



**Vale  
of White Horse**



*Help us Shape the Future*

# Supplementary Planning Document Sustainable Design and Construction

Your Vale - Your Future

December 2009

# Supplementary Planning Document Sustainable Design and Construction

---

December 2009

This document is available in other languages and alternative formats (e.g. large print, email), upon request.

此文檔備有中文版本以供選擇。如需索取，  
請通過以下的電話聯繫地區議會。  
如果您不會講英語，  
您可以請講英語的親屬或朋友為您代勞。

Please contact

Development Policy  
Vale of White Horse District Council  
Abbey House  
Abingdon  
OX14 3JE  
[www.whitehorsedc.gov.uk](http://www.whitehorsedc.gov.uk)

Telephone 01235 520202 extensions 7496 or 7511  
Fax: 01235 540396  
Email: [planning.policy@whitehorsedc.gov.uk](mailto:planning.policy@whitehorsedc.gov.uk)

# Contents

1.	Introduction	1
2.	Policy context	3
	National policy:	
	Planning Policy Statements	3
	Climate Change Act 2008	4
	Building Regulations	4
	Regional and local policy:	
	The South East Plan	4
	Vale of White Horse Local Plan 2011	5
3.	Assessing the sustainability of new developments and the required standards	6
	Commercial buildings	6
	Residential buildings	7

This document is accompanied by a Technical Appendix Planning Document which contains the following:

## Appendix 1- Guidance

energy  
water resources  
waste minimisation and use of recycled materials  
materials  
biodiversity (nature conservation)  
pollution control  
transport and access  
health, safety and well being  
climate change adaptation

## Appendix 2 - Applicant checklist

## Appendix 3 – Further references

## Appendix 4 – List of Saved Policies from the Local Plan 2011

# **Supplementary Planning Document**

## **Sustainable Design and Construction**

### **1.0 Introduction**

#### **Purpose of this Supplementary Planning Document**

- 1.1 The aim of this Supplementary Planning Document is to provide guidance to planners, developers, architects and facilities managers on how to achieve the council's requirements in sustainable design and construction when preparing planning applications for commercial developments over 1,000 square meters and residential developments of ten or more dwellings.
- 1.2 This Supplementary Planning Document will help the council achieve policies set out in its adopted Local Plan. When the council is deciding whether to approve planning applications, it will consider whether developers have met the standards set out in this Supplementary Planning Document. Applicants should also refer to the council's residential design guide Supplementary Planning Document which also covers aspects of sustainable development.

#### **Status of this Supplementary Planning Document**

- 1.3 This Supplementary Planning Document amplifies and illustrates the policies set out in the adopted Vale of White Horse Local Plan 2011. A list of the most relevant policies that relate to the Supplementary Planning Document can be found in section two on page three of this document.
- 1.4 A Supplementary Planning Document does not have the same status as the council's adopted Local Plan. However after adoption, the Supplementary Planning Document will be taken into account as a material consideration by the council, planning inspectors or the Secretary of State when determining planning applications and appeals.
- 1.5 This Supplementary Planning Document was consulted on for a period of six weeks from 27 May to 8 July 2009 and has been amended as a result of the comments received.

#### **Why is the council promoting sustainable design and construction?**

- 1.6 There is now an overwhelming body of scientific evidence showing that climate change is a serious and urgent issue. It has been suggested that climate change for our area may mean drier summers with more chance of heat waves and drought, and wetter, milder winters with more chance of storms and flooding.
- 1.7 In March 2007, the Vale of White Horse District Council signed the Nottingham Declaration on Climate Change. The council is committed to tackling the causes and effects of climate change including producing a Climate Change Strategy and Action Plan to reduce carbon dioxide emissions and adapt to future climate change. An important element of the Action Plan will be the council's approach to the design and construction of new developments across the district.

- 1.8 Adapting to climate change will also be increasingly important in the future as the carbon released to date is already believed to be having an affect on climate.
- 1.9 'Sustainable design and construction' is an all-encompassing phrase for a large number of design elements, including maximising solar gain, using reused or recycled materials in the construction phase, and installing water saving devices. These measures are important to the council because they will help to deliver buildings that not only provide a high quality environment, but they will also help to minimise the negative environmental impacts the new development may have. A key aspect of this will be reducing carbon emissions. Sustainable design and construction is underpinned by a number of principles including efficiency, longevity, health, local responsibility and sensitivity to place. Many of these principles reflect the council's priorities and are echoed in the council's social, economic and environmental policies.

## **2.0 Policy Context**

- 2.1 There is now a considerable body of policy which seeks to ensure developments are built with minimal environmental impact. This includes actions to reduce carbon emissions and to construct buildings and infrastructure that will cope with climate change.

### **National Policy**

#### **Planning Policy Statements and Guidance**

- 2.2 Planning Policy Statements and Guidance Notes, usually abbreviated to PPS or PPG, provide the planning policy context for sustainable development and many design and construction issues. This Supplementary Planning Document reflects the policy advice given in the following documents.

##### **Planning Policy Statement 1: Delivering Sustainable Development (2005)**

PPS 1 outlines the Government's objectives for the planning system. It states that 'regional planning authorities and local authorities should promote resource and energy efficient buildings; community heating schemes, the use of combined heat and power, small scale renewable and low carbon energy schemes; the sustainable use of water resources; and the use of sustainable drainage systems in the management of water run-off.'

##### **Planning Policy Statement 9: Biodiversity and Geological Conservation (2005)**

PPS 9 states that 'development policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development.'

Since 1 October 2006, under the Natural Environment and Rural Communities (NERC) Act, all public bodies have had a legal duty to conserve biodiversity. Conserve in this context includes both *preservation* and *enhancement*. This new duty clearly brings nature conservation into the set of statutory commitments of local authorities. The duty requires local authorities to have regard to biodiversity across *all* their functions.

##### **Planning Policy Statement 10: Planning for Sustainable Waste Management (2005)**

PPS 10 states that 'planning authorities should ensure that new development makes sufficient provision for waste management and promotes designs and layouts that secure the integration of waste management facilities without adverse impact on the street scene or, in less developed areas, the local landscape.' Furthermore 'proposed new development should be supported by site waste management plans.'

##### **Planning Policy Statement 22: Renewable Energy (2004)**

PPS 22 says that 'local planning authorities may include policies in local development documents that require a percentage of the energy to be used in

new residential, commercial or industrial developments to come from on-site renewable energy developments.'

### **Planning Policy Statement 25: Development and Flood Risk (2006)**

PPS 25 explains how flood risk should be considered at all stages of the planning and development process in order to reduce future damage to property and loss of life. It states that 'flood risk and other environmental damage can be managed by minimising changes in the volume and rate of surface run-off from development sites through the use of sustainable drainage systems and also by building away from land liable to flood'.

### **Climate Change Act 2008**

- 2.3 The UK has passed legislation which introduced the world's first long term legally binding framework to tackle the dangers of climate change. Key provisions within the act include legal binding emissions reductions targets, carbon budgeting, emissions trading and adapting to climate change.

### **Building Regulations 2006 (Parts F, H & L)**

**Building Regulations Approved Documents and Associated Guidance, Part F (Ventilation), Part H (Drainage and Waste Disposal) and Part L (Conservation of Fuel and Power) (2002).**

- 2.4 Parts F and L relate to ventilation and conservation of fuel and power respectively which, when combined, set standards for energy efficiency of new buildings. Part H regulates the provision of refuse (and recyclables) storage in new developments.
- 2.5 These revised Building Regulations on energy efficiency standards improve the minimum level of energy efficiency by 40% since the introduction in 1995 of Part L of the Building Regulations. Compliance with Part L 2006 requires calculation of a dwelling's carbon dioxide emission rate (DER) in accordance with the procedures set out in the Standard Assessment Procedure (SAP) 2005. This emission rate must not be greater than the target carbon dioxide emission rate (TER) derived according to the procedure published in Approved Document L1A 2006.
- 2.6 Part L of the Building Regulations has a series of planned revisions in 2010, 2013 and 2016. Each revision includes a step change in the TER, culminating in all housing built after 2016 having to be true zero carbon (as stipulated in the Code for Sustainable Homes) and utilising advanced best practice in energy efficiency. These revisions relate only to carbon performance. There are also a range of other sustainability measures covered in the Code for Sustainable Homes. The Code is a national standard introduced to drive sustainable building practice. It forms the basis of future development in the Building Regulations.

## **Regional and Local Policies**

### **The South East Plan**

- 2.7 The South East Plan Policy NRM11 'Development Design of Energy Efficiency and Renewable Energy' seeks the incorporation of renewable energy sources and high levels of energy efficiency in all developments. New developments of more than ten

dwellings or 1000 square meters of non residential floorspace should secure at least ten percent of their energy from decentralised and renewable or low carbon sources. The South East Plan also has a range of cross cutting policies on resource use, sustainable design, climate change and sustainable development.

### **Vale of White Horse Local Plan 2011**

- 2.8 The policies of the Vale of White Horse Local Plan will progressively be superseded, firstly by the South East Plan and secondly by the council's local development framework documents. As a result, the local plan policy context on energy and resource conservation is now provided by the South East Plan policies referred to above.



### **3.0 Assessing the sustainability of new developments and the required standards**

- 3.1 To ensure developers consider and include the full range of sustainability and resource efficiency measures in their plans, they are required to follow a certified assessment method. The council's preferred assessment tool for commercial developments is BREEAM, and for residential buildings, the Code for Sustainable Homes. These assessment tools are explained in the following section and the council's required standards are set out.
- 3.2 It will be normal for the council to require a post-construction report from the developer which should validate whether a building has achieved the required standard. There are now a number of organisations that can provide an assessment service, either for BREEAM or the Code for Sustainable Homes.

#### **Commercial Buildings**

##### **BREEAM**

- 3.3 BREEAM stands for the Building Research Establishment Environmental Assessment Method. BREEAM is used to assess the performance of buildings in the following areas:
- management: overall management policy, commissioning site management and procedural issues
  - energy use: operational energy and carbon dioxide (CO<sub>2</sub>) issues
  - health and well-being: indoor and external issues affecting health and well-being
  - pollution: air and water pollution issues
  - transport: transport-related CO<sub>2</sub> and location-related factors
  - land use: greenfield and brownfield sites
  - ecology: ecological value conservation and enhancement of the site
  - materials: environmental implications of building materials, including life cycle impacts
  - water consumption and water efficiency.
- 3.4 Credits are awarded in each area according to performance. A set of environmental weightings then enables the credits to be added together to produce a single overall score. The building is then rated on a scale of pass, good, very good or excellent. BREEAM covers a range of building types including:
- offices
  - industrial units
  - retail units
  - schools

- hospitals/health centres.

### **The council's required standard for commercial developments**

- 3.5 The council requires all new developments to achieve a level of performance equivalent to BREEAM excellent. Very good will be accepted only in those cases where developers can present robust arguments why an excellent rating is not viable for their development. Developers will also be required to install renewable energy systems on all new developments over 1,000 square meters.

### **BREEAM Compliance**

- 3.6 Full pre-assessment certification under the relevant scheme, accompanied by a signed letter of explanation from a registered assessor\* will be sufficient. Post construction validation / review will also be required. Occupancy of the building can only occur once this is received by the Vale of White Horse District Council. If a building fails to meet the post construction validation the planning condition cannot be discharged and the council may require the developer or occupier to submit full design stage certification for any future proposed development.

\* The assessor must supply assessor registration number as proof of registration with recognised body and lodgement number of assessment in question.

### **Renewable Energy Compliance**

- 3.7 All new developments over 1,000 square meters will need to incorporate renewable energy generation systems capable of offsetting a minimum of ten percent of the predicted annual carbon emissions arising from operational\*\* energy use of the proposed building(s). This target is likely to change as commercial viability and performance of these technologies change as well as other factors such as changing regional and national targets.

\*\* Operational in this context means energy use associated with the building and the operations inside the building.

- 3.8 The council will also encourage developers to provide Combined Heat and Power (CHP) (and ideally biomass CHP) for commercial developments where there is local demand for heat and electricity.

