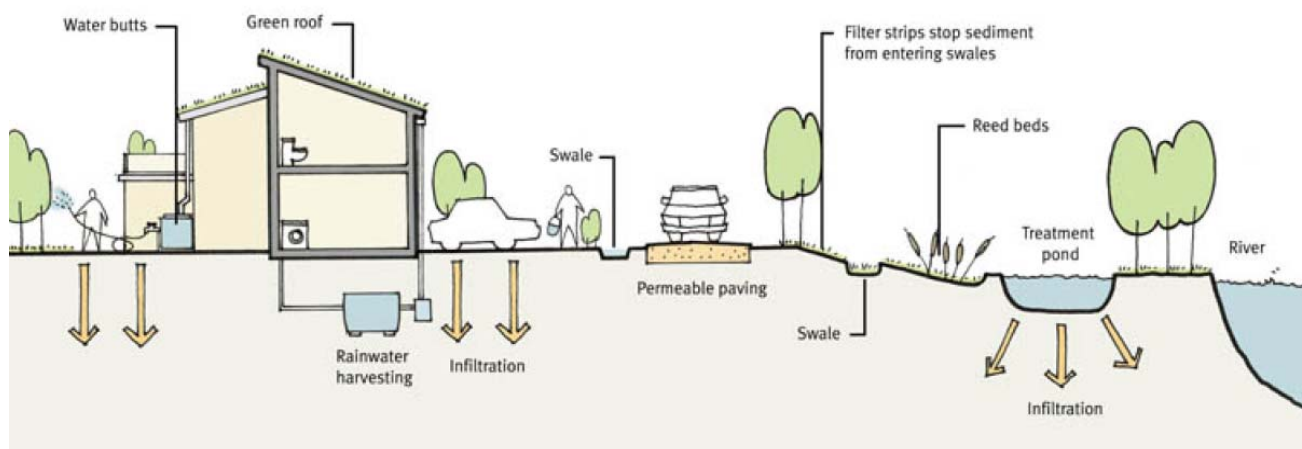
12.12 However, for them to be integrated holistically into the development, a number of stages need to occur before construction can commence:

- It is a requirement of PPS25 that all sites over 1 hectare in Flood Zone 1 are to be accompanied by a surface water drainage strategy;
- Early discussion with stakeholders – the design team should be aware that SUDs need to be considered. SUDs are not appropriate for use in all areas, for example areas with high ground water levels or clay soils, which do not allow free drainage;
- Ground and groundwater considerations – these may limit the techniques used
- It is important to allow adequate surface space for SUDs;
- Disposal of surface water to ground, where this is the best environmental option or only feasible option due to other constraints, should conform to current best practice for designing SUDs, in accordance with government guidance. General advice on these methods may be obtained from the [Environment Agency](#) or on the [CIRIA](#) (Construction Industry Research and Information Association) website. These systems are an important tool in preventing the pollution of groundwater from 'diffuse' sources and ensuring compliance with the objectives of the Water Framework Directive;
- Surface Water Drainage Strategy – to ensure that drainage impacts are understood.
- Consideration of the interaction with foul water sewers. Where there are no separate foul and surface water sewers on a development, the discharge of SUDs into sewers is unacceptable, as it can lead to an exacerbated risk of flooding;
- Infiltration systems should be constructed as shallow as practicable and should, under no circumstances, intersect the water table. Where the surface water is potentially contaminated (e.g. road / car park run-off), this is particularly important and it is essential to maintain the maximum distance possible between the base of the soakaway and the water table to allow the attenuation and biodegradation of pollutants;
- No infiltration systems shall be constructed in contaminated ground, unless an appropriate risk assessment has shown that the disposal complies with the [Groundwater Regulations 2009](#) or site-specific environmental quality standards agreed with the Environment Agency;
- Consideration of the long term maintenance requirements. Allocation of responsibility is required early on in the development process.

12.13 Without maintenance arrangements, SUDs can become less effective over time. The Flood and Water Management Bill received Royal Assent on the 08 April 2010. It introduces new requirements on the responsibility and management of SUDs. Further information on the Bill can be found on the DEFRA website at:

<http://www.defra.gov.uk>

Figure 4: Various SUDs (Source: CIRIA (Construction Industry Research and Information Association))



12.15 Further information on SUDs can be found in the Interim Code of Practice for Sustainable Drainage Systems (July 2004) produced by the Office of the Deputy Prime Minister (ODPM) and DEFRA.

Permeable Surfaces

12.16 Permeability is key to allowing water to drain adequately into the sub soils. Permeable surfaces allow water to pass through them into the underlying ground. This can be either through the material itself, or through joints between blocks. Examples of surfaces that are permeable include gravel and concrete/asphalt designed with a system of voids. Due to the differences in surfaces, water can either drain into the ground, or be stored in a reservoir for reuse, infiltration or delayed discharge. Permeable paving is becoming ever more common, and is relatively easy to incorporate into development. Permeable paving should also be considered for use on roads and parking areas.

12.17 From October 2008, the Government introduced changes to the General Permitted Development Order, making the hard surfacing of more than 5m² of domestic front gardens permitted development only where the surface in question is rendered permeable. Therefore, hard surfacing of more than 5m² of domestic front gardens requires planning permission. Use of traditional materials, such as impermeable concrete, where there was no facility in place to ensure permeability, requires an application for planning permission. CLG has produced 'Guidance on the permeable surfacing of front gardens (July 2009)'. The purpose of the guidance is to advise householders of the options for achieving permeability and meeting the condition for permitted development status. It can be viewed at:

<http://www.communities.gov.uk/publications/planningandbuilding/pavingfrontgardens>

Green Roofs

12.18 Green roofs typically involve the growing of plants on roof tops. In order for plants to grow, a series of layers that retain water is used as a base, so reducing water run off. They can also reduce heat loss from a building by creating extra insulation, help remove CO₂ from the atmosphere, and helps provide

a wildlife habitat. Green roofs should be considered on all buildings where appropriate. See paragraphs 13.6 to 13.8 for further guidance on green roofs.

Infiltration

12.19 Infiltration devices enhance the natural capacity of the ground to store and drain water, thus reducing surface run-off. They essentially allow storage for run-off to occur over a longer period of time, whilst increasing the surface area and slowing the flow of water from the site. Limitations occur where the soil is not very permeable, the water table is shallow or the groundwater under the site may be put at risk. Different types are:

- ***Infiltration trenches, filter drains and soakaways*** – these all store water below the ground allowing infiltration to occur over a long period of time. An infiltration trench is a shallow, excavated trench that has been backfilled with stone to create an underground reservoir. Storm water flowing into the trench gradually infiltrates the subsoil. The long-term performance is enhanced by the inclusion of a filter strip, gully or slump pit to remove excess solids at the inflow. A filter drain/infiltration basin is a trench with a permeable material, often with a perforated pipe in the base of the trench to assist drainage. This can be used to store and conduct water, but may also be designed to permit infiltration, filter drains are more commonly used for road drainage.
- ***Swales and Filter Strips*** – Swales and filter strips are grassed depressions which lead surface run-off from impermeable areas to storage or discharge system. Swales are shallow channels, whilst filter strips are slowing areas of ground. They work by allowing rainwater to run into sheets through the grass, slowing and filtering the flow. This removes polluting solids through filtration and sedimentation. The grass also helps to absorb nutrients. Where necessary, swales can be lined below the soil to protect groundwater sources or, if a permeable membrane is used the rate of infiltration in highly permeable soils can be slowed. Swales and filter strips are often integrated into the development site through open spaces and road verges. The use of local wild grasses and flower species can help introduce visual interest and provide a wildlife habitat.
- ***Basins, Ponds and Wetlands*** – These are areas which store water run-off on the surface. Basins are dry areas which only store water following rainfall. These provide opportunities for creating an attractive environment. Basins can be incorporated into an open space across the site, while ponds can be landscaped to form a variety of wildlife habitats.

Sustainability Issue 5: Flood Risk Management

New development should be designed to be resilient to flooding as appropriate and should also consider the possible change in flood risk over the lifetime of the development because of climate change. All sources of flood risk should be considered.

Policy requirements:

All developments expected to comply with the Environment Agency's Flood Risk standing advice, the Council's SFRA, PPS25 (and Practice Guide) – including the PPS25 Sequential and/or Exception Test where required – and the Flood and Water Management Bill. If no development within flood zone 3 then there will be no need to pass the exception test.

Flood Risk Assessments:

Developments requiring the submission of a FRA are required to demonstrate how the design has addressed flood risk arising from the development. Planning applications for development proposals of 1 hectare or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3 should be accompanied by a FRA (as required by PPS25).

Take due consideration of climate change.

Surface Water Drainage Strategy :

Developments not required to submit a FRA (sites of less than 1 hectare within flood zone 1), are expected to produce a Surface Water Drainage Strategy in compliance with PPS25. This will involve the introduction of SUDs techniques.

Take due consideration of climate change.

SUDs:

There should be a nil detriment situation, the run-off from the site (post development) must not increase and where possible be reduced. SUDs are expected to be used where appropriate and must take due account of groundwater and geological conditions.

Green Roofs

Green roofs should be considered on all buildings where appropriate.