### **Residential Buildings**

#### **Code for Sustainable Homes**

- 3.9 The Code for Sustainable Homes was introduced in 2006 with the aim of driving a step-change in sustainable home building practices and offering home owners better information about the running costs of their homes. It also offers a tool for house builders to demonstrate the sustainability performance of their homes and so differentiate themselves from their competitors.
- 3.10 The Code complements the EcoHomes Standard as it can relate to individual dwellings as well as a whole development. The Code is also linked to revisions in the Building Regulations. The Government intends the Code to be a single national standard for England with a timeline for phased mandatory implementation. In

addition the Government has recently consulted on the definition of zero carbon homes to give additional clarity to the 2016 target which the Government is still committed to.

- 3.11 The Code sets out sustainability standards which can be applied to all new homes. A home can achieve a sustainability rating from one to six stars depending on the extent to which it has met these standards. One star is the entry level but the minimum standards for this are higher than those found in the minimum mandatory standards currently set out in the Building Regulations. Six stars is the highest level - the best development in sustainability terms. At each level, there are minimum energy efficiency/carbon emissions and water efficiency standards. The categories included in the Code are:

- energy/CO<sub>2</sub>
- water
- materials
- surface water run-off
- waste
- pollution
- health and well being
- management
- ecology.

- 3.12 Apart from the minimum requirements, the Code is flexible and developers can choose which standards they implement to obtain "points" and so achieve as high a sustainability rating as possible. The Code also gives "credits" for other environmental considerations such as sustainable construction materials and the availability of recycling facilities, cycle spaces and home offices.

- 3.13 The Code is a voluntary standard, although from 1 May 2008 it is mandatory to have every new home assessed under the terms of the Code. The Government also intends that there will be a transition so that by 2016 all new homes will be zero carbon. This will be achieved by a progressive tightening of the Building Regulations, which will only relate to the energy component of the Code, leaving other aspects of the Code voluntary. The council's policy is that the full Code for Sustainable Homes will be mandatory for all developments of ten or more dwellings.

### **The council's required standard for residential developments**

- 3.14 The council requires all new developments of ten or more dwellings to achieve the Sustainable Homes level specified in the table below and to install renewable energy systems to offset a proportion of each building's carbon emissions.

### **Code for Sustainable Homes compliance**

- 3.15 Full pre-assessment certification under the relevant scheme, accompanied by a signed letter of explanation from a registered assessor\* will be sufficient. Post construction validation will also be required. Occupancy of the building can only occur once this is received by the Vale of White Horse District Council. If a building fails to meet the post construction validation the planning condition cannot be discharged and the council may require the developer or occupier to submit full design stage certification for any future proposed development. Where phasing

occurs on large developments a pre-assessment will be required for each phase to ensure dwellings built are compliant with the relevant level of the Code as required in this Supplementary Planning Document.

\*The assessor must supply assessor registration number as proof of registration with recognised body and lodgement number of assessment in question.

### Renewable Energy compliance

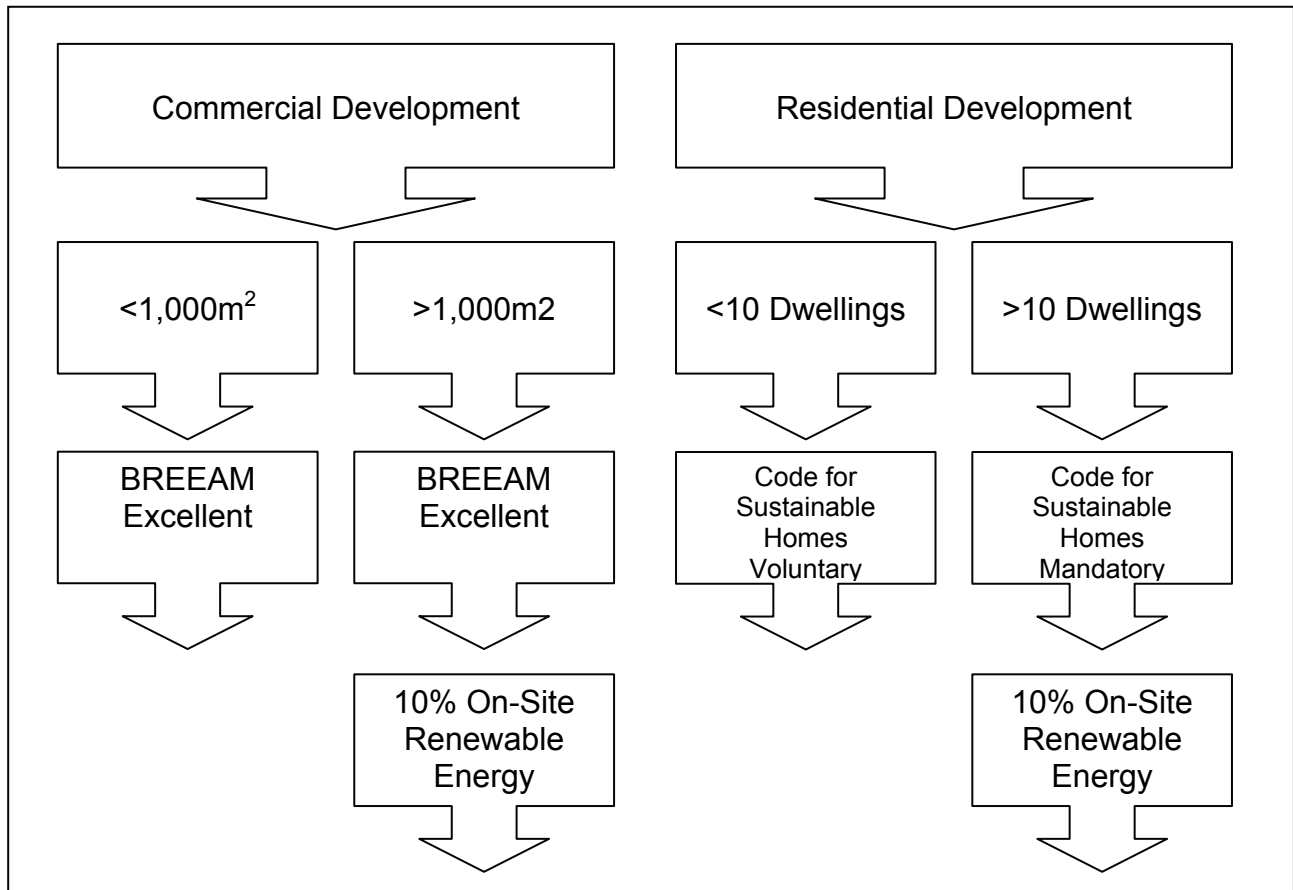
- 3.16 All new developments of ten or more dwellings will need to incorporate renewable energy or low carbon generation systems capable of offsetting a minimum of ten percent of the predicted annual carbon emissions arising from operational\*\* energy use of the proposed building(s). This target is likely to change as commercial viability and performance of these technologies change as well as other factors such as the regional and national targets.

\*\* Operational in this context means energy use associated with the building and the operations inside the building.

- 3.17 The table below sets out the timetable towards achieving the target that, from 2016, all new homes must be built to zero carbon standards by a step by step tightening of the Building Regulations.
- 3.18 The council will require all aspects of the Code to be implemented to ensure the levels indicated in the table below are achieved.

2010	2013	2016
Code level 3	Code level 4	Code level 6
		

**Diagrammatic representation of council policy requirements under  
Supplementary Planning Document for Sustainable Construction.**



# Contents

Appendix 1- Guidance	2
1.0 Energy	2
2.0 Water Resources	11
3.0 Waste Minimisation and Use of Recycled Materials	15
4.0 Materials	18
5.0 Biodiversity (Nature Conservation)	21
6.0 Pollution Control	24
7.0 Transport and Access	26
8.0 Health, Safety and Well Being	29
9.0 Climate Change Adaptation	33
Appendix 2 - Applicant Checklist	35
Appendix 3 – Further References	38
Appendix 4 – List of Saved Policies from the Local Plan 2011.	45

## Appendix 1: Guidance

This guidance accompanies the Supplementary Planning Document Sustainable Design and Construction. This document outlines the key aspects of the BREEAM standard and the Code for Sustainable Homes. For comprehensive information and technical guidance on these standards follow the links to the websites listed in Appendix 3. In addition this guidance also covers key climate change adaptation issues which should be addressed when constructing any building. This guidance should be read in conjunction with the council's Residential Design Guide.

### 1.0 Energy

- 1.1 It is vital to improve the energy efficiency of buildings and source an increasing proportion of energy supply from renewable and low carbon sources. The council's Residential Design Guide also covers these aspects of sustainable development.

#### Background

- 1.2 Energy use in buildings accounts for nearly half of the UK's delivered energy consumption and over half of the UK's CO<sub>2</sub> emissions. Government energy policy now recognises the role that improved energy efficiency and renewable energy technologies will need to play in both reducing emissions of greenhouse gases and reducing the UK's dependence on fossil fuels (which will increasingly be sourced from abroad). If such emissions are to be reduced progressively to meet rising targets, it is essential that new buildings meet more stringent energy standards as soon as possible. It is feasible to design and build new developments with minimal or net zero carbon emissions.
- 1.3 Incorporating energy saving measures into the design and construction of a building can significantly reduce the amount of energy consumed, the CO<sub>2</sub> emitted and the running costs of the building over its lifetime. The Building Regulations (Part L) set minimum acceptable standards of energy performance and CO<sub>2</sub> emissions. The Government has also stated an aspiration for all new dwellings to be carbon neutral by 2016, giving a firm indication of the direction of Government policy on energy use.
- 1.4 The council will encourage developers to follow the principles in the energy hierarchy below when planning new developments. This will assist in the achievement of the required standards set out in the Supplementary Planning Document.
- **Reduce energy demand** – reduce heat loss, maximise passive solar gain
  - **use energy efficiently** – efficient appliances, heating controls
  - **use renewable or low carbon energy** – through on site provision
  - **clean and efficient use of fossil fuels** - co-generation (combined heat and power) or tri-generation (cooling, heating and power).

## Reduce energy demand

### Passive solar design

- 1.5 Passive solar design means optimising the amount of heat and light that can be derived directly from the sun, thus reducing the demand for energy. Passive solar design can be integrated into the design of new buildings, and usually adds little to construction costs. Whilst it is possible to improve the passive solar characteristics when refurbishing a building (for example by altering window sizes and room layouts), it is best viewed as an important design consideration for new buildings and dwellings.
- 1.6 Windows should be large enough to provide adequate day lighting. A general guide is to size the glazing so that it is between 15 percent and 25 percent of a room's floor area.
- 1.7 The size and position of the glazed areas are critical in maximising solar heat and light falling on a building. Orientating the house within 30 degrees of south and maximising glazing on the southerly aspect can capture the solar heat throughout the year and, with proper design, allow sunlight penetration into all areas of the building. A large thermal mass (the ability for a material to store heat) can help store the daytime heat for night time comfort, buffer against heat fluctuations and provide cooler conditions in summer. Maximising insulation and putting smaller windows on the northerly aspect will help to retain heat within the building.

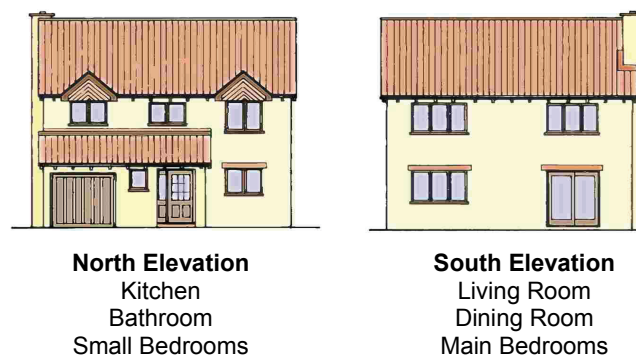


Image courtesy of the Energy Saving Trust

- 1.8 Frequently used larger rooms should be placed on the southerly aspect of the building whilst smaller less frequently used rooms should be placed on the northerly aspect, as illustrated in the diagram above.
- 1.9 Dwellings should not be overshadowed by trees or tall buildings. Locate taller buildings and new tree planting, parking and garages to the north of dwellings. Deciduous trees can be used to provide shading in the summer without compromising solar heat and light during the winter.
- 1.10 Maximising passive solar heat and light in existing dwellings is possible but is usually more difficult and more costly. A conservatory or a glazed atrium can provide an additional unheated living space. A conservatory also acts as additional insulation as air passing through the conservatory is heated, warming the external wall. Such extensions, however, are costly and cannot be justified on the grounds of energy saving alone. Any positive energy gains are lost if the extension is heated like the rest of the building or if the area is left permanently open to the rest of the house.



- 1.11 However, it is important to balance the benefits of reduced energy consumption in winter offered by passive solar gain with the risk of excessive solar gain during summer, which can cause discomfort or heat stress and increase energy demand for cooling.
- 1.12 As a first priority, measures (e.g. shutters or architectural sunshades such as a brise-soleil) are simple and effective in preventing excessive solar gain, especially on large glazed solar-orientated elevations. Consideration must be given to the visual impact of these measures, particularly in conservation areas and other environmentally sensitive areas. Such measures may not be appropriate on listed buildings. Ventilation may be required, please see the section 'Services: Heating, Cooling and Ventilation' on page 4 for further information.

### **Insulation and air tightness**

- 1.13 To reduce heat loss and maximise energy efficiency, it is important to create a stable internal environment with an insulated and airtight building envelope. High levels of insulation in roofs, floors, walls and windows act to moderate the internal environment of a building. This will maintain comfort levels in both hot and cold weather and prevent condensation and damp. Insulation is also important for storage tanks and pipe work. High levels of insulation can also help to reduce capital costs if it allows for the downsizing of or removal of some building services, such as boilers and/or radiators.

### **Insulation**

- 1.14 Thermal insulation matters are covered by the Building Regulations (Part L), which seek to provide for a certain standard of energy efficiency in new developments. However, technological innovation and improvements to insulation are likely to occur faster than the regulations can be updated. Therefore, consideration should be given to exceeding the Building Regulations standards where possible to give greater energy efficiency gains. Including such measures at the design stage is unlikely to increase building costs significantly.
- 1.15 The conversion and refurbishment of properties provides an ideal opportunity to improve the energy efficiency of a building. Lofts and cavity walls can be insulated quickly and easily. Solid walls can be insulated externally or internally.
- 1.16 Many examples of alternative natural, environmentally friendly insulating materials are available for use, as opposed to man-made materials. Sheep's wool and recycled paper both have very good insulating properties and are not harmful to the environment. To ensure the safety of this material, fire prevention is covered by the Building Regulations.
- 1.17 To reduce heat loss from windows, double glazing with low emissivity glass or triple glazing can be considered.



## Air tightness

- 1.18 To ensure maximum benefits, it is important to minimise the uncontrolled movement of air, although it is vital to ensure a healthy, controlled movement of fresh air from inside to out (this is covered in more detail below).
- 1.19 Specification is not the whole story, however, and build quality is as important to ensure a fully insulated envelope is constructed, with no air leakage. What looks good on paper is no good in practice unless attention is paid to construction detail. Pressure testing for air tightness is a new requirement for English and Welsh buildings which will highlight how tight a building envelope is. It is far cheaper to get this right at the construction stage than as a retrofit. The council suggests that all new housing should have an air tightness of at least  $5\text{m}^3 / \text{hm}^2$  (@50pa).

## Use Energy Efficiently

### Appliances

- 1.20 Major energy savings can be made through the use of energy efficient appliances. Appliances providing heat, cooling, light and other essential services can all be energy efficient. New dwellings should be equipped with:

- A-Rated electrical appliances. All electrical appliances (such as installed white goods) should be A-rated.
- SEDBUK A-rated boilers. Where gas is the primary fuel, high specification gas modulating condensing boilers should be installed. These should be equipped with boiler managers with weather compensation.
- In non-domestic buildings, the following should be standard items: energy efficient lighting, boilers, building energy management systems (BEMS), and passive or efficient low energy ventilation systems.

Energy	Washing machine
Manufacturer Model	
More efficient	
A	
B	
C	
D	
E	
F	
G	
Less efficient	
Energy consumption kWh/cycle	1.75
<small>Based on standard test results for 60°C cotton cycle Actual energy consumption will depend on how the appliance is used</small>	
Washing performance	A B C D E F G
<small>A: higher G: lower</small>	
Spin drying performance	A B C D E F G
<small>A: higher G: lower</small>	
Spin speed (rpm)	1400
Capacity (cotton) kg	5.0
Water consumption	5.5
Noise (dB(A) re 1 pW)	52
Spinning	7.6
<small>Further information contained in product brochure</small>	

### Lighting

- 1.21 In most buildings, lighting accounts for between 10 percent and 15 percent of the electricity bill. Lighting should be designed to provide the appropriate levels; excessive lighting levels can produce harmful glare as well as wasting energy. Energy efficient lighting is available in a variety of shapes, sizes, levels and colours. Light-emitting diode (LED) lights can be used instead of halogen spot lights. Large fluorescent tubes can be replaced by more efficient smaller diameter tubes.
- 1.22 Sun-pipes providing light via a tube from the roof using mirrors can also be used to provide natural lighting in places not easily reached by daylight.
- 1.23 Think about fitting light sensors. Light sensors work well in existing buildings or can be incorporated into the design of new buildings. They are especially useful if the building is used/shared by a lot of people, for example an office, community or commercial building. Use automatic switches such as movement sensors or timers in areas where lights are not needed continuously such as toilets or security lighting.

- 1.24 Ensure controls (such as switches) are both easily understood and accessible, otherwise the temptation may be to leave lights on unnecessarily.
- 1.25 Design wiring to allow smaller areas to be switched on or off instead of the whole room being lit at the same time. This is particularly useful where only part of an office is being used at night or tends to be darker than another part during the day.

### **Services: Heating, Cooling and Ventilation**

- 1.26 The services incorporated into buildings can have a significant impact in terms of using energy efficiently. Whilst good design can result in little or no requirement for heating, cooling or mechanical ventilation, mechanical systems may still be required. However, when needed, they should be carefully sized so as to not exceed demand, to avoid wasting energy and money.

#### **Heating**

- 1.27 Heating is a significant factor in determining the level of energy used in any new development. Building Regulations have significantly increased the minimum energy efficiency of permitted boiler plant, but this can still be exceeded. All smaller (domestic) scale boilers are rated for their efficiency on the SEDBUK database and it is worth referring to this for the most efficient appliance.
- 1.28 Where applicable, depending primarily on heat demand, combined heat and power units should be considered. Please see the 'Using Fossil Fuels Efficiently' section on page 8 for further information.

#### **Cooling**

- 1.29 In most cases in the UK, the need for comfort cooling in buildings can be removed through good design and the use of natural ventilation (much of which is linked to good quality passive solar design). However, there will be instances where some form of mechanised cooling is required, such as in noisy urban locations. In such cases, alternatives to air conditioning such as chilled beams should be considered. Conventional air conditioning, which is a high consumer of electricity, should be chosen as a last resort. The impacts of climate change may increase the need for cooling in buildings in the future.

#### **Ventilation**

- 1.30 As buildings are increasingly constructed to be 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. Adequate ventilation without draughts is essential to avoid condensation problems.
- 1.31 Natural ventilation should be used in preference to mechanical systems which have high energy demands. Naturally ventilated buildings will incorporate opening windows with a locked vent position, trickle vents installed in windows or wall ventilators. Other more advanced means of outdoor air intakes include roof-mounted 'wind catchers' to induce vertical and horizontal airflow, and passive stack systems.

- 1.32 Where mechanical ventilation is required (for example where external noise, pollution or safety issues preclude openings), a low energy system should be used, such as high efficiency fans. Heat exchangers should also be incorporated, so useful heat is not removed from the building. This requires giving careful thought to areas that generate large heat loads, such as plant rooms or IT suites, and how heat can be recovered from these locations and used elsewhere within the building.

### **Controls**

- 1.33 Energy use needs to be managed to reflect user and external environmental requirements. Control of energy use is essential to ensure that buildings and plant operate effectively. Control systems vary in sophistication from thermostatic radiator valves to complex computer controlled building management systems. On all levels, control systems need to be simple and designed to be operable by the building's users, with user guides included as standard.

### **Renewable and Low Carbon Energy**

- 1.34 Once building energy use has been minimised, it is important to consider the source of energy used. This is as relevant for heating and cooling as it is for electricity. New buildings offer good opportunities to incorporate renewable energy technologies.
- 1.35 Developers should follow best practice as this is a rapidly changing area. Please consult the council's Development Control team for information on the proportion of carbon savings required through on-site renewable energy provision. This target is likely to change as commercial viability and performance of these technologies and the national/regional policy targets change.

#### **Solar water heating**

- 1.36 Solar collectors or panels contain water which absorbs the heat of the sun. Once hot, the water passes through a coil in a hot water cylinder and transfers the heat to the water in the cylinder. Solar collectors can be installed at low level or on the roof of a building or incorporated into the roof finish. The council's preference is for solar collectors to be incorporated into the roof finish at a low level, where they are less likely to be visually prominent. The optimum location is facing slightly west of due south and at a tilt between 30° and 40° although a collector set anywhere between East and West and at a tilt of between 10° and 60° can achieve high levels of performance.



#### **Photovoltaic Panels**

- 1.37 Photovoltaic (PV) panels convert solar radiation directly into electricity. PV panels can sit on top of roofs or be integrated into buildings extremely well through more bespoke products, such as tiles. Such products have a low visual impact but are more costly than other renewable energy technologies. In the UK, PV arrays (combination of panels, tiles etc.) are linked primarily into the electrical distribution system of the host building and then, if excess generation occurs, into the national grid. Battery systems are rare and add a large cost. PV is one of the easiest

renewable energy systems to install in the urban environment, as PV panels can be fixed to or form an integral part of the building's fabric.

- 1.38 Planning permission is not required for solar water heating or photovoltaic systems if the panels are not raised more than 200mm above the plane of the roof. However, listed building consent is required for all installations on listed buildings. Developers are encouraged to use PV panels as cladding on commercial buildings.

#### 1.39 Wind Turbines



The generation of electricity from wind power is generally associated with large-scale wind farms in remote and exposed areas of the countryside. However, there is potential for wind energy to be captured at the local level on a small scale. Small wind turbines can be connected to the national grid and any electricity generated by the turbine not used in the property can be exported to the grid and sold to an electricity supply company. The amount of energy that any wind turbine could be expected to generate depends on several factors including size of turbine, location, wind speed, nearby buildings and the local landscape. The local annual average wind speed of an area can be checked on the BERR Wind Speed Database. For best results, the local average annual wind speed needs to be greater than 6 metres per second. Whilst the windier parts of the district reach this speed, most urban locations have an average closer to 3m/s. There are two types of wind turbines:

- **Mast mounted** - which are free standing and located near the building(s) that will be using the electricity, and
- **Roof mounted** - which can be installed on the roofs of dwellings and other buildings.


- 1.40 **Mast mounted** wind turbines can have hub heights of between 6m and 30m and power ratings of between 2.5 kW and 20 kW. Turbines larger than this are outside the scope of this document – please contact the British Wind Energy Association for advice on larger turbines. Depending on the local wind speeds, mast mounted turbines can generate enough power for one house, or even larger housing/commercial developments. Noise levels tend to be lower than most background sources of noise, radio/TV/phone reception is rarely impeded and birds are unaffected by this scale of structure. In terms of efficiency, the ideal site for a mast mounted turbine is a hill top location with a clear exposure free from excessive turbulence and obstructions such as large trees, houses or other buildings.

- 1.41 **Roof mounted** wind turbines are available in a variety of sizes up to 1.5 kW and up to 1.5 metres in diameter. Costs are currently relatively high, but may fall as economies of scale in production occur. To maximise efficiency, turbines must be located above the roof line and in areas free from obstacles that would reduce wind speed, such as tall trees and buildings. It is important to understand the effects of the wind around the building proposed for the installation as it may not be flowing freely, which would radically alter the suggested output of the turbine. It is also important to be sure that the structure of the building will tolerate any vibration the turbine may cause.