Resources:

National:

- PPS: Planning and Climate Change – Supplement to PPS1
- PPS25: Development and Flood Risk and Practice Guide
- Draft PPS: Planning for a Low Carbon Future in a Changing Climate
- Flood and Water Management Bill

Regional:

- South East Plan Policies CC2 (Climate Change), NRM4 (Sustainable Flood Risk Management)

Local:

- Wokingham Borough SFRA
- Core Strategy Policy CP1 (Sustainable Development), CP3 (General Principles for Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)

Other:

- Code for Sustainable Homes
- BREEAM
- Interim Code of Practice for Sustainable Drainage Systems (ODPM and DEFRA, July 2004)

Section 13: Biodiversity

- 13.1 Wokingham Borough is treasured for its landscape aesthetics and the biodiversity it supports. Developers need to be aware of this and consider how their proposals can fit into this. The most sensitive sites/ species should be avoided. Sensitive sites are unlikely to be suitable in principle for development.
- 13.2 The south of the Borough is affected by the Natura 2000 designation of protected species. The zones of the Thames Basin Heath Special Protection Area (SPA) roughly cover the area to the south of the M4. The SPA requires special mitigation measures and the Council has an agreed strategy to help developers overcome it. For more information, please contact the Council directly¹⁷.
- 13.3 Biodiversity is a key indicator of the health of the environment and represents the variety of biological life and activity of plants and animals. Development does not need to have a negative effect – in fact, the built environment can make a valuable contribution to supporting the biodiversity with both gardens and buildings supporting a range of plants, invertebrates, birds and mammals. Development offers an opportunity to create new habitats and to incorporate beneficial biodiversity features as part of good design, such as through green and brown roofs, nests and bat boxes, window boxes and appropriate planting.
- 13.4 Almost all sites have some biodiversity value. This should be identified and opportunities taken for integrating suitable on-site habitats into new buildings and their grounds considered at an early stage in the design process. Specific measures will depend to some extent on the characteristics of the site and the form of the intended development. It must also be remembered that some species and habitats have legal protection. The Council will also ensure that the Environment Agency requirements for a buffer zone adjacent to watercourses will be highlighted to developers.
- 13.5 All development proposals should incorporate the following issues where and when appropriate:
- Conservation and enhancement of existing habitats, during and after construction;
 - Green corridors and planned planting strategies of native species;
 - Landscape design.

Green Roofs

- 13.6 Green roofs can address many of the challenges facing residential dwellings. Life costing analysis indicates that green roofs can cost the same or less than conventional roofing and can be an investment which provides a significant number of social, environmental and economic benefits¹⁸. While any form of planting could be created as part of a green roof, technical and financial constraints generally mean that grasses, mosses and sedum are the most appropriate species.
- 13.7 There are three main types of green roofs

¹⁷ Please contact the Council's Land Use and Transport Team on 0118 974 6478

¹⁸ GreenSpec - <http://www.greenspec.co.uk/html/materials/greenroof1.html>

- **Intensive:** These are normally roof gardens, and are equivalent to gardens found at ground level. Construction of these occurs over a concrete deck which is normally accessible. This form of green roof is the most expensive as it places a great emphasis on structural demand. It is also high maintenance.
- **Simple Intensive:** Vegetated lawns or ground covering plants which require regular maintenance including irrigation, fertilising and cutting. This form of green roof is less expensive than intensive forms, and is designed to be overlooked rather than accessed.
- **Extensive:** Vegetation normally consists of mosses, herbs and grasses – all species intended to be self sustaining with no irrigation and minimum maintenance. This form of green roof can be the least costly to provide. They can have minimal structural demand on the building with the design not being accessed except for basic maintenance and the use of only a thick substrate.

13.8 Green roofs can also help to reduce surface water run-off, reduce heat loss from buildings during the winter and help prevent overheating in the summer months, they help remove CO₂ and other pollutants from the atmosphere, and reduce the heat island effect by reducing surrounding air temperatures.

Brown Roofs

13.9 This involves covering the roof of a building with a thin layer of crushed rubble and gravel, ideally from the development site itself. They are intended to be colonised by spiders and insects, providing biodiversity interest itself as well as a feeding site for insectivorous birds.

Nest boxes and bat boxes

13.10 Building these (in suitable locations) helps to provide greater biodiversity for various species. Existing and proposed habitats should be considered in determining appropriate actions – especially when considering planning applications. In locating nest boxes, consideration should be given to the level of shelter and shade, for example, unsheltered positioned nest boxes should face between north and east to avoid strong sunlight and the wettest winds.

Green Facades

13.11 Planting on flanking/façade walls has a number of biodiversity benefits, including the provision of additional wildlife habitats. As with green roofs, planting on walls can reduce heat loss during the winter and can help maintain a comfortable internal temperature during summer months. Lichens, grasses, flowering and climbing plants are all suitable for green facades. Planting should be designed so that safe access to the wall surface and any services such as down pipes, guttering and flues are capable of being maintained.

13.12 Construction of green roofs, brown roofs and green facades – issues to consider:

- Urban design and aesthetics;
- Building Structure (including weight load of wet soils and plants);
- Waterproofing;

- Insulation;
- Drainage;
- Irrigation;
- Growing Medium (for example, soil depth);
- Species;
- Access (including maintenance);
- Cost;
- Long term maintenance.

Trees, Hedges and Buffer Strips

13.13 Landscapes which are rich in biodiversity will create an attractive setting for a development and will improve its ecological value. The Council will encourage opportunities to be taken to retain and enhance existing habitats in addition to areas of new landscaping. Consideration should be given to the use of locally native and wildlife friendly species in order to maximise biodiversity benefits. Policy CP7 identifies that “development which affects biodiversity interests, will only be permitted where the need for the development outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and that:

1. Mitigation measures can be put in place to prevent damaging impacts; or
2. Appropriate compensation measures to offset the scale and kind of losses are provided”.

13.14 The retention of existing and the inclusion of new hedgerows and trees should be considered where they will not unduly conflict with passive solar gain, surveillance and sight lines for roads or the use of the development.

13.15 Planning proposals should seek sufficient width of space for hedgerows both those to be retained and new planting. Existing hedgerows should be protected at the planting stage and during development.

13.16 The nature of the sub-soil should also be considered, particularly clay sub-soils which naturally swell and shrink with seasonal variations. Where possible, buffer strips should be used to provide a transition between different habitat types. It must also be remembered that indiscriminate planting of trees and shrubs can cause serious damage to the public sewer system. Trees and shrubs should avoid being planted over the route of existing sewers.

Sustainability Issue 6: Biodiversity

The Council will encourage opportunities to be taken to retain and enhance existing habitats in addition to areas of new landscaping. Where a significant impact on biodiversity is likely or probable, an ecological assessment will be required. Further guidance can be found in Policy CP7 (Biodiversity) and CP8 (Thames Basin Heaths Special Protection Area) of the adopted Core Strategy.

Sustainability Statements are required to provide details of how the proposal has addressed existing biodiversity value. It should also show where biodiversity requirements have been designed in, not only for adequate mitigation (where required) but also to show where appropriate thought has been made to enhancements across the site. In such circumstances, where an EIA is required, the Sustainability Statement need not repeat the relevant EIA chapter on biodiversity.

Resources:

National:

- PPS9: Biological and Geological Conservation
- Draft PPS: Planning for a Natural and Healthy Environment

Regional:

- South East Plan Policies CC8 (Green Infrastructure), NRM5 (Conservation and Improvement of Biodiversity), NRM7 (Woodlands).

Local:

- Local Plan saved Policy WBE4 (Landscape and Planting), WBE5 (Trees and New Development), WBE6 (Green Routes)
- Core Strategy Policy CP1 (Sustainable Development), CP7 (Biodiversity), CP8 (Thames Basin Heaths SPA), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)

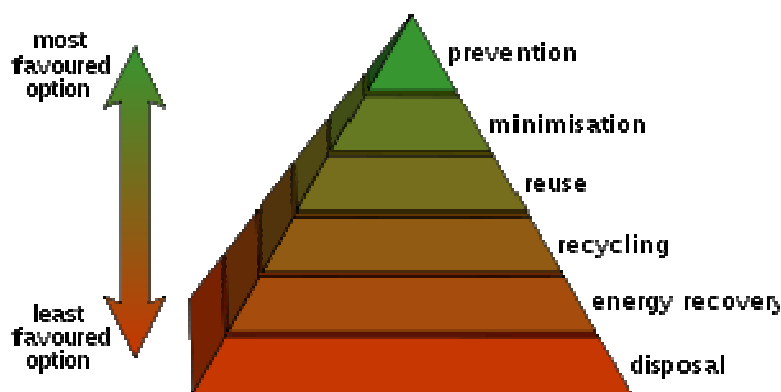
Other:

- Code for Sustainable Homes
- BREEAM
- Thames Valley Environmental Records Centre
- Natural England
- Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
- Royal Society for the Protection of Birds

Section 14: Waste, Recycling and Composting Facilities

- 14.1 Minimisation and effective management of waste, during and post construction, results in a wide range of benefits. For example, the reduction in demand on resources, and a minimisation in the risks/impacts associated.
- 14.2 In 2008/9, Wokingham Borough Council's residents and businesses produced 74,453 tonnes of waste, of which 60% of this was landfill waste, 39% recycled and 1% incinerated (source: The Berkshire Unitary Authorities' Joint Minerals and Waste Annual Monitoring Report 2009). Generally, the landfill figures for Wokingham Borough have decreased over the last few years, with recycling percentages increasing accordingly. This is despite a steady increase in the Borough's population.
- 14.3 The council currently operates a kerbside waste and recycling scheme for its residents as part of the Re3 programme with Reading and Bracknell Forest Borough Councils.
- 14.4 The sorting and reuse of waste at the source is the most efficient treatment method. Green waste should generally be composted on-site, where viable, and used to maintain areas of landscaping or on the wider grounds.
- 14.5 According to Government policy and sustainability principles, the following waste hierarchy should be followed (with priority given to the most favoured option)

Figure 5: Waste Hierarchy (Source: www.wasteonline.org.uk)



- 14.6 Development proposals should consider the following issues:
- General sustainable energy from waste (such as biomass);
 - Waste, recycling and composting storage;
 - Design for enhanced and maximum sustainability;
 - Minimisation of construction and demolition waste (See latter section on Sustainable Construction);
 - Re-use of materials.

14.7 The design of a building is critical to ensuring that sustainable waste management can be achieved.

Integration of sustainable waste management principles into design include:

- Design buildings for reuse (such as making buildings adaptable, and robust);
- Pre-fabricated components, which minimise waste on site;
- Standardised components, which are readily available;
- Specification – reduce waste by only purchasing and specifying what is needed for the project. For this, careful measurements are required;
- Flexibility of design – ensure that a building can be reused more readily and has a longer lifespan.

Storage and composting Facilities

14.8 Individual or shared waste sorting and recycling should be designed into a development from the outset. Secure and discreet recycling and bins should be integrated into the building or site fabric. Whilst this will apply to all new dwellings, internal storage is particularly important in apartment developments where the main collection facility may be some distance away. Provision needs to take account of storage needs identified for current residential collections and meeting the future higher recycling standards.

14.9 In order for adequate provisions to be made for waste and recycling facilities, developers should comply with British Standards 5906. Care should be attributed to ensure that facilities are available for disabled residents.

14.10 Composting is a natural process which converts organic waste into an earth like mass by means of bacteria and micro-organisms. Compost can be used to improve the soil quality and nutrient value of gardens. Home composting facilities should be incorporated discreetly into all new residential developments to minimise the transportation of green waste to landfill. Houses should be provided with individual facilities located where they can be easily accessed from the kitchen. Communal facilities can be provided for flatted developments. An Environmental Impact Study of Food Waste Disposers for Herefordshire Council and Worcestershire County Council (June 2007)¹⁹, at Section 6, found that sink macerators (food waste disposers) provide a convenient and hygienic means for householders to separate kitchen food waste at source; they divert it from municipal solid waste landfill. There is no reason that sink macerators (food waste disposers) should discourage home composting since sink macerators are not designed to take garden waste and indeed exclusion of cooked kitchen food waste from home composting might encourage home composting.

¹⁹ This can be viewed at http://www.wastemissionimpossible.org.uk/pdf/FWD_EIS_V8_P1.pdf

Sustainability Issue 7: Waste, recycling and composting

All developments are expected to provide, or have access to, appropriate facilities for the storage and collection of waste.

Developments providing a garden or other green areas will be expected to include provision for on site composting of green waste. Where on-site composting is considered inappropriate, regard should be given to alternatives such as communal collection facilities and sink macerators.

Consideration should also be given to the frequency of waste collection in the borough when determining storage sizes.

Resources:

National:

- PPS10: Planning for Sustainable Waste Management

Regional:

- South East Plan Policies CC2 (Climate Change), CC4 (Sustainable Design and Construction), W1 (Waste Reduction), W2 (Sustainable Design, Construction and Demolition).

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP18-21 (Strategic Development Locations, Appendix 7 (Concept Statements for the SDL's)
- Waste Local Plan for Berkshire/ Emerging Minerals and Waste LDF for Berkshire

Other:

- Code for Sustainable Homes
- BREEAM

Section 15: Sustainable Transport

- 15.1 New development should help to create places that connect with each other in a sustainable manner, providing the right conditions to encourage walking, cycling and the use of public transport. Proposals should provide choice and opportunity for sustainable transport. Wokingham borough has one of the highest car ownership rates of any English local authority. It is therefore vital that all proposals will achieve sustainable development and that they are assessed for their impacts in generating travel demand. This assessment should take account of the cumulative impact of proposals in the area. To help achieve sustainable development, proposals likely to generate significant demands for travel movements should be located in areas with best access to existing good services. This means that people can have the widest range of choice in selecting transport modes and help reduce the use of the private car. Further guidance on transport matters can be found in the Council's Core Strategy and Local Transport Plan. The Development Brief (Masterplan) SPD's for the SDL's will include specific guidance and requirements on access and movement matters.
- 15.2 Development proposals should consider:
- Safe and easy access to public transport provision;
 - Provision of footpaths, pavements and road crossings for pedestrians;
 - Facilitating the ease of cycling as a transport option;
 - Provision for home working;
 - Services access;
 - Cycle provision and Cycling Lanes; and
 - Travel Plans.

Safe & easy access to public transport

- 15.3 The Core Strategy policy CP6 (Managing Travel Demand) and CP10 (Improvements to the Strategic Transport Network) highlight that new improvements will be made throughout the borough by 2026. The enhancement of public transport provision could include increased frequencies and improved integration between bus and rail routes together with the provision of new stops and routes. Consequently, assessments of future likely travel patterns from a new development should feed into the adjustment of public transport services. In all developments, safe access needs to be promoted in line with policy CP6 and CP10 of the Core Strategy.

Provision of footpaths, pavements and road crossings for pedestrians

- 15.4 Safe access and pedestrian routes should be identified early on in a development. Footpaths offer the opportunity to forego using a car and also promote health, safety and well-being. Routes should be connected to existing paths. By generating adequate footfall at all times on well overlooked and well integrated routes, the potential for underused routes (such as alleyways and short cuts) which have associated issues of anti-social behaviour and crime should be avoided.

Provision for Home Working

- 15.5 As the number of people able to work from home increases, it is important to ensure that adequate provision is built into the design of developments. This is to ensure that appropriate infrastructure (such as broadband at appropriate speeds) is in place to allow for adequate provision of services. New homes also need sufficient internal space for such activities.

Service Access

- 15.6 Adequate provision for services must be provided for, in compliance with Approved Document B of the Building Regulations. Suitable parking facilities should be provided to ensure emergency access is maintained and to avoid restrictions of public highways.

Cyclist facilities

- 15.7 The transport sector currently accounts for over a quarter of the UK's CO₂ emissions. It is the only sector of the economy from which emissions have raised consistently since 1990, largely due to increases in car ownership, longer distances being travelled and a greater proportion of local trips being undertaken by car. Some 80% of CO₂ emissions from the transport sector emanate from road transport.
- 15.8 Cycling accounts for less than 3% of trips made in the UK, compared to around 20% in other European countries. In the 2001 census, only 1.94% of all residents in the Borough commuted to work using a bicycle.
- 15.9 Provision for cyclists is essential to support the development of cycling as a practical transport choice. Residential developments should be designed to ensure that the occupants can store and conveniently access bicycles. For individual dwellings, this may constitute a shed or garage, however in flatted developments communal parking areas should include secure and covered cycle parking for both residents and visitors.
- 15.10 Commercial developments should be designed to incorporate showers, changing facilities and lockers in addition to secure and covered cycle parking to enable employees to travel to work by bicycle. Secure and covered cycle parking and associated facilities should also be incorporated into the design for residential properties and other appropriate locations such as leisure facilities and retail hubs.

Cycle Lanes

- 15.11 Cycle lanes or tracks are an important part of the overall traffic management. To develop a safe, convenient efficient and attractive transport infrastructure that encourages cycling, all types of development should consider the incorporation of cycle lanes, including new links, where changes to the highway network are being made. The Council will give careful design of drainage systems to avoid gullies within the cycle lane. Where cycle tracks are part of the highway network they should be surfaced to highway standards, but where leisure routes are provided there may be other factors which would require a softer design approach.

15.12 The cycle network needs to be considered in the round with both on street and off road cycle facilities working to provide a successful network. On street facilities are likely to work best on the quieter parts of the overall road network but even where these are linked together they do not always provide a direct route that is clear and attractive to cyclists. The street network within these areas does not normally have clear giveway markings to highlight priorities so cyclists may not be able to assume they will be given priority by other road users at junctions. A more formal off-road route may give greater clarity in some situations and there is a need to find the best solution for each situation.

Travel Plans

15.13 Most appropriate for large scale developments and should cover all properties on a site with the aim of encouraging and facilitating better environmental travel choices amongst residents, workers and visitors. It could involve provision of cycle maps, public transport information, car sharing and/or pooling schemes and the provision of charging points for electric vehicles and retail outlets for biofuels. The Council is producing additional guidance on this matter.

Sustainability Issue 8: Cyclist Facilities and parking

All relevant residential and non-residential developments are expected to make appropriate provision or have access to secure and covered cycle storage for both occupiers and visitors and cyclist changing/drying facilities. Where appropriate, provision should also be made for the movement of cyclists through the site.

Provision for occupiers should be made in accordance with the Appendix 8 of the Wokingham District Local Plan (March 2004). The Council's parking standards may be updated through the Council's LDF.

Sustainability statements submitted with a planning application will be expected to provide details of how the proposal has addressed cycle facilities including details of cyclist movement and how this relates to the provision of secure parking and changing/drying facilities.