- 1.42 Planning permission is required for all types of wind turbines. Wind turbines will usually have a visual and noise impact which will vary according to location and the proximity of neighbours – these issues will be critical in determining whether permission is granted. Please consult Thames Valley Energy for additional guidance on micro wind turbines.

### **Ground and Air Source Heat Pumps**

- 1.43 Heat pumps can be used efficiently to heat a building by drawing heat from the ground (ground source heat pumps) or the air (air source heat pumps), concentrating it and delivering it to the building.
- 1.44 There are three main elements to a GSHP system – a ground loop, a heat pump and a heat distribution system. The system works in a similar manner to a refrigerator. A closed loop system of plastic pipes filled with water and antifreeze is buried in the ground and pumped around the loop, the pump evaporates, compresses and condenses the heat and delivers it into the heating system of the building. Open loop systems draw on existing aquifers. The process exploits the stable temperature of the earth for both heating and cooling. The principle is that heat is not created but merely transferred from one area to another. The system removes heat from one side of the circuit and ejects heat to the other side. As heat pumps operate at lower temperatures than boilers, they are most effective when combined with under floor heating systems.
- 
- 1.45 Air source heat pumps operate in a similar manner but use the ambient air temperature. They are not as effective as ground source heat pumps, but are cheaper to install.
- 1.46 The pumps require energy to drive them, which could be provided through a renewable or sustainable method, and requires less energy than a conventional heating system using gas or electricity. Heat pumps are particularly suitable for swimming pools and for buildings with under floor heating, and can operate in reverse to provide cooling.
- 1.47 Ground source heat pumps do not require planning permission. Air source heat pumps may require planning permission, depending on the nature of any external works to the building. Please contact the council's Development Control team for more advice.

### **Biomass Boilers**

- 1.48 Biomass boilers operate in exactly the same way as conventional gas and oil boilers, but instead use a biomass fuel. Biomass fuel usually takes the form of wood pellets or chips. These are burned in modern appliances, which have to meet strict EU emissions restrictions, and are often computer controlled and require little manual input or management. Specialist suppliers can regularly deliver the wood fuel to buildings, which require space to store the fuel. Fuel storage can be in the form of underground bunkers, hoppers or, in the case of wood pellets, in bags. Biomass boilers are most cost-effective when a local fuel source is used.

- 1.49 Wood chip systems are best suited to buildings with a consistent heat load throughout the heating system, such as hospitals, halls of residence or hotels for example. This is due to the heating systems not being as responsive as traditional fossil fuel based designs. Wood pellets are more flexible and responsive and heating options range from large scale boilers, down to individual room heaters. Fuel supply is plentiful and is not a problem regionally, with prices for both chips and pellets rapidly converging with the cost of gas.
- 1.50 Biomass boilers will not normally require planning permission if they are located inside the building. Flues and external weather proof cupboards, however, may require planning permission. Where the building is listed, listed building consent will be required for the flue and may be required for internal alterations required to accommodate the boiler. Please contact the council's Development Control team for more advice.

### **Micro Hydro**

- 1.51 There is limited potential to use hydro technology for electricity generation within the Thames Valley. The potential for such schemes depends on the volume of water flow and the level of head (the vertical drop of water) which needs to be a minimum of 1.5 meters. Locations that might be suitable are old water mill sites and river weir structures.

## **Use Fossil Fuels Efficiently**

### **Combined Heat and Power and District Heating**

- 1.52 Combined heat and power (CHP) systems are now available at a range of different scales from micro CHP (for single dwellings) to neighbourhood heating systems, and new developments are increasingly incorporating CHP systems.
- 1.53 CHP units generate electricity through an engine and capture the by-product, combustion heat, for use in heating and hot water systems. CHP units can use a variety of fuel sources, including fossil fuels such as natural gas and renewable fuels such as biomass. CHP is an efficient way of generating power as it captures the heat generated in the process that is lost in other power generating methods, including at the power station. These systems are most cost effective when the demand for heat is spread throughout the day, so sharing systems between buildings (known as district heating) is most beneficial. Large mixed use developments have a balanced heating load with retail or office demand greatest in the day, and residential demand greatest in the evening.

### **Tri-Generation: Combined Cooling, Heating and Power**

- 1.54 Tri-generation, known as combined cooling, heating, and power (CCHP) is the simultaneous production of electricity, heating and cooling from a single fuel source such as fossil fuels or renewable fuels. As with CHP, tri-generation units generate electricity through an engine and capture the by-product, combustion heat, for use in heating and cooling systems. In summer, heat demand is much lower and the heat of the electricity generation process can be transformed into cooling energy by an absorption chiller. Tri-generation is most effective when used in large mixed use developments.

## **2.0 Water Resources**

- 2.1 Water resources need to be managed and used more efficiently, with particular focus on reducing water usage and minimising the risk of flooding and associated land and watercourse contamination. The council's Residential Design Guide also covers these aspects of sustainable development.

### **Background**

- 2.2 Water consumption has risen rapidly in recent years. Consequently, there is increasing pressure on river, groundwater and wetland eco-systems. As well as being a precious resource, the treatment and pumping of water requires large amounts of energy. The Thames Valley region is one of the driest in the UK. New developments should include best practice in water saving measures. Water consumption rates for new residential developments are set out in the Code for Sustainable Homes.
- 2.3 The UK Climate Impacts Programme (UKCIP) anticipates that climate change 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. The design capacity and maintenance of urban drainage systems and flood defences may require upgrading in order to accommodate greater storm activity. All development proposals, therefore, should seek to address the following issues:
- water metering
  - water saving devices
  - rainwater harvesting techniques
  - waste water recycling systems
  - sustainable urban drainage systems
  - drought-tolerant planting
  - avoiding floodplains or flood-risk areas.

### **Water Metering**

- 2.4 Water management is particularly effective in buildings that have their water consumption metered. It is expected that all new development will have water meters correctly installed and regularly serviced.
- 2.5 Sub-metering enables a property owner to charge tenants in direct proportion to their water usage, and therefore provides a further financial incentive to adopt water efficiency measures.

### **Reducing Demand**

- 2.6 Water saving devices are a cheap but effective way of managing the water consumption of a building. As demand for water increases and supplies decrease, it is essential that all new developments and buildings include measures to use water efficiently. The following water saving techniques should be used wherever possible:
- aerated and spray taps on hand basins
  - low-flow showerheads which create finer drops or aerate the water



- insulated baths to maintain water temperature and therefore reduce the need for topping up with hot water
- tapered baths give space for bathing but hold less water compared to conventional baths
- if washing machines and dishwashers are to be included, they should be A-rated for water efficiency
- dual flush and low flush toilets.

### **Reusing Water**

- 2.7 Systems are available to recycle both rainwater and grey water (water used for washing and bathing).

### **Rainwater**

- 2.8 At the simplest level, rainwater can be collected in water butts for use in the garden. More advanced systems can be used to collect rainwater run-off from roofs for all non-drinking use, including toilets, washing machines, garden use and car washing.
- 2.9 Rainwater harvesting can reduce mains water consumption by up to 50 percent. Space for storage tanks can be provided in the roof space or underground, with down pipes located accordingly. Separate pipes are required to carry rain water and mains water, as the system will automatically draw water from the mains when there is insufficient rainwater stored.

### **Grey Water Recycling**

- 2.10 Grey water is the waste water collected from baths, showers and wash basins. Grey water can be collected, treated and reused for flushing toilets. Systems to collect, treat and reuse grey water can be designed on both an individual household scale or for larger developments. Grey water requires basic disinfection and filtering to enable it to be stored until needed. As with rainwater harvesting, a mains back up supply will be required.

### **Sustainable Urban Drainage Systems**

- 2.11 Policies DC13 and DC14 of the Vale of White Horse Local Plan deal comprehensively with flood risk and water run off. Please refer to these in conjunction with the advice in this document.
- 2.12 Sustainable urban drainage systems (SUDS) are an alternative to traditional approaches of managing run-off from buildings and hardstandings. SUDS approaches reduce the amount of surface water that runs directly to rivers through storm water systems. Rapid run-off from developments with traditional drainage systems is a significant contributory factor in flooding incidents.
- 2.13 SUDS can be used to contribute to groundwater recharge where developments are sited on major aquifers, especially in aquifer recharge zones.

2.14 There are a variety of ways to include SUDS in a new development:

- Porous pavements and hardstandings: water permeates through porous surfaces such as permeable concrete blocks, gravel, or crushed stone or asphalt. Water infiltrates directly into the subsoil, or can be stored in an underground reservoir (such as a crushed stone layer) before slowly soaking into the ground. The council encourages developers to use permeable surfaces on all pavements, driveways, car parks, footpaths and access roads.
- Swales and basins: these provide temporary storage for storm water, reduce peak flows to receiving watercourses and can be created as landscape features within a development. Swales and basins also facilitate the filtration of pollutants and microbial decomposition and water infiltration directly into the ground.

2.15 In large-scale developments, the following may also be options:

- Ponds and wetlands: these can enhance flood storage capacity, enable high levels of filtering through plants and algae, and offer the potential to recycle grey water. They can be fed by swales, filter drains or piped systems, and the use of an inlet/outlet sump will reduce sedimentation.
- Infiltration trenches, basins and filter drains: these are stone filled reservoirs where storm water run-off is diverted into. Water gradually infiltrates the ground and pollutant removal is by absorption, filtering and microbial decomposition into the surrounding soil.

2.16 SUDS can also be incorporated onto buildings, such as 'green' or turf roofs, which provide additional benefits to biodiversity and visual amenity.

2.17 Implementation of SUDS can lead to cost savings through reducing the need to construct or access surface water sewers or pipe connections to distant outfalls. By using landscape features that would already be provided as part of the development, SUDS can offer further cost savings. Developers are expected to consider all possible ways of incorporating SUDS into proposals, and are advised to contact the council and/or the Environment Agency early in the design stage of a new development. Developers should also consult the Environment Agency to ensure Ground Water Regulations are complied with.

2.18 It is essential that responsibility for the maintenance of a SUDS scheme is made clear at the application stage.

2.19 Planning permission is required if more than five square metres of a front garden is to be laid as an impermeable hardstanding or driveway – i.e. if it does not control surface water running onto the road.

### **Drought-Tolerant Planting and Landscaping**

2.20 The water required to establish and maintain planting schemes in large developments, whether commercial or residential, can be considerable. However, even the type of landscaping used on an individual plot can have a significant cumulative impact. There are alternative options to help reduce water use, including the following:

- Reduce the area laid to grass
- use drought-tolerant plants (including grass)
- use mulch
- use gravel, decking etc.
- use quick-spreading ground cover plants
- promote natural grassland/meadow

2.21 Developers are advised to contact Planning Services to discuss the design of their landscaping schemes.

### **Floodplains and Flood Risk Areas**

2.22 The need for flood risk to be taken into account in the planning process is made clear in PPS 25, Development and Flood Risk. The council also has comprehensive Local Plan policies relating to development proposals in the flood plain.

2.23 The Environment Agency only considers fluvial flood risk (from rivers). A sequential test is used to assess the suitability of land for various types of development. It is likely that, over time, the Flood Zones will be amended to take into account the effects of climate change.

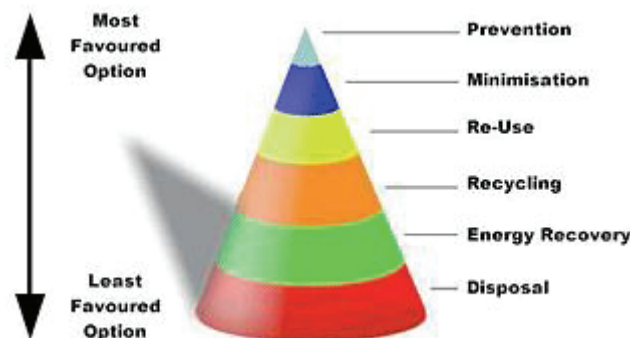
2.24 PPS 25 requires planning authorities to take into account flooding from other sources. These should be assessed in Strategic Flood Risk Assessments. Authorities should apply the sequential approach for all sources of flooding and require a flood risk assessment for development affected by sources such as groundwater and surface water.