Resources:

National:

- PPG13 (Transport)

Regional:

- South East Plan Policies CC2 (Climate Change), T4 (Parking)

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP3 (General Principles for Development), CP6 (Managing Travel Demand), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)
- Local Transport Plan

Other:

- Code for Sustainable Homes
- BREEAM

Section 16: Health, Safety and Well-being

- 16.1 The quality of the environment is important in all developments to maintain and improve the quality of lives for residents, as well as the environment. In many cases this has led to the redevelopment of brownfield land, increased development densities and the use of land close to major roads.

Air pollution

- 16.2 The principle source of air pollution in the borough is from vehicle emissions. An Air Quality Management Area (AQMA) has been declared along the M4 motorway as it passes through the borough.
- 16.3 Although the main determinant of travel is location and the relationship between places, which is outside the remit of this SPD, measures can be taken at site level to reduce air quality impacts arising from the development and impacting upon the development.
- 16.4 Developers should take into account existing sources of air pollution and overall ambient air pollution levels for both current exposure and that which may reasonably be expected in the foreseeable future. Where measures to address air quality are required the priority should be given to design-out impacts. Remaining impacts should be addressed through mitigation and offsetting.
- 16.5 Measures that can help address air quality impacts include:
- **Estate Layout:** the layout of the estate or development should allow for easy and safe access from the surrounding area by walking, cycling and public transport. Impacts on the wider transport network should also be considered.
 - **Travel Planning:** trip generating activities should encourage greater walking, cycling and use of public transport through travel plans.
 - **Internal Layout:** the site should be arranged to separate sources of pollution and sensitive activities.
 - **Car Parking and Movement:** the level of car parking can have an influence on the way users access the site. The creation of pollution traps should be avoided.
 - **Landscape:** dense vegetation such as groups of trees and hedges can act as barriers to deflect air pollution from a fixed source. The overall layout of the development should allow for any landscaping barrier to mature and be managed without causing conflict with buildings.
 - **Energy Efficiency:** Reducing the emissions produced from the development can be achieved through efficiency measures and the use of decentralised, renewable or low carbon technologies.

- 16.6 Further information can be found in Appendix 3 (Air Quality Considerations for New Development).

Noise Pollution

- 16.7 Noise can have a significant effect on the environment and on the quality of life of local residents. There are numerous sources of noise including road and rail traffic, construction activity, machinery and noise from neighbours.

- 16.8 The impact of noise particularly on residential development should be considered carefully at the design stage. Developers should consider existing sources of noise and ambient noise levels from both the current exposure and that which may be reasonably expected in the foreseeable future. In addition to external noise sources, the transmission of noise between adjoining users or buildings, such as flats or terraced houses should be minimised using appropriate construction techniques and design layout.
- 16.9 In seeking to minimise the impact of noise developers should consider the following measures from the earliest stages of project design:
- The use of high performance acoustic double glazing and acoustic ventilation;
 - Separate noise generating uses such as pubs and clubs as much as possible from noise sensitive developments;
 - Identify potential noise sources such as pumps, air conditioning units, delivery activity, vehicle movements etc and seek to minimise their impact by careful design, layout and the incorporation of noise reduction measures;
 - Ensure that less noise sensitive buildings or rooms are located in such a way that they act as screens between noise sources and quiet areas;
 - Avoid potentially conflicting uses such as locating bedrooms directly below the living room of another flat;
 - Use of buildings as barriers to protect amenity areas and gardens from noise sources such as busy roads;
 - Use acoustic noise bunds, where appropriate.

Light pollution

- 16.10 Light pollution occurs when light is misdirected or poorly controlled. Unnecessary light can cause glare, be intrusive, waste energy and disrupt wildlife. These issues must be balanced with public safety and crime prevention benefits of lighting. Lighting may also contribute to the overall design of a building and the spaces it interacts with, increasing its visual impact.
- 16.11 Light fittings should be carefully designed and located so as to minimise light pollution, to avoid light nuisance to neighbouring properties and to create a safer more attractive environment. Measures to reduce light pollution include:
- Provision of lighting only where necessary;
 - Directing light downward, minimising the upward spread of light beyond horizontal;
 - Ensuring the main beam angle of lights - directed towards a potential observer - is below 70 degrees;
 - Uniform lighting, avoiding bright and dark spots which interfere with visibility and can cause glare; and
 - Ensuring lighting systems are energy efficient, by considering energy demand and automated controls.

16.12 The regeneration and redevelopment of previously developed sites is central to ensuring sustainable development. Understanding the contamination status of a site is integral to its sustainable design and subsequent construction. Regard needs to be had for the degree of contamination relative to the proposed land use, and appropriate remediation planned where necessary.

16.13 Measures that will enable developers to meet their obligations in respect of land affected by contamination are:

- Early identification of potential contamination and appropriate risk assessment to inform the design layout, having regard to any required remediation;
- Contamination risk assessments undertaken in accordance with current good practice, and in line with the model procedures for the management of contaminated land (CLR11);
- It is expected that dig and dump remediation will only be acceptable as a last resort, and where evidence that other solutions have been evaluated. The assessment of remedial options should look in terms of suitability and also sustainability; and
- Awareness that even naturally occurring contamination may require clean up for development of the most sensitive land uses, such as residential housing to be suitable for use.

Surface-water and groundwater

16.14 It is essential that the quality of surface and groundwater is protected and improved wherever possible. Issues such as air and soil pollution (land contamination) can also apply to the protection of the environment as well as human health.

Sustainability Issue 9: Air, Noise and Light Pollution and Land Affected By Contamination

Sustainability Statements submitted with a planning application will be expected to provide evidence of how the proposal has addressed the issues of air, noise and light pollution to minimise their impact. It should also provide evidence of the measures that will enable developers to meet their obligations in respect of land affected by contamination

Where significant impacts from pollution to or from the proposed development is likely or probable, an assessment of existing levels of pollution will be required to be submitted alongside the planning application.

Resources:

National:

- PPS23 (Planning and Pollution Control)
- PPG24 (Planning and Noise)

Regional:

- South East Plan Policies NRM9 (Air Quality), NRM10 (Noise)

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP3 (General Principles for Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)
- Council's Environment Health Department

Other:

- Code for Sustainable Homes and BREEAM

Section 17: Sustainable Construction

- 17.1 Whilst the sustainability performance of a building can be markedly improved through its design, the construction process can also have a significant effect on environmental impact. The Council will require all development proposals to contribute towards reducing emissions to land, water and air during the construction process and lifetime of the development.
- 17.2 This section provides guidance on how to increase sustainability through the use of materials and construction arrangements.

Responsibly Sourced and Recycled Materials

- 17.3 The materials used during the construction phase of buildings can have a vast impact on the sustainability of a development. This can range from the building materials used, to the way that the materials are transported to the site. Using sustainably sourced and recycled materials can make a major contribution to sustainable development by slowing the demand for non-renewable resources, using less energy in producing and transporting products, and reducing environmental impacts.

Recycling and reusing materials:

- 17.4 The proportion of materials and components that can be reused and recycled at the end of a building's life should be maximised and where possible, materials from old buildings that are suitable should be utilised. Developers should specify the proportion of reclaimed or recycled materials to be used in the proposed development, with a minimum target of 25-30% of roads, pavements, public spaces and car parks to be from locally reclaimed or recycled materials in line with good practice.

Lifecycle Impact of construction materials:

- 17.5 The choice of construction material has wide implications for the sustainability of a development. Construction products should be chosen which are environmentally friendly, of low embodied energy which can be recycled or reclaimed when buildings come to the end of their lives. The use of whole life cycle assessments has increased in recent years with manufacturers now able to provide information on the wider environmental impacts associated with products.
- 17.6 It is possible to establish the life cycle impacts of productions through the Green Guide and the BRE publication 'Methodology for Environmental Profiles of Construction Materials, Components, and Buildings'. The Green Guide applies a summary from A+ to E, with A+ rated specifications having the lowest overall environmental impacts²⁰.

Responsible use of Timber

- 17.7 The use of timber is significant and rising in the building industry. Although timber is a renewable resource it can only be considered such when from a sustainable source. Developers should ensure that any timber comes from certified sources, with a minimum target of 75% expected to be achieved

²⁰ Impact is assessed over a 60 year period and includes considerations of repair and maintenance, and impacts relating to assumed dismantling/demolition.

in line with good practice (as set by SEEDA Sustainability Checklist Question 6.3). All other timber should be from a known and identified source with a sustainable purchasing policy.

Local Sourcing

- 17.8 Local sourcing of products and equipment has a number of environmental benefits particularly reducing the distance of transportation and associated energy costs. The use of locally distinctive materials can also help maintain local character. The definition of 'locally sourced' may vary between materials, however it is generally accepted that this is usually defined as within 35 miles of a site (SEEDA Sustainability Checklist).

Sustainability Issue 10: Responsibly sourced and Recycled Materials

The use of responsibly sourced and recycled materials is encouraged. The level of consideration and use of a sustainable supply and materials which have the least environmental impact will be a material consideration in the determination of planning applications. Development should seek to use locally sourced materials – within 35 miles of the site. The onus is the developer to justify why locally sourced materials cannot be used.

Developers should specify the proportion of reclaimed or recycled materials to be used in the proposed development, with a minimum target of 25-30% of roads, pavements, public spaces and car parks to be from locally reclaimed or recycled materials in line with good practice.

Developers should ensure that any timber comes from certified sources, with a minimum target of 75% expected to be achieved in line with good practice. All other timber should be from a known and identified source with a sustainable purchasing policy.

Resources:

National:

- PPS1 (Delivering Sustainable Development)
- PPS: Planning and Climate Change – Supplement to PPS1
- Draft PPS: Planning for a Low Carbon Future in a Changing Climate

Regional:

- South East Plan Policies CC3 (Resource Use), CC4 (Sustainable Design and Construction), M1 (Sustainable Construction)

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)

Other:

- The Code for Sustainable homes
- BREEAM
- SEEDA Sustainability Checklist questions 6.2 to 6.6

Site Waste Management Plans

- 17.9 The Council will require all development to contribute towards reducing and recycling construction waste. Construction and demolition waste amounts to 40% of all waste in landfill. Construction waste is a valuable resource which can be reused or provide an income.

17.10 A Site Waste Management Plan (SWMP) is a tool for managing site construction waste. They seek to improve the resource efficiency by promoting the economic reuse of construction materials and methods which allow waste to be minimised, recycled or recovered. SWMP are now required for all construction projects with an estimated cost of greater than £300,000 excluding VAT²¹. The SWMP must:

- Describe each waste type expected to be produced in the course of the project;
- Estimate the quantity of each type expected to be produced;
- Identify the waste management action proposed for each different waste type, including reuse, recycling, recovery and disposal.

17.11 Where possible, quality buildings should be reused in any development. However, where demolition is necessary, there should be a selective programme which allows the most valuable or potentially contaminating materials and fittings to be removed safely for later re-use or processing before demolition starts.

17.12 The deconstruction, or dismantling, of a building is preferable to wholesale demolition. This is the most efficient practice for separating materials for re-use, recycling and disposal. It can be more cost-effective than wholesale demolition when taking into account the reduction of landfill disposal costs and the revenue from the sale of salvaged materials.

Sustainability Issue 11: Site Waste Management Plans

The Council will require all development to contribute towards reducing and recycling construction waste.

Developments/construction projects with an estimated cost of greater than £300,000 excluding VAT (Site Waste Management Regulations 2008), will be expected to put in place a Site Waste Management Plan in order to minimise the production of construction waste and maximise reuse and recycling.

Resources:

National:

- PPS10 (Planning for Sustainable Waste Management)
- Non-statutory guidance for Site Waste Management Plans (DEFRA, April 2008)

Regional:

- South East Plan Policies CC4 (Sustainable Design and Construction), W1 (Waste Reduction), W2 (Sustainable Design, Construction and Demolition), M1 (Sustainable Construction)

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)
- Waste Local Plan for Berkshire/ Emerging Minerals and Waste LDF for Berkshire

Other:

- The Code for Sustainable homes
- BREEAM
- SEEDA Sustainability Checklist

²¹ The Site Waste Management Plans Regulations 2008

- 17.13 Construction practices have a large impact on local residents and the environment. Dust, noise, vibration, dirty roads, increased traffic, parking programmes, water pollution and soil contamination are all often recorded. The Council uses suitable planning conditions (for relevant size and types of development) to restrict the hours of construction.
- 17.14 The 'Considerate Construction Scheme' is a UK certified scheme that encourages the considerate management of construction sites. It has been operational since 1997 and seeks to ensure that construction sites are managed in an environmentally, socially considerate and accountable manner.
- 17.15 In seeking to minimise emissions to land, air and water disturbance from construction, developers should consider the following best practice measures:
- Identify potential sources of dust and other air pollution as early as possible from the earliest design stages;
 - Locating activities likely to generate air pollution or dust away from sensitive areas such as hospitals, schools, housing and wildlife sites where possible;
 - Ensuring earthworks are sealed or replanted as soon as possible;
 - Taking account of prevailing winds and sensitive land-uses in locating stockpiles of construction materials;
 - Minimising dust generation by dampening and sweeping construction sites, access roads and dust generating activities such as stone cutting as required;
 - Accommodating wheel washer facilities where necessary;
 - Using low emission vehicles and plant equipment, including generators;
 - Efficient and well maintained equipment to minimise energy and emissions;
 - Making use of techniques such as framed construction and prefabricated components in order to minimise construction noise and disruption on site.

Sustainability Issue 12: Construction Pollution

All developments involving 10 or more dwellings or 1,000m² or more gross non-residential floorspace (major development) will be encouraged to implement a Site Construction Environmental Management Plan and operate under the Considerate Constructors Scheme.

Resources:

National:

- PPS23: Planning and Pollution Control

Regional:

- South East Plan Policies NRM2 (Water Quality), NRM9 (Air Quality), NRM10 (Noise)

Local:

- Core Strategy Policy CP1 (Sustainable Development), CP18-21 (Strategic Development Locations), Appendix 7 (Concept Statements for the SDL's)

Other:

- Code for Sustainable Homes
- BREEAM

Appendix 1: Detailed Policy Context

A1.1 The following provides additional information on the policy framework at the national, regional and local level:

NATIONAL POLICY

UK Sustainable Development Strategy

A1.2 The UK Sustainable Development Strategy (2005) places sustainable development at the heart of the land use planning system and at the core of new planning guidance.

Low Carbon Transition Plan

A1.3 The Government Low Carbon Transition Plan (White Paper) was published in July 2009. The plan provides a route map to the 2050 target in the Climate Change Act and sets out how the UK will achieve the 34 per cent cut in emissions on 1990 levels by 2020. The Plan confirmed that PPS1 and PPS22 will be merged and a new combined PPS will be produced. To facilitate the deployment of renewables the Government is setting up the Office for Renewable Energy Deployment (ORED). ORED will be working with key organisations and stakeholders to remove barriers to deployment and ensure renewables are delivered in the right places at the right time.

A1.4 The Low Carbon Transition Plan can be accessed at:
www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

Renewable Energy Directive

A1.5 In December 2008, the European Union agreed a new Directive on the use of energy from renewable sources. The overall target is broken down into 27 varying targets for each of the member states. The Renewable Energy Directive (RED) will set an EU-wide target for 20% of all energy (including heat and transport) to be provided by renewable sources by 2020. The UK contribution to this target is 15% of all energy from renewable sources. The Directive also specifies a minimum trajectory to be met by each member state en route to reaching its 2020 target.

Climate Change Act 2008

A1.6 Subsequently, the Climate Change Act 2008 puts into statute the government's target to reduce CO₂ emissions through domestic and international action to 80% below 1990 levels by 2050.

A1.7 The Energy Act 2008 introduced powers for a Feed-In Tariff and the Renewable Heat Incentive aimed at driving an increase in renewable energy generating capacity.

Warm Homes, Greener Homes Strategy

A1.8 With around one quarter of UK emissions coming from energy used in homes the 'Warm Homes, Greener Homes Strategy' is aimed at cutting emissions from the UK's homes by 29 per cent by 2020. The strategy will help people make smarter use of energy in homes, making it easier to take action and reduce bills.

A1.9 The strategy will be implemented in a three stage plan:

- To insulate 6 million homes by the end of 2011;
- To have insulated all practical lofts and cavity walls by 2015;
- To have offered up to 7 million eco upgrades by 2020; all homes to have smart meters.

Household Energy Management Strategy

A1.10 The Household Energy Management Strategy was published in March 2010, and placed a greater emphasis on district heating schemes and identified an essential role for planning in facilitating delivery of these and other community scale energy schemes.

Energy Performance of Buildings Directive

A1.11 The Energy Performance of Buildings Directive was adopted by the European Union in December 2002. Its aim is to lead to substantial increases in investments in energy efficiency measures within buildings. The methods by which this should be achieved are through facilitating requirements to measure energy use in buildings by increasing standards, and by introducing measurements and inspections. The Directive is implemented in the UK through, among other measures, the use of revised Building Regulations (2006).

PPS 1: Delivering Sustainable Development

A1.12 PPS1 sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system. PPS1 stresses the efficient use of resources and states that local planning authorities should ensure Development Plans contribute to global sustainability by addressing the causes and potential impacts of climate change. This should be through policies which reduce energy use and emissions, promote the development of renewable energy resources, and take climate change impacts into account in the location and design of development.

A1.13 In addition, PPS1 states that Development Plan policies should take account of environmental issues such as: the management of waste in ways that protect the environment and human health, including producing less waste and using it as a resource wherever possible.

PPS: Planning and Climate Change – Supplement to Planning Policy PPS1

A1.14 This PPS Supplement sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and be resilient to the climate change which is now accepted as inevitable.

A1.15 The PPS Supplement includes advice on the preparation of LDDs. It asserts that planning authorities should be concerned with the environmental performance of new development and encourage the delivery of sustainable buildings. A proposed list of criteria is set out in the PPS which would take into account climate change, such as incorporating passive solar design, providing a proportion of renewable energy on site and SUDs.

Draft PPS (Planning for a Low Carbon Future in a Changing Climate (March 2010))

A1.16 This consultation document brings together the PPS: Planning and Climate Change (Supplement to PPS1) and PPS22: Renewable Energy into a new draft PPS on Planning for a Low Carbon Future in a Changing Climate. This new PPS will replace the PPS1 Supplement and PPS22 and it is proposed that it will become a consolidated supplement to PPS 1. This will support and provide an overarching framework for PPS 25 on Development and Flood Risk and emerging planning policies on green infrastructure (to be consulted on separately). This PPS will provide an opportunity to ensure that the planning system is fully integrated with other changes that have taken place since 2007, including:

- The changing Building Regulations and the Zero Carbon homes initiative;
- Increased focus on district heating as a means to reduce carbon emissions;
- Increased understudying of adaptation issues following the publication of the UKCIP 2009 projections.