### 3.0 Waste Minimisation and Use of Recycled Materials

- 3.1 The reduction, reuse and recycling of materials during and after construction needs to be encouraged. The council's Residential Design Guide also covers these aspects of sustainable development.

#### Background

- 3.2 Every year the construction industry uses about 400 million tonnes of products and materials and produces about 100 million tonnes of waste. This is three times the amount produced by all households in the UK. Minimisation and effective management of waste, both during and after construction, can result in a wide range of benefits, such as the reduction in demand on resources, and a minimisation of the risks/impacts associated with resource extraction, transportation and disposal. Good quality waste management makes sense from both an environmental and an economic standpoint.
- 3.3 The European Union Landfill Directive is driving a more sustainable approach to limiting construction waste and general household waste. Developers should contact the Environment Agency regarding waste regulations. The following waste hierarchy should be followed (with priority given to the action at the top):



- 3.4 Development proposals should consider the following issues:

- Design for re-use
- implementation of Site Waste Management Plans
- low waste construction methods
- waste and recycling storage
- re-use of materials
- generate sustainable energy from waste
- demolition protocols.

#### Design

- 3.5 The design of a building is critical to ensure that sustainable waste management can be achieved. The integration of sustainable waste management principles into building design can include:
- Designing buildings for re-use, making them flexible, adaptable and robust. Existing buildings can be re-used or extended thereby avoiding demolition and

new construction waste. Flexible design also reduces the need for major refurbishments

- use of pre-fabricated components which will minimise waste on site as most labour intensive processes have already been done
- use of standardised components wherever possible – modular or standardised design reduces waste at the outset
- accurate specification which will reduce waste by only purchasing what is needed for the project
- designing buildings with future deconstruction in mind which will make it easier to recover materials in the future. This would involve a deconstruction plan and can incorporate such measures as avoiding composite materials, using lime-based mortar to enable easier recycling of bricks, using mechanical fixings rather than adhesives, and using dry construction methods.

### **Site Waste Management Plan (SWMPs)**

- 3.6 In any construction project, there will be a variety of wastes to be disposed of and an array of legislation stipulating how that waste should be dealt with. Ever increasing prices for the legitimate disposal of waste and rises in the landfill tax make it important to have a SWMP to minimise and deal with waste both on and off site.
- 3.7 It is mandatory to produce a SWMP if the cost of the construction project is over £300,000 and a greater level of detail is required for projects costing over £500,000. The requirement to prepare, update and implement a SWMP is set out in the Site Waste Management Plan Regulations 2008. Further information is available from DEFRA. See Non-Statutory guidance for Site Waste Management Plans April 2008.

### **Construction**

- 3.8 Waste should be designed out of construction processes as far as possible by using value engineering and lean construction techniques. Examples of sustainable waste management practices in construction include:
- ‘Just in time’ construction, where only those components that are required immediately are kept on site. Stockpiling materials increases the likelihood of damage and can be a waste of resources
  - sorting of waste streams may result in considerably more recycling and reuse of waste products and, hence, reduced landfill costs
  - materials such as bricks, tiles and slates can readily be reused if they can be stored on site.

### **Waste and Recycling, Storage and Composting**

- 3.9 It is likely that segregated waste collection will be the norm in the future. Sites and buildings, therefore, will need to include suitable individual or shared waste sorting

and recycling facilities. Early discussions should be carried out with the council to clarify the requirements for recycling schemes and general refuse collection.

- 3.10 Composting facilities should be provided on sites with gardens or landscaped/amenity areas. This should be included for all developments, not just residential developments.
- 3.11 For residential developments, best practice should mirror the requirements of the relevant standard of the Code for Sustainable Homes.

### **Re-Use of Materials**

- 3.12 When a site is being redeveloped and existing structures are being replaced, opportunities to reuse some of the waste arising from the demolitions should be taken. Top soil, timber, bricks, tiles and slates, along with glass and concrete for aggregate, can all be reused. Older buildings may contain salvage materials and, with rising landfill charges, it is increasingly more economic to find an outlet to enable their re-use. Prior to any demolition, developers should conduct an audit of the recoverable materials by using the Institute of Civil Engineers Demolition Protocol.

### **Generate Sustainable Energy from Waste**

- 3.13 Wherever space and opportunity allow, anaerobic digestion (a biological treatment process used to stabilise wet wastes) rather than straight 'aerobic' composting should be used in larger scale commercial or mixed use developments. The use of anaerobic digestion produces a methane rich 'biogas' that can be used for heating and generating power on site. Such technology is already widely used within central water treatment/sewage businesses, but it needs to be promoted in the agricultural and municipal/residential sectors.

## **4.0 Materials**

- 4.1 It is important to use appropriate materials in new buildings, bearing in mind their aesthetic qualities and whole life impacts on both people and the wider environment. The Council's Residential Design Guide also covers this aspect of sustainable development.

### **Background**

- 4.2 The choice of construction materials will affect the embodied energy in the building and its wider impact on the environment. Embodied energy is the energy consumed in the processes associated with the construction of the building. Development proposals should consider the following issues:

- Using local materials to minimise transportation and associated CO<sub>2</sub> emissions
- using low embodied energy materials
- using low environmental impact materials
- using reclaimed and recycled materials.

- 4.3 Developers are advised to discuss their choice of building materials with the Council at an early stage to ensure that they will be acceptable, particularly in sensitive locations such as conservation areas.

### **Local Materials**

- 4.4 Developers should source as much locally manufactured material as possible. This will reduce CO<sub>2</sub> emissions, maintain a market for local suppliers and support the local economy. Many of the materials used in the construction of new buildings are low value and high bulk. Their transport, therefore, is relatively expensive (in both economic and environmental terms), especially if they are being moved over long distances. The use of available local building materials significantly reduces the distance such products travel and, therefore, increases the sustainable credentials of a building.

### **Low Embodied Energy Materials**

- 4.5 Developers should consider the energy component of materials used and wherever possible use low energy alternatives. The use of large amounts of concrete and steel should be avoided either through alternative design or by using alternative materials such as ground granulated blast furnace slag and laminated timber beams.

### **Materials with a Low Environmental Impact**

- 4.6 Reference to the BRE Green Guide to Specification and Green Guide to Housing Specification (2000) is recommended for information on the environmental performance of a wide range of different building materials.
- 4.7 The Green Guide to Housing Specification assesses a range of building materials. Developers should aim to use a majority of A-rated materials – please see Appendix 3 for more information. Care should be taken to ensure that products

used are from suppliers with a verifiable track record (such a ISO 14001) or who publish credible environmental information.

- 4.8 As a general principle, lower mass materials, which are the product of less manufacturing processes, have a more favourable environmental profile. However, higher mass materials can bring alternative environmental benefits.

### **External Walls**

- 4.9 The most suitable choice of material depends on a wide range of whole life cycle effects. Where aesthetic considerations permit, consider lightweight systems such as timber and steel frame, low mass aerated brickwork or clay blocks, which have a less direct environmental impact than high mass masonry, such as brickwork. High levels of insulation can be achieved as easily in lightweight systems.
- 4.10 However, high mass walling (such as brick) has a low maintenance requirement and a long life. Therefore, the whole life costs associated with them can be lower. Additionally, high thermal mass can reduce energy use and increase comfort levels, especially when coupled with passive solar design.
- 4.11 Sustainable timber products can be sourced from independently certified forests (such as those accredited to the Forest Stewardship Council). Reliable suppliers can provide documentary evidence that supplies are from well managed forests.

### **Thermal Insulation Materials**

- 4.12 Natural insulation materials made from renewable plant or animal sources have simple manufacturing processes. Examples of natural thermal insulation products include flax, sheep wool, recycled newspaper, jute sacking and cellulose. These products have reduced health risks during manufacture and installation and are fully biodegradable.

### **Windows**

- 4.13 Timber windows have reduced environmental impacts and lower lifecycle costs compared to PVC windows.

### **Flooring**

- 4.14 Flooring made from natural materials that undergo little manufacturing processing have a reduced environmental impact. Examples of these include linoleum, cork, timber and sea grass coverings. Wool carpets and natural flooring tiles (such as those made of ceramic and terrazzo) also have relatively low environmental impacts.

### **Paints and Finishing Products**

- 4.15 Specify paints that are water or vegetable oil based. Finishes include lime based washes, renders and plasters. These have lower environmental and health implications than solvent based products. Natural paints and finishes offer a number of benefits over conventional synthetic products, including allowing moisture to pass through them, whilst still being waterproof, reducing paint flaking and alleviating problems with damp and condensation.



- 4.16 The oils and resins used in natural paints are those same oils and resins that trees and plants use to nourish and protect themselves from rot and insect attack. When used in wood priming products, they penetrate deep within the timber fibres, giving new timber long lasting protection.

### **Reclaimed and Recycled Materials**

- 4.17 The council encourages developers to use reclaimed and recycled materials as a way of reducing waste and demand for raw materials as well as helping to create a market for reclaimed and recycled materials.
- 4.18 When using these materials it is important to consider the negative environmental impact if they have to be transported long distances. The BRE Green Guide to Housing Specification has information on the maximum distances various materials can be transported before there will be a greater environmental impact than using new materials – visit [www.bre.co.uk/greenguide](http://www.bre.co.uk/greenguide) for more information.
- 4.19 Some new building materials have a high recycled component. The Waste Resources Action Programme (WRAP) has a series of comprehensive guides covering building products that are made from recycled materials. Visit [www.wrap.org.uk](http://www.wrap.org.uk) for more information.

## **5.0 Biodiversity (Nature Conservation)**

- 5.1 New developments should optimise the use of external spaces and give full consideration to the needs of biodiversity. The council's Residential Design Guide also covers this aspect of sustainable development.

### **Background**

- 5.2 Much of the Vale is treasured for its landscape and the biodiversity it supports. Developers need to be aware of this and consider how their proposals can fit into and wherever possible enhance the landscape and biodiversity.
- 5.3 Well designed landscaping can provide valuable public space, create improved micro-climates (for example by reducing wind and providing shade), and have other environmental benefits (such as cleansing the air of pollutants and increasing moisture retention). Good quality landscaping sets the tone for a whole development and has an influence on local well-being.
- 5.4 Biodiversity is a key indicator of the health of the environment and represents the variety of biological life and activity of plants and animals, plus the various habitats which support them. It is not just about rare and special species, it is about valuing the whole natural world. New development can have a positive impact on biodiversity if proper thought is given to it early in the design process. Positive action on biodiversity can be cost neutral compared to other alternatives for landscaping and garden planting.
- 5.5 Wherever possible, new development should be focused on land that has limited or low ecological value. This is often previously developed (or brownfield) land. However, it should not be assumed that all previously developed land has a low ecological value.
- 5.6 Chapter seven of the Vale of White Horse Local Plan and the emerging LDF Core Strategy include a range of policies relating to nature conservation. Development proposals should ensure they comply with these policies, as well as relevant legislation and best practice guidance. Whenever possible, development proposals should incorporate the following:
- Conservation and enhancement of existing habitats, both during and after construction
  - green corridors and planned planting strategies of native species
  - landscape design.

### **Conservation and Enhancement of Existing Habitats, both During and After Construction**

- 5.7 Most development sites will have some existing or potential value as a wildlife habitat or public space. Development design and landscaping should seek to preserve or enhance existing habitats and features.

5.8 Habitats and species on the site and in the surroundings should be assessed in an ecological report produced by a suitably qualified ecologist. Full members of the following organisations would meet this requirement:

- Association of Wildlife Trust Consultancies
- Chartered Institution of Water and Environmental Management
- Institute of Ecology and Environmental Management
- Institute of Environmental Management and Assessment
- Landscape Institute.

5.9 An ecological report should include:

- A brief description of the site and its settings
- a brief description of the proposed development
- the relevant legislation and planning policy
- an outline of the method used to assess the site's ecological value
- the results of any surveys carried out
- the potential impacts of the development
- mitigation measures to avoid / minimise the impacts
- compensation measures if impacts are unavoidable
- enhancement measures to result in a net gain in biodiversity.