PPS9 (Biodiversity and Geological Conservation)

A1.17 PPS9 sets out the Government's planning policies on protection of biodiversity and geological conservation through the planning system. PPS9 states that local planning authorities should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; and to biodiversity and geological interests within the wider environment. A Guide to Good Practice supports this PPS.

PPS10 (Planning for Sustainable Waste Management)

A1.18 PPS10 sets out requirements for delivering sustainable development through driving waste management up the waste hierarchy. This states that the design and layout of new development should support sustainable waste management. A Companion Guide supports this PPS.

PPS22 (Renewable Energy)

A1.19 PPS22 sets out the Government's planning policies on land use and renewable energy. PPS22 states that LDDs should contain policies to promote and encourage the development of renewable energy sources, the wider benefit of such and the design and planning implications of incorporating renewable energy onto new development schemes. Furthermore, PPS22 says that LDDs may include policies that require a percentage of the energy in new residential, commercial or industrial developments to come from on-site renewable energy developments. A Companion Guide supports this PPS.

PPS23 (Pollution Control)

A1.20 PPS23 requires planning documents to limit and, where possible reduce greenhouse gas emissions through improved energy efficiency; minimise the emission of pollutants including light, air, noise, soil and water and make suitable provision for the drainage of surface water through SUDs.

PPG24 (Planning and Noise)

A1.21 PPG24 guides local authorities on the use of their planning powers to minimise the adverse impact of noise. It outlines the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities which generate noise.

PPS25 (Development and Flood Risk)

A1.22 PPS25 aims to reduce flood risk to and arising from new development through location, layout and design. SUDS should be considered within developments and incorporated if necessary. A Practice Guide (updated December 2009) supports this PPS.

A1.23 ***The PPS's (and Good Practice/ Companion documents) can be viewed on the Communities and Local Government website:***

www.communities.gov.uk

A1.26 The Flooding Direction (2007) requires local planning authorities to notify the Secretary of State of any application for major development in a flood risk area, where it is minded to grant permission against advice on flood risk grounds from the Environment Agency.

REGIONAL POLICY

Regional Planning Policy (South East Plan)

A1.27 The South East Plan was adopted in May 2009 and is the Regional Spatial Strategy for the South East covering the period to 2026. The Plan is a key tool to achieve more sustainable development, helping to protect the environment and combat climate change. The Adopted South East Plan (May 2009) proposes a number of policies that cover a wide spectrum of sustainability issues, these include CC1 (Sustainable Development), CC2 (Climate Change), CC3 (Resource Use), CC4 (Sustainable Design and Construction), NRM1 (Sustainable Water Resources and Groundwater Quality), NRM5 (Conservation and Improvement of Biodiversity), NRM11 (Development Design for Energy Efficiency and Renewable Energy), NRM12 (Combined Heat and Power), NRM15 (Location of Renewable Energy Development), W1 (Waste Reduction), W2 (Sustainable Design, Construction and Demolition), W11 (Biomass), M1 (Sustainable Construction) and WCBV4 (The Blackwater Valley).

Extract from the Adopted Wokingham Borough Core Strategy (paragraph numbers refer to those within the Core Strategy):

Delivering a sustainable borough

CP1 – Sustainable development

Planning permission will be granted for development proposals that:

- 1) Maintain or enhance the high quality of the environment;
- 2) Minimise the emission of pollutants into the wider environment;
- 3) Limit any adverse effects on water quality (including ground water);
- 4) Ensure the provision of adequate drainage;
- 5) Minimise the consumption and use of resources and provide for recycling;
- 6) Incorporate facilities for recycling of water and waste to help reduce per capita water consumption;
- 7) Avoid areas of best and most versatile agricultural land;
- 8) Avoid areas where pollution (including noise) may impact upon the amenity of future occupiers;
- 9) Avoid increasing (and where possible reduce) risks of or from all forms of flooding (including from groundwater);
- 10) Provide attractive, functional, accessible, safe, secure and adaptable schemes;
- 11) Demonstrate how they support opportunities for reducing the need to travel, particularly by private car in line with CP6; and
- 12) Contribute towards the goal of reaching zero-carbon developments as soon as possible by:
 - a) Including appropriate on-site renewable energy features; and
 - b) Minimising energy and water consumption by measures including the use of appropriate layout and orientation, building form, design and construction, and design to take account of microclimate so as to minimise carbon dioxide emissions through giving careful consideration to how all aspects of development form.

- 4.2 Development within the borough should enhance the overall sustainability of the area through minimising impact on the environment, including access to facilities as detailed under CP9. As is recognised in both the Community Strategy and the Spatial Objectives, the community values the high quality of the environment within the borough. It is therefore important that any proposals for development do not harm this or adversely affect the quality of life of residents, workers and visitors. The Council's Landscape Character Assessment highlights the areas of the borough with landscapes which should be protected or enhanced by development. The Council's Borough Design Guide SPD (July 2007) provides guidance on how schemes can reflect the quality of the borough's character. Village Design Statements provide similar guidance for smaller areas.
- 4.3 Proposals that enhance the quality of the environment of the borough could include those that improve the openness of the areas outside of development limits defined under Policy CP9. Landowners and developers have the primary responsibility for protecting their land against the risk of flooding. They are also responsible for managing the drainage of their land such that they do not adversely affect adjoining properties. It is essential that future development is planned carefully, in accordance with PP25 (and the accompanying Good Practice Guide), the Flood Direction 2007 and the Wokingham Borough Strategic Flood Risk Assessment, steering it away from areas that are most at risk from flooding and ensuring that it does not exacerbate existing flooding problems. A planning solution to flood risk management should be sought wherever possible. At the planning application stage, the developer/ applicant is responsible for preparing a detailed site based Flood Risk Assessment or Drainage Impact Assessment depending upon the location and scale of development. It is essential that the developer/ applicant consider the possible change in flood risk over the lifetime of the development because of climate change. Sustainable Urban Drainage Systems can be used to minimise the risk and impact of flooding. Developers will be expected to provide and fund effective SUDS maintenance regimes. New development should be designed to be resilient to flooding as appropriate.
- 4.4 The completed Wokingham Borough SFRA highlights where the impacts of flooding (including from groundwater) and surface water runoff (both on and off site) will need to be addressed. The SFRA is a strategic document which identifies zones of risk to help in the allocation of land for development, for Development Management decision making purposes, to develop emergency plans and highlight possible requirements that may be needed in a more detailed FRA. Proposals need to include

measures to reduce water consumption so that the impacts of water abstraction upon Natura 2000 sites as explained in the Appropriate Assessment are avoided. The minimisation of impacts on air quality will also help address the impacts of development on Natura 2000 sites as highlighted in the Appropriate Assessment.

- 4.5 Further guidance on flooding, drainage and water supply for development proposals will be included in the future Sustainable Development SPD.
- 4.6 Proposals for new development, including the construction of new buildings and the redevelopment and refurbishment of existing building stock, will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and effectively and take account of the effects of climate change. Delivering on sustainable energy can bring significant social, environmental and economic benefits to Wokingham Borough.
- 4.6 As a result of the rapidly changing situation the Council is taking a flexible approach to the provision of on-site renewables and other sustainable forms of development dealt with in CP1.
- 4.8 The Council will expect developers to use the Buildings Regulations, the Code for Sustainable Homes and other national guidance (at the time of application) to demonstrate that in order to achieve reductions in carbon emissions, a percentage of energy used in developments be provided by on site renewable energy installations. The Council will seek over and above the minimum national or regional targets (SEP Policy NRM11) through the Managing Development Delivery DPD.
- 4.9 Development for the generation of energy from renewable resources will be permitted unless there are unacceptable locational or other impacts that could not be outweighed by wider environmental, social and economic or other benefits. Overall, the Council wants to achieve zero-carbon development as soon as possible. The Government target for new homes is to do so by 2016. The regional target for reducing carbon dioxide emissions is detailed in SEP Policy CC2.
- 4.10 It is recognised that small-scale projects make a valuable contribution to the overall outputs of renewable energy and therefore help meet renewable energy targets both locally and nationally. Only where a developer can satisfy the Council why the higher target cannot be achieved will a lower target be provided.
- 4.11 The Council will need to make provision for implementing the renewable energy generation targets and strategy set out in the SEP (Policies NRM11-NRM16).
- 4.12 The speed of progress towards these aims will be kept under review in future local development documents, having regard to Government and regional policy, developments in technology and science, and the impact of viability of development. Technology is changing and new guidance is coming forward from various sources, Government policy is still emerging.
- 4.13 The policy will be delivered through:
 - a) Preparation of the Managing Development Delivery DPD and a SPD on Sustainable Development;
 - b) Development control and building control;
 - c) Private and public sector development – particularly through implementation of emerging good practice;
 - d) Close working with other agencies and utilities including the Environment Agency and water utilities, particularly in relation to pollution control, flooding and water conservation, efficiency and recycling measures.
- 4.14 The community, Government and regional policy (PPG24 & SEP Policy NRM10 respectively) recognise the need for proposals to avoid areas of noise. Within the borough, noise issues arise in a variety of locations including alongside the major roads (M4 & A329(M)/A3290) and the railway lines within the Strategic Transport Network (see paragraph 4.56). Proposals should have regard to the advice in PPG24 concerning the suitability of different locations (based on noise exposure levels) for a variety of activities and the Air Quality Management Areas of the borough. The LAA includes targets for dealing with local concerns about anti-social behaviours and crime. Initiatives such as 'Secured by Design' can make a contribution to this.

Appendix 2: Summary of Design and Construction Codes

Code for Sustainable Homes

- A2.1 In December 2006, the Government launched the Code for Sustainable Homes (CfSH) as a replacement for the Ecohomes standard. The CfSH can be viewed at: <http://www.communities.gov.uk/planningandbuilding/theenvironment/codesustainable1>
- A2.2 The Code for Sustainable Homes: Technical guide - May 2009 Version 2 can be found at: <http://www.communities.gov.uk/publications/planningandbuilding/codeguide>
- A2.3 EcoHomes 2006 will continue to be used for refurbished housing (existing buildings to residential use) in England – further information can be found at <http://www.breeam.org/page.jsp?id=21>. The CfSH is a national standard for key elements of design and construction which affect the sustainability of a new home. The CfSH covers nine sustainable design principles and uses a sustainability rating system indicated by 'stars', to communicate the overall sustainability performance of a dwelling.
- A2.4 A home can achieve a sustainability rating from one (*) to six (*****) stars depending on the extent to which it has achieved the Code Standards. One star (*) is the entry level just above the level of Building Regulations; and six stars (*****) is the highest level achievable reflecting exemplar development in sustainability terms.
- A2.5 The levels of the Code indicate the direction of future Building Regulations. This allows industry to build to specific levels with confidence, developing experience and expertise they can use when new revisions to Building Regulations come into force. Code Level 3 (a 25 per cent improvement on current Building Regulations) is to become the new standard for Building Regulations in October 2010.
- A2.6 New build affordable housing (as from 2008) funded by the Housing Corporation is required to reach Code Level 3. Since 2008, it is mandatory for all new homes to be rated against the Code. The requirement to have **a rating** against the Code **does not** make it mandatory to build a Code home or to have each new home assessed against the Code. It does however mean that all buyers of new homes be given clear information about the sustainability of the new home. A house builder can do this in one of two ways:
- they can chose to build a Code home, have their home assessed against the Code and provide the home buyer with a Code certificate stating the star rating the home has achieved;
 - or, they can chose to build to current building regulations standards, not to pay for an assessment and instead download a free nil-rated certificate of non-assessment (also referred to as a nil-rating) to provide to the home buyer.
- A2.7 The table below provides further information on the CfSH timetable. From 2010, the Energy Saving Trust will be promoting the higher energy performance requirements of the Code, notably Level 4.

The Affordable Housing Viability Study (June 2008) undertaken by Levvels on behalf of Wokingham Borough Council assumed homes would be built to full Code Level 4.

The CfSH timetable

CfSH Level	Carbon improvement as compared to Part L (Building Regulations 2006)	Date	Comment
3	25%	2010	Current EST 'Best Practice'. Broadly similar standard to Eco Homes 'Very Good' Level
4	44%	2013	Current exemplary performance. Will be EST 'Best Practice' from 2010.
6	A 'zero carbon' home	2016	Zero carbon emissions for the dwelling and high performance across all environmental categories.

A2.8 The Energy Saving Trust has published guides that provide technical guidance on designing and building new homes that meet the energy requirements of the different Code for Sustainable Homes levels. These guides can be viewed at:

<http://www.energysavingtrust.org.uk/business/Business/Housing-professionals/Publications>

A2.9 A similar set of energy efficiency standards for commercial development may be introduced by the Government requiring zero carbon development by 2019.

Non-residential - BREEAM

A2.10 Building Research Establishment's Environmental Assessment Method (BREEAM) is used to assess the environmental performance of both new and existing buildings. BREEAM Buildings can be used to assess the environmental performance of any type of building (new and existing). Standard versions exist for common building types (such as Offices, Retail, Industrial, Healthcare²² and Education) and less common building types can be assessed against tailored criteria under the Bespoke BREEAM version. The BREEAM scheme covers nine categories in total and scores them against 5 different ratings (pass, good, very good, excellent and outstanding).

A2.11 At the current time, the best practice standards set for commercial development are the BREEAM 'very good' or 'excellent' standards. Further information on BREEAM can be found at www.breeam.org.

Mixed-use developments

A2.12 Where a development combines both residential and non-residential development the applicant is advised to consult the Building Research Establishment (BRE – www.bre.co.uk) who will draw up a bespoke assessment which will incorporate both the residential and non-residential elements.

²² As of 1st of July 2008, the Department of Health require, as part of the Outline of Business Case approval, that all new builds achieve an Excellent and all refurbishments achieve a Very Good rating under BREEAM Healthcare. Further information is available at <http://www.breeam.org/page.jsp?id=105>

Appendix 3: Air Quality Considerations for New Development

A3.1 Introduction

A3.1.1 The state of the air we breathe is a cause for concern as poor air quality is widely recognised as being damaging to health and quality of life. This guidance document reflects one of the Council's key objectives²³ - that of a cleaner and greener local environment.

A3.1.2 New development may, lead to emissions to atmosphere that may have a detrimental effect upon air quality or the location of a particular development. It may also lead to the increase or introduction of public exposure. The Council must take this into account when assessing planning applications.

A3.1.3 This guidance supplements existing and emerging planning policies.

A3.1.4 To conform with section 84 (2) of the Environment Act 1995 the Council has published a draft Air Quality Action Plan which contains a number of initiatives which should, amongst other things, help reduce air pollution and work towards achieving the relevant air quality standards and objectives.

A3.1.5 The objectives of this guidance are to:

- highlight the existing policy framework relating to air quality;
- emphasise the importance of air quality as a material planning consideration;
- identify those circumstances where an Air Quality Assessment would be required to accompany a development proposal;
- provide technical guidance relating to the provision of an Air Quality Assessment; and
- offer guidance on Borough-wide or site specific measures which would help achieve air quality objectives.

²³ WBC Corporate Plan 2008-2018

A3.2 The Policy Framework and Air Quality as a material Planning Consideration

National Air Quality Strategy

A3.2.1 The Environment Act 1995 required the Government to prepare a National Air Quality Strategy (NAQS) which sets out air quality standards and objectives for specified pollutants and which outlines measures to be taken by local authorities to improve air quality. The Council has a duty to periodically review and assess current and future air quality in the Borough against the national air quality objectives.

A3.2.2 The NAQS sets out targets for seven pollutants which local authorities are obliged to meet. These pollutants are:

- Nitrogen Dioxide
- Fine Particles (PM₁₀)
- Carbon Monoxide
- Sulphur Dioxide
- Benzene
- 1,3-butadiene
- Lead

A3.2.3 The 2000 Air Quality Regulations set objectives for those seven pollutants which should be achieved by various dates from the end of 2003 to the end of 2008, depending on the pollutant (further objectives have been adopted for the year 2010 through to 2015). In Wokingham Borough it was predicted that the annual mean air quality objective for nitrogen dioxide, which is primarily associated with vehicle emissions, was unlikely to be met. Initially the Council declared an Air Quality Management Area (AQMA) in September 2001. Further monitoring, review and assessment resulted in a revised AQMA being declared in May 2004.

A3.2.4 In May 2004 as a result of further monitoring, review and assessment the Council formally re-declared its 'Air Quality Management Area' (AQMA 2004). A copy of the official Order is available on the Council's web site (www.wokingham.gov.uk).

Planning Policy - Central Government Policy

A3.2.5 The Government's original National Air Quality Strategy published in 1997 identified the planning system as one of the key methods for providing improvements in UK air quality.

The new Air quality strategy for England Wales, Scotland and Northern Ireland published in July 2007 re-iterates the role of the planning system, The Defra Policy Guidance²⁴ (LAQM.PG(03) (chapter 7 - Air Quality and land use planning) states that any air quality consideration which relates to the use and development of the land is capable of being a material consideration and this must be determined on a case by case basis. The 'weight' that which can be given to air quality relative to other material considerations will vary in different circumstances.

A3.2.6 PPS23 (Planning and Pollution Control) advises that *"any consideration of the quality of air and potential impacts on health is capable of being a material planning consideration in so far as it arises or may arise from or may affect any land use."* This statement also advises that planning authorities should have sufficient information on which to base their development control decisions. Planning Authorities should also make it clear what information they will require in order to reach a decision.

Planning Policy – The South East Plan

A3.2.7 Policy NRM 9 (Air Quality) of the South East Plan states that local authority "strategies, plans, programmes and planning proposals should contribute to sustaining the current downward trend in air pollution in the region". This will include seeking improvements in air quality so that there is a significant reduction in the number of days of medium and high air pollution by 2026. Local development documents and development management can help to achieve improvements in local air quality through:

- ensuring consistency with Air Quality Management Plans;
- reducing the environmental impacts of transport, congestion management, and support the use of cleaner transport fuels;
- mitigating the impact of development and reduce exposure to poor air quality through design, particularly for residential development in areas which already, or are likely to, exceed national air quality objectives;
- encouraging the use of best practice during construction activities to reduce the levels of dust and other pollutants; and
- assessing the potential impacts of new development and increased traffic levels on internationally designated nature conservation sites, and adopt avoidance and mitigation measures to address these impacts.

Planning Policy –Wokingham Borough Core Strategy

A3.2.8 The Core Strategy replaces a number of policies within the Wokingham District Local Plan. Core Strategy Policy CP1 (Sustainable Development), seeks to ensure that development proposals should minimise the emission of pollutants into the wider environment.