Potential enhancement measures could be a scheme of native species planting (hedgerows, trees, wildflower meadows), creation of ponds, the provision of bat boxes and space in roofs for bats and plants that produce food for birds at key times of the year. Reference should also be made to local Biodiversity Action Plans, local protection orders and plans to protect key biodiversity features during and after construction. Details of how the landscape and biodiversity features on the site will be maintained should also be included.

### **Green Corridors and Planned Planting Strategies of Native Species**

5.10 Green corridors create landscape networks which help to protect an area's biodiversity. They allow for species diffusion and habitat reinforcement. In practical terms, this could involve access to food in some locations when scarce elsewhere, or allowing for a varied gene pool which is essential for healthy, natural evolution. Such features could tie in with safe pedestrian and cycle routes.

### **Landscape Design**

5.11 Good landscape design will ensure a development fits in with the local landscape whilst achieving low maintenance costs. A large part of this will depend on the design and use of local materials, as covered in Section 4.2 Local Materials.

5.12 Development proposals should identify and address any threats and opportunities to nature conservation interests. Below is a list of measures which can be used on any site to enhance biodiversity:

- Appropriate siting of buildings
- dedicating space to nature conservation interests
- appropriate landscaping designed to benefit wildlife

- planting native/local species
- using a habitat management plan
- provision of nesting/roosting boxes
- creating features which provide food and water for wildlife
- incorporation of green roofs to replace the loss of open land, limit surface water run off, and provide wildlife habitats
- Sustainable Urban Drainage Systems (SUDS)

5.13 Developers are urged to adopt the following hierarchy when incorporating nature conservation measures:

1. Retain, enhance or create features of nature conservation value and avoid harm.
2. Mitigate impacts to nature conservation where it has been impossible to avoid some adverse impacts.
3. Where damage is unavoidable, compensate for the loss of features of nature conservation value to result in a net gain in biodiversity.

## **6.0 Pollution Control**

- 6.1 Post development pollution needs to be avoided or mitigated.

### **Background**

- 6.2 Pollution of land, air and water can damage or contaminate building exteriors, drinking water, groundwater and water courses, trees, soil and crops, and can harm human health and economic activity. Attention to pollution abatement at an early stage can prevent unnecessary incidents that would have adverse environmental, social and economic effects at a later date.
- 6.3 Light pollution is also an increasing concern, and regard should be given to its minimisation in new developments.
- 6.4 For industrial processes, pollution issues are covered by statutory agencies such as the Environment Agency. There are other issues, however, that all developers (residential, commercial and industrial) should bear in mind if they are to operate in a sustainable manner. Some of these are listed below:
- Prepare a site management strategy to reduce impacts on neighbours from noise, odour and dust during construction
  - avoid products/materials that have the potential to release harmful chemicals into the environment
  - identify any hazardous materials on site (e.g. asbestos) and employ a licensed contractor to carry out disposal
  - where decontamination of land is necessary, seek the most environmentally benign solution
  - if the development will lead to the introduction of processes that create high noise levels, incorporate mitigation measures such as building insulation or earth bunds
  - specify heating plant with low nitrous oxide (NO<sub>x</sub>) emissions
  - plant trees to 'neutralise' the release of CO<sub>2</sub> and help to absorb pollutants (including noise)
  - specify building materials with low toxicity which are benign both during use and on disposal. This could include natural, non-toxic and low VOC (volatile organic compound) paints, glues, solvents, treatments, furnishings and coatings
  - specify high quality ventilation (preferably passive or low energy) and include appropriate indoor plants to reduce the impact of indoor pollutants and the likelihood of allergic reactions triggered by fungal spores, bacteria and dust mites

- be aware that some locations may be affected by electromagnetic fields, such as overhead power lines, electrical substations and mobile phone masts. If close proximity is unavoidable, seek appropriate advice
- avoid light pollution by investing in best practice design
- Sustainable Drainage Systems can have benefits for protecting water quality from contaminated surface water run-off, and that pollution interceptors can be incorporated in SUDS where appropriate.

## **7.0 Transport and Access**

- 7.1 New development should 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. Developments should take account of Oxfordshire County Council's Residential Roads Design Guide and in particular the Manual for Streets.

### **Background**

- 7.2 Two of the main threats to people's quality of life come from increasing levels of congestion and pollution associated with traffic growth. A sustainable approach to transport can help to alleviate this by discouraging reliance upon private motor vehicles and giving preference to other modes of travel. The successful integration of transport and land use planning, therefore, is crucial. New development should 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.
- 7.3 Our current inability to respond properly to the challenges of sustainable transport has led to the following:
- The level of UK CO<sub>2</sub> emissions from road transport is now over 25 percent of total CO<sub>2</sub> emissions
  - congestion and unreliability of journeys, which add to business costs and undermine competitiveness, especially in towns and cities where traffic is heaviest
  - increasing concern about air quality, especially for children, the elderly and those suffering from respiratory problems.
- 7.4 Location is a key factor in determining how much transport choice can realistically be offered by a development site.
- 7.5 Development proposals should consider the following issues:
- 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
  - traffic calming
  - access
  - green travel plans

### **Safe and Easy Access to Public Transport Provision**

- 7.6 The first step under this section is to liaise with public transport officers at the relevant local authority and public transport operators. Assessments of future likely travel patterns from a new development should feed into the adjustment of public transport services, in order to maximise their use. Simply adding stops may offer only limited access to the transport network, so they may not be used.

- 7.7 Public transport stops should, wherever possible, include raised boarding areas, clear signing, good lighting and accessible, easy to understand, preferably 'real-time' service information. Service information and discounted travel schemes should also be available at larger places of employment.

### **Provision of Footpaths, Pavements and Road Crossings for Pedestrians**

- 7.8 Pedestrian 'desire' routes should be identified early on in the design process and should include good quality on-site paths, preferably connected to existing routes – giving short-cuts to shops, schools, public transport nodes etc. By generating good footfall at all times on well overlooked and well integrated routes, the potential for anti-social behaviour and crime on underused routes (such as alleyways, shortcuts, footpaths) will be reduced.
- 7.9 Lighting needs to be included for safety and security reasons where appropriate. Thoroughfares should have surveillance from the active edges of buildings. The lighting should be installed to the appropriate British Standard. This should be in conjunction with designing attractive streets with a real 'sense of place' that fosters pedestrian activity, taking into account the needs of the disabled and less mobile.

### **Facilitating the Ease of Cycling as a Transport Option**

- 7.10 Developments should either connect with existing cycle routes or new routes should be created, particularly within larger developments. Routes for pedestrians, cyclists and vehicles, in most cases, should run alongside one another and not be segregated, although they can be separate. They should be well sign-posted, as direct as possible, incorporate well-designed junctions and avoid steep gradients wherever possible. They should be overlooked by surrounding buildings and activities. Keeping pedestrians, cyclists and vehicles at the same level will avoid creating intimidating spaces such as subways, footbridges and underpasses. Where subways are unavoidable, they should be as wide and short as practicable with the exit visible from the entry and with high levels of artificial light. They might also need to incorporate measures to discourage vehicular use.
- 7.11 Secure storage for bicycles should be incorporated into the design of new dwellings and should be provided at key locations, such as leisure facilities and retail/commercial centres. Commercial developments should also provide adequate cycle parking for staff and 'in-house' changing facilities, including lockers and showers.

### **Provision for Home Working**

- 7.12 The number of self-employed people is increasing, as is the number of people who work full or part-time from home. Working from home for many people requires only a telephone line and connection to the internet for data transference and video conferencing. Good design at an early stage should enable home working to be effective and comfortable.

### **Traffic Calming**

- 7.13 For larger sites, consult with the relevant authority's highways department to discuss how best to achieve layouts that naturally calm traffic, rather than simply resorting to humps and cushions. Also consider the potential for designing



residential layouts on Home Zone principles, where traffic is slowed and surface design gives priority to pedestrians and bicycles.

### **Access**

- 7.14 There must be adequate access from the public highway for fire fighting vehicles, ambulances and waste collection vehicles, which should be provided in compliance with Approved Document B of the Building Regulations. Adequate parking facilities should be provided to ensure emergency access is maintained and to avoid restrictions of the public highway.

### **Green Travel Plans**

- 7.15 These will be 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 even the provision of charge points for electric vehicles and retail outlets for biofuels.

## **8.0 Health, Safety and Well Being**

- 8.1 To optimise design as an aid to reducing anti-social behaviour, crime, fire hazards and poor health related to buildings and their surroundings

### **Background**

- 8.2 Some may question why a section such as this is included in a document on sustainability, but sustainable development is not just about curbing pollution, recycling waste or designing energy efficient buildings. The development of Community Strategies highlights that communities are increasingly focused on issues such as health, crime and the local environment in which people live. These issues can often be addressed to the betterment of future users of the development and their neighbours through the initial building design and planning processes. Issues such as parked cars and alleyways, for example, cause regular concern for residents.
- 8.3 It is the role of planning to deliver social, economic and environmental benefits for the community – these are the three drivers of sustainable development and they should have equal weighting. Developers need to take account of this and appraisals for larger development proposals should incorporate adequate measures to address the concerns of local communities, such as designing out crime, or the provision of parks and health centres.
- 8.4 Development proposals should take into account the following issues:
- Noise insulation and abatement techniques
  - provision of private space
  - access to recreational facilities for both young and old
  - good site practices
  - external lighting provision
  - crime reduction techniques
  - site specific crime reduction features
  - fire reduction techniques/installations.

### **Noise Insulation and Abatement Techniques**

- 8.5 For dwellings, performance standards for sound insulation are laid out in the Building Regulations, Approved Document E. This document includes performance standards in terms of airborne and impact sound insulation for walls, floors and stairs that have a separating function.
- 8.6 To ensure that the requirements for sound insulation are achieved on site, sound insulation testing is covered by Regulations 12A and 20A of the Building Regulations. The normal way of satisfying the requirements of this Regulation is to implement a programme of sound insulation testing, called pre-completion testing, according to the guidance set out in Part E of the Building Regulations. It is recommended that this testing is undertaken by a test body with UKAS accreditation. All developments should be mindful of minimum noise standards, and should seek to incorporate best practice solutions.

- 8.7 Noise from construction sites is also an issue that needs consideration and is regulated by environmental legislation. Noise from works, machinery, workers, radios, vehicles, etc. should be kept to a minimum, and no audible sound should be heard beyond the site boundaries outside normal working hours.
- 8.8 Contractors should seek to comply with the Considerate Contractors Scheme, which covers on-site noise issues, and achieve formal certification under this scheme.

### **Provision of Outdoor Space**

- 8.9 The availability of outdoor space around or close to the home is one of the key aspects affecting the quality of life of residents. The outdoor space can be a private garden, a shared garden, balcony or roof terrace. There should be a clear distinction between public and private space.

### **Access to Recreational Facilities for both Young and Old**

- 8.10 Larger residential developments need to include improvements to existing local community facilities or provide new or expanded facilities. The UK Sustainable Communities Strategy and Action Plan (2003), along with local Community Plans highlight that a major concern of existing residents is the erosion of community and associated facilities. Leisure and recreational facilities such as playgrounds should be accessible to all (including a range of disabilities and ages). This should be built into the guidance and tie into the equality and diversity strategies of Oxfordshire County Council and the Vale of White Horse District Council respectively. Developers should also consult with user groups over the most appropriate facilities.
- 8.11 Examples of ways to improve recreational facilities include the following:
- Access to space for growing food (such as allotments)
  - provision of safe, well designed public spaces and community buildings
  - provision of informal recreational space for teenagers and young adults
  - provision of safe, well designed play facilities for young children, which do not cause disturbance to nearby residents.

### **Good Construction Site Practices**

- 8.12 Building works can significantly affect the quality of life of people who live and work nearby. Key aspects include waste, nuisance, (such as footpath obstruction or mud on the road), pollution incidents, dust, noise and health and safety.
- 8.13 The Considerate Constructors Scheme is a UK certification scheme that encourages the considerate management of construction sites. It has been in operation since 1997 and is operated by the Construction Confederation. Developers are strongly urged to take up this or another local, regional or nationally recognised scheme to minimise the impact of their development on the local community.