²⁴ Local Air Quality Management – Policy Guidance LAQM.PG(03), Defra 2003

Planning Considerations

A3.2.9 Although any air quality consideration that relates to land use can be a material planning consideration, air quality is likely to be a *significant* consideration where:

- the application would conflict with the proposals in Wokingham Borough Council's Air Quality strategy;
- the application relates to development within the existing AQMA;
- the application relates to areas adjacent to the AQMA, or the application could affect the existing AQMA; or
- the application could result in air quality poor enough to breach one or more of the air quality objectives; or
- the application could result in relevant exposure in an area of poor air quality which is not already an AQMA as pre-existing relevant exposure does not exist.

The following section provides further information on air quality assessments.

A3.3 Air Quality Assessments

A3.3.1 An air quality assessment is a study of the effects of a development on air quality, undertaken using an approach that is robust and appropriate for the scale of the likely impacts. Developers will normally be required to submit an air quality assessment for an application where the impact on air quality is likely to be significant. The National Society for Clean Air (NSCA) document, *Development Control: Planning for Air Quality*²⁵ offers further advice on significance criteria, and the Council will have regard to these criteria (as listed below) when assessing an application proposal. Developments will require an air quality assessment where:

- significant change in air quality is expected or anticipated;
- the physical characteristics of the proposal and/or changes to traffic flow predicted will affect air quality e.g. industrial processes permitted under the PPC or waste management licensing regime;
- proposals that will result in increased congestion, a change in peak traffic flows or a change in vehicle speed;
- proposals that will significantly alter the traffic composition e.g. increase in the proportion of HGVs;
- proposals that include new car parking e.g. >300 spaces or an increase in current parking provision by 25% and above;

²⁵ NSCA - *Development Control: Planning for Air Quality* NSCA Updated 2006

- developments located in or which may affect sensitive areas or areas of poor air quality (including AQMAs);
- introduction of new exposure close to existing sources of air pollutants, including road traffic, industrial operations etc;
- Potential impacts from construction on nearby residents; and
- Developments that would give rise to significant dust emissions in areas where people and/or commercial activities would be exposed. (See Sustainability Issue 12: Construction Pollution).

The Content of Air Quality Assessments for Planning Applications

A3.3.2 An air quality impact assessment should clearly indicate the likely change in pollutant concentrations (relevant to the air quality objectives) arising from the proposed development. The factor of greatest importance will generally be the difference in air quality as a result of the proposed development. There should be sufficient information provided to decide the significance of the air quality impacts and the priority given to air quality concerns in deciding the application.

A.3.3.3 There are three basic steps in an assessment:

- Assess the existing air quality in the study area;
- Predict the future air quality in the area without the proposed development; and
- Predict the future air quality in the area with the proposed development in place.

A3.3.4 The report should contain the following information:

- a) Details of the development that are relevant to the air quality assessment including for example:
 - identification of any on-site sources of pollutant;
 - an overview of any traffic changes;
 - changes in emissions from the site for a specified year;
 - identification of local receptors including residential and other properties close to or within the proposed development;
 - specific locations where people are likely to be exposed for the appropriate averaging time; and
 - identification of ecologically sensitive areas:
 - a) A description of the relevant air quality standards and objectives
 - b) Details of the assessment method

c) Results of the modelling assessment including details of modelling verification

d) A summary of the assessment results. Which as a minimum should include:

- impacts of the construction phase of the development;
- the impact that changes in emissions will have on ambient air quality concentrations; and
- any predicted exceedences of the EU air quality objectives and whether any actions outlined in the local authority's action air quality action plan will be compromised by the development.

A3.3.5 For further information refer to the following publication:

- NSCA (2006) Development Control: Planning For Air Quality – 2006 update

A3.4 Land Use Measures Which Could Help Achieve Air Quality Objectives

A3.4.1 Examples of measures to mitigate against local air quality impacts are listed below in the table below (reproduced from NSCA Development Control: Planning for Air Quality 2006 Update):

Construction Phase Measures	Commentary
1) Control of dust - Building enclosures; use of screens; sheeted vehicles. - Early implementation of paved haul routes. - Hard-standing cleaning. - Water spraying; wheel washing. - Consideration of location of stockpiles, stone cutting activity; designated storage areas; diversion routes. - Prohibit burning of waste. - 'Just in time' deliveries. 2) Monitoring Strategies - Site boundary monitoring pre-development and post development. - Liaison meetings with local residents. - Considerate contractor schemes (and their equivalent). 3) Construction Plant Emissions - Age and type of plant. - Plant maintenance.	

- Alternative fuel use.	
Post Development Measures	
1) Transport Related Measures - Travel Plans. - Parking standards. - Service vehicle fuel use. 2) Non – Transport related measures - Monitoring programme (development specific) - Ventilation - Contribution to action plan and monitoring programmes - Buffer zone 3) Building Design - Balconies - Habitable Rooms - Avoid canyon streets or creating canyons - Non-opening front windows	Needs careful consideration as to the usefulness of the specific monitoring programme Mechanical ventilation becoming increasingly common. Care required on location of inlet. Need to ensure long term maintenance Can potentially make financial contribution to help the authority develop and implement its action plan. Potential contribution to the authority's air quality monitoring programme Can be useful, but not simple to define extent. Not always practical. May need to set against other benefits of development May be best avoided in location of poor air quality, especially at ground and first floors Consider placing away from façade fronting pollution source, e.g. in flats put corridors, stairwells, bathrooms etc. in those locations Creating gaps in building facades can help ensure free flow of air in the street. Consider this option for worst affected locations, e.g. very close to busy roads and for first and ground floor units. To be balanced against loss of freedom for occupants

Appendix 4: Sustainability Checklist

This summary checklist should be utilised. If necessary, the Checklist below can be combined with the SEEDA Checklist. :

Sustainability Checklist Summary	
Subject	Key Considerations
Measuring and Demonstrating Sustainability, Sustainable Design and Energy Efficiency	- Has the development been designed to optimise the use of energy from the sun? - Has the development been designed to optimise natural ventilation? - How will the design of the building make efficient use of energy? (e.g. levels of insulation). - Has the development met the necessary mandatory Code for Sustainable Homes/ BREEAM level requirements? - Has the development considered being built to a level above the mandatory Code for Sustainable Homes/ BREEAM requirements? i.e Code Level 4, - For mixed use developments, have you contacted the BRE who could help produce a bespoke assessment?
On-Site Renewable/ Energy Generation	- How has the generation of energy from decentralised, renewable or low carbon technologies been considered? - How will the development (where viable) incorporate decentralised, low carbon or renewable energy technologies to satisfy the at least 10% requirement (for major development) of Policy NRM11 of the South East Plan? - Has an energy statement been produced to satisfy the requirements of the Developers Guidance note for the 10% renewable Energy requirement of the South East Plan policy NRM11? The Energy Statement could form part of a wider Sustainability Statement or the Design and Access Statement.
Water Resource Management	- How will the development incorporate the use of water saving devices to achieve water efficiency? - Has the development considered incorporating water efficiency measures to achieve internal potable water consumption of 105 litres per person per day? - How will the development incorporate harvesting and reuse of rainwater? - How will the development incorporate the reuse, collection and treatment of grey water? - Has the design considered the use of SUDs and how will they be incorporated and maintained in the development?
Flood Risk Management	- Is the development designed to be resilient to flooding? - Has the development considered the change in flood risk over the lifetime of development because of climate change? - Have all sources of flood risk been considered? - Where required, has a FRA or Surface water Drainage Strategy been

	produced? • Has appropriate consideration been given to surface water and drainage issues – including SUDs and green roofs? • How will the design ensure that run-off from the site will not increase, or where possible be reduced, as a result of the development?
Biodiversity	• How have the wildlife habitats and natural features on and adjacent to the site been considered and how will they be retained, protected and enhanced? • Has an ecological assessment, where a significant impact on biodiversity is likely or probable, been carried out?
Waste, Recycling and Composting facilities	• How will the development provide, or have access to appropriate facilities for the storage and collection of waste? • How will the development incorporate provision for on site composting, green waste and sink macerators? • Has an audit of the materials present on the site been conducted with an assessment of the extent to which materials could be reused? • How will the development make the maximum use of construction and demolition waste? • How will the development make maximum use of recycled materials? • How will provision be made for the storage and recycling of waste for all users of the site?
Sustainable Transport	• Requirement for developments to provide or have existing access to appropriate facilities for secure and covered cycle storage and changing / drying facilities
Health, Safety and Well-being	• How will the development address issues of air, noise and light pollution to minimise their impact? • Has evidence been provided on the measures that will enable developers to meet their obligations in respect of land affected by contamination? • Has an assessment of existing levels of pollution been produced, where significant impacts from pollution to or from the proposed development is likely or probable? • How has the design and layout incorporated measures to reduce the need to travel, especially by car, and promoted alternative and sustainable modes of transport such as walking, cycling and the use of public transport?
Sustainable Construction	• Will the development use responsibly sourced and recycled materials? • Will the development use locally sourced materials, preferably within 35 miles? • Will the development achieve a minimum target of 25-30% of roads, pavements, public spaces and car parks to be from locally reclaimed or recycled materials in line with good practice? • Will the development ensure that any timber comes from certified sources, with a minimum target of 75% expected to be achieved in line with good practice?

	• How will the selected materials help retain local character, ensure long life and ensure a low environmental impact? • Has a Site Waste Management Plan been completed, if the estimated cost is greater than £300,000 or over excluding VAT? • If it's major development, how will the development implement a Site Construction Environmental Management Plan and operate under Considerate Constructors Scheme?
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