## **External Lighting**

- 8.14 The object of external lighting is for safety as well as to deny criminals the ability to operate unobserved during the hours of darkness. The street lighting layout should be carefully designed to cover all vulnerable areas. Light pollution and systems that require an unnecessary amount of energy need to be avoided.

## **Crime Reduction**

- 8.15 There are many ways of improving the actual and perceived security of a building, either as part of the wider planning of a development site or as part of the design of individual buildings. The Secured by Design (SBD) award is about making dwellings and business premises secure in ways that are not obvious. No one wants to see fortress designs, which appear in some high crime areas and only generate an even greater fear of crime. The SBD award standard covers a wide range of options and should be consulted early in the design process.
- 8.16 It should be stressed that this is not simply a residential issue, as business crime is high within the Thames Valley Police Area.

## **Crime Reduction Measures**

- 8.17 There are plenty of measures which can be included in a new development to help reduce the risk of crime, such as the following:
- Communal areas designed to allow natural supervision
  - boundaries clearly defined and features incorporated to prevent unauthorised vehicular access
  - defensible space using real or symbolic barriers – e.g. change of surface material, texture or colour to encourage a territorial feeling
  - dwellings sited in small clusters
  - public access routes designed to be well-used with good natural surveillance
  - frontages to be defined to demarcate public and private property
  - the design of boundary fences walls to be balanced between the needs of security and privacy
  - street lighting to conform to the current British Standard
  - car parking located within view of residents or in a secure location
  - clear naming and numbering of roads and properties
  - avoid designing features that create potential problems of climbing and trespass.
- 8.18 It is recommended that developers consult the local Police Crime Prevention Design Adviser at the earliest opportunity.

## **Fire Safety**

- 8.19 Fire damage to the environment can extend beyond the buildings themselves. In the UK fire kills and injures thousands of people every year. In addition, fire causes pollution to air, ground and water, and the need to replace materials lost have an additional environmental impact. Sustainable developments protect communities from fire and its damaging effects, offering additional protection to the most vulnerable members of the community, especially the elderly.
- 8.20 Issues to consider include:
- An adequate supply of water for fire fighting
  - install fire sprinkler systems in all buildings
  - install smoke alarms in all buildings
  - avoid specific fire risks in communal refuse collection and underground parking areas.

## 9.0 Climate Change Adaptation

- 9.1 “The climate in the UK is changing and this is particularly marked in the south-eastern regions” – South East Climate Change Partnership. New buildings and developments will need to incorporate techniques to withstand changing weather conditions over the expected lifespan of the building.
- 9.2 Key climatic changes will be hotter, drier summers and warmer, wetter winters. Weather is likely to be less predictable with more extreme conditions such as excessive heat or torrential rain. The added cost of taking adaptation into account at the construction stage could be far less than having to make necessary changes or repair damage later.
- 9.3 It is important to avoid incorporating climate change adaptation measures which will actually add to carbon emissions and climate change, such as installing air conditioning to cope with hotter internal building temperatures.
- 9.4 Key climate change adaptation measures to consider for all types of development are:
- **Location** – take appropriate measures to evaluate flood risk, plan to overcome the urban heat island effect by the careful positioning of green spaces and shade.
  - **Site Layout** – Ensure the development does not increase flood risk, minimises summer solar gain, maximises natural ventilation, maximises natural vegetation, takes account of increased risk of subsidence, and provides appropriate outdoor natural space.
  - **Structural Design of Buildings** – Buildings should be strong enough to cope with higher wind speeds and storm intensity (increased rainfall), and higher levels of subsidence, be capable of incorporating cooling techniques, and have an appropriate level of thermal mass. Buildings should be constructed of materials that will be resilient to the effects of climate change.
  - **Ventilation and Cooling** – These systems should be capable of delivering comfortable temperatures for the expected climate throughout the life of the development. Cooling/ventilation systems should be designed to be low or no carbon.
  - **Drainage** – Carry out an assessment to determine which Sustainable Urban Drainage System (SUDS) technique will be appropriate for the site and ensure adequate measures are in place for future maintenance and that ground water regulations are complied with. Hard surfaces should be permeable, and drainage should be designed to safely dispose of predicted excess surface water flows. Developers should ask the Environment Agency for further advice on SUDS.
  - **Water** – Conservation measures should be included as standard and should achieve the targets set out in the Code for Sustainable Homes and BREEAM. Water storage measures can be used in conjunction with water conservation.

- **Outdoor Space** – Provide shaded outdoor spaces and use vegetation which can cope with expected weather conditions and requires less water. Arrangements need to be made for storing waste which will prevent problems of smells occurring in hotter weather conditions.
- **Connectivity** – Developments need to be designed to be connected to transport networks (roads, footpaths and cycle paths), and networks need to be resilient to expected future weather conditions. Paths and roads need to be properly marked and surfaces need to remain serviceable.

9.5 The UK Climate Impacts Programme provides more detailed information on adaptation measures. The South East Climate Change Partnership has also produced a case study guide on adapting to climate change.

## Appendix 2: Applicant Checklist

### Assessing the Sustainability of the Development

YES NO

#### Mandatory requirements

Commercial developments: Will the development meet the council's required standard described in paragraphs 3.5 to 3.8 of the SPD?

Residential developments: Will the development meet the council's required standard described in paragraphs 3.14 to 3.16 of the SPD?

#### Advisory requirements checklist

##### Energy

Have the buildings been designed to maximise passive solar gain?

Have measures been taken to prevent excess solar gain in the summer?

Will insulation levels exceed the minimum levels stated in the Building Regulations?

Will the development include A-rated electrical and heating appliances?

Will the development include low energy lighting?

Where cooling and ventilation systems are required, will low carbon alternatives be used?

Will the development include adequate lighting and heating controls?

Will the development incorporate district heating (CHP or CCHP)?

##### Water Resources

Will the development include appropriate water metering?

Will the development include water saving devices?

Will the development incorporate rainwater harvesting?

Will the development incorporate grey water recycling?

Will the development use SUDS?

Will the development include drought tolerant planting?

##### Waste Minimisation and Use of Recycled Materials

Has the development been designed to facilitate future re-use?

Will a Site Waste Management Plan be implemented?

Will low waste construction methods be used?

Will waste and recycling facilities be provided?



Will existing materials be re-used?

Will the development generate energy from waste?

## **Materials**

Will local materials be used?

Will materials with a low embodied energy be used?

Will materials with a low environmental impact be used?

Will recycled or reclaimed materials be used?

## **Biodiversity (Nature Conservation)**

Does the development include measures for the conservation and enhancement of existing wildlife habitats, both during and after construction?

Will the development include green corridors and planting strategies of native species?

Will the development include low maintenance intensive landscaping?

Will the development incorporate measures to enhance biodiversity?

Will the development retain, enhance or create features of nature conservation value?

Will the development mitigate impacts on nature conservation where it has not been possible to avoid all adverse impacts?

Where some harm is unavoidable, will the development compensate for the loss of features of nature conservation value?

## **Pollution Control**

Will the development avoid or mitigate post development pollution?

## **Transport and Access**

Will the development include easy and safe access to public transport?

Will there be adequate provision of footpaths and road crossings for pedestrians?

Will the development facilitate cycling?

Will the development include or enable working from home?

Will the development include traffic calming measures?

Will the development include good access to the public highway?

Will a Green Travel Plan be adopted?

### **Health, Safety and Well Being**

Will the development include noise insulation and abatement measures?

Will the development include the provision of outdoor space?

Will the development include access to recreational facilities for both young and old?

Will the development include well-designed external lighting?

Will the development include crime reduction measures?

Will the development include fire reduction measures?

### **Climate Change Adaptation**

Will the development be adaptable to the effects of climate change?

## Appendix 3: Further References

Code for Sustainable Homes – full technical guidance

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

BREEAM – full technical guidance and further information on the Code for Sustainable Homes

<http://www.breeam.org/>

BREEAM – for a full list of all BREEAM assessors

<http://www.greenbooklive.com/page.jsp?id=161>

### 1.0 Energy

#### Website References:

1. Design Advice from the Carbon Trust - The service includes a detailed printed guide and face-to-face consultancy. The amount of consultancy time you get depends on the size of your project and the potential carbon savings - [http://www.carbontrust.co.uk/energy/assessyourorganisation/design\\_advice.htm](http://www.carbontrust.co.uk/energy/assessyourorganisation/design_advice.htm)
2. The Energy Saving Trust - information about housing & building energy efficiency as well as grants, publications and events - <http://www.energysavingtrust.org.uk/housingbuildings/>
3. The Chartered Institution of Building Services Engineers – provides advice on approached to and the specification of building services to minimise energy use – [www.cibse.org](http://www.cibse.org)
4. Building Services Research and Information Association - provides advice on approached to and the specification of building services to minimise energy use – [www.bsria.co.uk](http://www.bsria.co.uk)
5. Combined Heat and Power Association – provides information and promotes the use of CHP technologies – [www.chpa.co.uk](http://www.chpa.co.uk)
6. The Seasonal Efficiency Database for the UK provides a list of efficiency scores for all boilers currently in use in the UK – [www.sedbuk.com](http://www.sedbuk.com)
7. National Home Energy Rating Scheme (NHER) – tools for designing and assessing energy performance of a building – [www.nher.co.uk](http://www.nher.co.uk)
8. TV Energy – [www.tvenergy.org](http://www.tvenergy.org) - Regional renewable energy agency, offering expertise, advice and practical help with sustainable energy projects as well as BREEAM and SAP ratings
9. TV Bioenergy – [www.tvbioenergy.org](http://www.tvbioenergy.org) - Sister company to that above, growing and supplying woodchips and pellets as well as offering design feasibility for biomass projects
10. Renewable Energy Association – [www.r-e-a.net/](http://www.r-e-a.net/)
11. British Wind Energy Association – [www.bwea.com](http://www.bwea.com)
12. Solar Trade Association – [www.solartradeassociation.org.uk](http://www.solartradeassociation.org.uk)
13. Ground Source Heat Pump Association – [www.gshp.org.uk](http://www.gshp.org.uk)

#### Further Reading

1. Energy in Architecture: The European passive solar handbook – J. Goulding, J. Lewis and T. Stemmers. eds. – Batsford (1992)
2. Ecohouse 2: A Design Guide – S. Roaf, M. Fuentes & S. Thomas – Architectural Press (2003)

3. Renewable Energy: Power for a Sustainable Future – G. Boyle. ed. – Oxford University Press (2000)

## **2.0 Water Resources**

### **Website References:**

1. Environment Agency – [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk) – the EA provides extensive information on water saving & management, including SUDS and flooding. There is an enquiry line on 0845 933 111.
2. Thames Water – [www.thames-water.com/waterwise](http://www.thames-water.com/waterwise) - direct link to information for customers looking for advice on water saving and metering. Call 0845 9200 888.
3. Three Valleys Water - <http://www.3valleys.co.uk/>
4. South East Water – [www.southeastwater.co.uk](http://www.southeastwater.co.uk)
5. Parts G and H of the Building Regulations – [www.theso.co.uk](http://www.theso.co.uk) – Government proscribed minimum building standards covering sanitary appliances, drainage and waste. Call 020 7944 4400.
6. Construction Industry Research and Information Association (CIRIA) – [www.ciria.org.uk/suds](http://www.ciria.org.uk/suds) - further information on SUDS.
7. The Bathroom Association – [www.bathroom-association.org](http://www.bathroom-association.org) – provides information on suppliers of water saving devices. Call 01782 747123.
8. Construction Resources – [www.ecoconstruct.com](http://www.ecoconstruct.com) – provides information and supplies a wide range of water saving, rainwater harvesting and water recycling products. Call 020 7450 2211.
9. Sustainable Homes – [www.sustainablehomes.co.uk](http://www.sustainablehomes.co.uk) – provides information on sustainable good practice that includes the topic of water. Call 020 8973 0429.
10. Water Regulations Advisory Service – [www.wras.co.uk](http://www.wras.co.uk) – guidance on reclaimed water systems and water conservation. Call 01495 248 454.
11. Envirowise – [www.envirowise.gov.uk](http://www.envirowise.gov.uk) - offers UK businesses free, independent, confidential advice and support on practical ways to increase profits, minimise waste and reduce environmental impact.

### **Further Reading:**

1. Sustainable Urban Drainage Systems – An Introduction
2. Conserving Water in Buildings
3. A Study of Domestic Greywater Recycling – All three available from the EA, see websites above
4. PPG25: Development and Flood Risk (2001) – government planning guidance, subject to periodic updating – call 0870 122 6236 to order a copy
5. Disposing of Rainwater – The Building Research Establishment (BRE) (2000) – Call 020 7505 6622 or see website [www.brebookshop.com](http://www.brebookshop.com)
6. Rainwater and Greywater in Buildings: Project Report and Case studies – D. Brewer, R. Brown et al., BSRIA. Call 01344 426511 or see website [www.bsria.co.uk](http://www.bsria.co.uk)

## **3.0 Waste Minimisation and Use of Recycled Materials**

### **Website References:**

1. The Wastebook is a compendium of information sources relating to the sustainable management of waste in London and the South-East. It provides

- information on recyclers, consultants, waste service providers, suppliers of recycled products etc. – [www.wastebook.org](http://www.wastebook.org)
2. CIRIA produce a range of information relating to the efficient management of construction wastes, including waste reduction, re-use and recycling in construction projects – [www.ciria.org.uk](http://www.ciria.org.uk) – Call 020 7222 8891
  3. The Chartered Institute of Waste Management provides advice and links to professional support on a wide range of waste management issues – [www.iwm.co.uk](http://www.iwm.co.uk) – Call 01604 620426
  4. Envirowise – [www.envirowise.gov.uk](http://www.envirowise.gov.uk) - offers UK businesses free, independent, confidential advice and support on practical ways to increase profits, minimise waste and reduce environmental impact.
  5. Wastewatch maintain a comprehensive on-line UK Recycled Products guide – [www.recycledproducts.org.uk](http://www.recycledproducts.org.uk)
  6. SMARTStart and SMARTWaste are tools to assist with waste management on construction sites operated by the BRE – [www.smartwaste.co.uk](http://www.smartwaste.co.uk) or [www.bre.co.uk](http://www.bre.co.uk) – Call 01923 664 462
  7. Timber recycling Information Centre – [www.recycle-it.org](http://www.recycle-it.org)
  8. AggRegain – information on reuse of aggregates – [www.aggregain.org.uk](http://www.aggregain.org.uk)
  9. General information on recycling – [www.letsrecycle.com](http://www.letsrecycle.com)
  10. Salvo – [www.salvo.co.uk](http://www.salvo.co.uk) – call 01890 820333 – architectural salvage dealers
  11. Period Property – [www.periodproperty.co.uk](http://www.periodproperty.co.uk) – call 01223 290922 – as above

#### **Further Reading:**

1. Beddington Zero Energy Development – Construction Materials Report, available from BioRegional Development Group – [www.bioregional.com](http://www.bioregional.com) – call 0208 4044 880
2. BRE Environmental Assessment Methodology (BREEAM) – waste issues included in all forms of assessment – [www.bre.org.uk](http://www.bre.org.uk)
3. Building a better quality of life: A strategy for more sustainable construction, DTI – [www.dti.gov.uk](http://www.dti.gov.uk)
4. Green Building Handbook, Vols 1 & 2 – Woolley et al. E & FN Spon, London (1997 & 2000) – Identifies recycled materials
5. Handbook of sustainable building – Anink, B & M, James & Hames Ltd, London (1996) – identifies recycled and reclaimed materials
6. 'A Report on Demolition Protocol', ICE – [www.ice.org.uk](http://www.ice.org.uk)

## **4.0 Materials**

#### **Website References:**

1. Forestry Stewardship Council – [www.fsc-uk.org](http://www.fsc-uk.org) – for the UK Working Group
2. Construction Resources – [www.ecoconstruct.com](http://www.ecoconstruct.com) – call 020 7450 2211 – Sustainable materials and building products supplier
3. Green Building Store – [www.greenbuildingstore.co.uk](http://www.greenbuildingstore.co.uk) – call 01484 854898 – as above
4. James & James European Database of Suppliers of Energy Efficient and Sustainable Building Products and Services – [www.jxj.com/suppands/edseeb](http://www.jxj.com/suppands/edseeb) - call 020 7387 8558
5. Natural Building Technologies – [www.natural-building.co.uk](http://www.natural-building.co.uk) – Ecological building merchants
6. Thermafleece – [www.secondnatureuk.com](http://www.secondnatureuk.com) – insulation material made from the wool of British hill sheep

7. Warmcel – [www.warmcel.com](http://www.warmcel.com) – insulation made from 100% recycled newsprint
8. Limetec – [www.limetechnology.co.uk](http://www.limetechnology.co.uk) – Oxfordshire based company specializing in lime and hemp based construction
9. The Waste Resources Action Programme (WRAP) – [www.wrap.org.uk](http://www.wrap.org.uk) – information on building products that are made from recycled materials.

#### **Further Reading:**

1. Green Guide to Specification (2002) and Green Guide to Housing Specification (2000), BRE – [www.brebookshop.com](http://www.brebookshop.com) – call 01923 664262. Information on the environmental performance of a wide range of different building materials.
2. Life Cycle Assessment of PVC and Alternative Materials, DEFRA (2001) – available from DEFRA Chemicals and Biotechnology Unit – [www.defra.gov.uk](http://www.defra.gov.uk)
3. The Green Building Bible (2005), Hall, K (ed.), Green Building Press
4. The Ecology of Building Materials (2001), Berge, B; Architectural Press

### **5.0 Biodiversity (Nature Conservation)**

#### **Website References:**

1. BBOWT – [www.bbowl.org.uk](http://www.bbowl.org.uk) – Berks, Bucks & Oxon Wildlife Trust
2. English Nature – [www.english-nature.org.uk](http://www.english-nature.org.uk) – Government funded body whose purpose is to promote the conservation of England's wildlife and natural features
3. Royal Society for the Protection of Birds – [www.rspb.org.uk](http://www.rspb.org.uk)
4. Bat Conservation Trust – [www.bats.org.uk](http://www.bats.org.uk)
5. Information on Wildlife Gardening – [www.gardenlinks.co.uk](http://www.gardenlinks.co.uk)
6. The Institute for Ecology and Environmental Management – [www.ieem.org.uk](http://www.ieem.org.uk)
7. Landscape Institute – [www.landscapeinstitute.org](http://www.landscapeinstitute.org)
8. Institute of Environmental Management and Assessment – [www.iema.net](http://www.iema.net)
9. Information on native tree species – [www.british-trees.com/links/home.htm](http://www.british-trees.com/links/home.htm)

#### **Further Reading:**

1. Green Roofs – Existing Status & Potential for Conserving Biodiversity in Urban Area, (2002), Grant, G; Engleback, L; Nicholson, B – English Nature Research Report by Ecoschemes Ltd.
2. Building Green – A guide to using plants on roofs, walls and pavements, (2004), Greater London Authority

### **6.0 Pollution Control**

#### **Website References:**

1. The BRE Centre for Health, Safety and the Environment can provide information on sources of indoor air quality problems and associated solutions – [www.bre.co.uk](http://www.bre.co.uk) – call 01923 664 462
2. The Environment Agency's website for contaminated land – [www.environment-agency.gov.uk/subjects/landquality](http://www.environment-agency.gov.uk/subjects/landquality)
3. National Society for Clean Air – [www.nsca.org.uk](http://www.nsca.org.uk)
4. Friends of the Earth – [www.foe.org.uk](http://www.foe.org.uk) – offers information on the effects of industrial solvents and common air pollutants

5. BRE Centre for Health, Safety and Environment – provides information on sources of indoor air quality problems and appropriate solutions – [www.bre.co.uk](http://www.bre.co.uk)
6. Construction Resources – [www.ecoconstruct.com](http://www.ecoconstruct.com) – call 020 7450 2211 – Supplier of natural, non-toxic and low VOC paints, glues, solvents, treatments, furnishings and coatings
7. Green Building Store – [www.greenbuildingstore.co.uk](http://www.greenbuildingstore.co.uk) – call 01484 854898 – as above

### **Further Reading:**

1. Handbook on Air Pollution and Health – Committee on the Medical Effects of Air Pollutants, Dept. Health (1997)
2. The Natural House Book, David Pearson, Conran Octopus – shows how to create a home that is healthy, harmonious and ecologically sound
3. Sick Building Syndrome, WHO Regional Office for Europe
4. Design Guidelines for Development near High Voltage Power Lines (2003), National Grid plc
5. Lighting in the Countryside: Towards Best Practice (1997), Countryside Commission and the DCLG
6. Guidance notes for the reduction of obtrusive light, GN01 (2005), Institution of Lighting Engineers (ILO)

## **7.0 Transport and Access**

### **Website References:**

1. Cycle Forum for England – The National Cycling Strategy, a series of free publications on all cycling related matters – via [www.cyclingengland.co.uk](http://www.cyclingengland.co.uk) – call 0207 944 2977
2. Home Zones – [www.homezonenews.org.uk](http://www.homezonenews.org.uk) – gives details of home zone developments throughout the UK
3. Department for Transport – [www.local-transport.dft.gov.uk](http://www.local-transport.dft.gov.uk) – The 'local transport' page offers information on travel plans and cycling. It is possible to view transport policy documents, notably the 10 Year Transport Plan (2000)
4. Sustrans – [www.sustrans.org.uk](http://www.sustrans.org.uk) – a practical charity that has developed the national cycling network and promotes safe routes to schools
5. Transport 2000 – [www.transport2000.org.uk](http://www.transport2000.org.uk) – independent national organization promoting sustainable transport; includes Safe Routes to School and Stations
6. Car Plus; the Car Club Network – [www.carclubs.org.uk](http://www.carclubs.org.uk) – national charity promoting responsible car use: list of car clubs around the UK
7. Liftshare.com – [www.liftshare.com](http://www.liftshare.com) – national car sharing database for private individuals and businesses
8. VillageCarShare.com – [www.villagecarshare.com](http://www.villagecarshare.com) – information about setting up car share schemes in villages



### **Further Reading:**

1. Home Zones: A Planning and Design Handbook – A short handbook on planning and design aspects of home zones – The Policy Press/Joseph Rowntree Foundation. Call 01235 465500.
2. Guidelines for Planning for Public Transport in Developments (1999) & Providing for Journeys on Foot (2000) – Both available from Institution of Highways and Transportation – Call 0207 3919977

## **8.0 Health, Safety and Well Being**

### **Website References:**

1. DEFRA information and initiatives relating to environmental noise is available at [www.defra.gov.uk/environment/noise](http://www.defra.gov.uk/environment/noise)
2. The Association of Noise Consultants can provide a list of professional consultants for noise and vibration – [www.association-of-noise-consultants.co.uk](http://www.association-of-noise-consultants.co.uk)
3. The Institute of Acoustics maintains a list of suppliers of acoustic products and services and is also a good source of information on current research and best practice – [www.ioa.org.uk](http://www.ioa.org.uk)
4. Building Services Research and Information Association – [www.bsria.co.uk](http://www.bsria.co.uk)
5. Robust details on sound insulation techniques – [www.robustdetails.com](http://www.robustdetails.com)
6. Secured By Design web site at – [www.securedbydesign.com](http://www.securedbydesign.com)
7. Report of the Association of British Insurers report 'Securing the Nation' can be download from the link - [www.abi.org.uk/securingthenation](http://www.abi.org.uk/securingthenation)
8. Commission for Architecture and the Built Environment (CABE) – [www.cabespace.org.uk](http://www.cabespace.org.uk) – A champion for parks and public areas in the UK
9. Centre for Accessible Environments – [www.cae.org.uk](http://www.cae.org.uk) – information on designing accessible environments
10. Secured by Design – [www.securedbydesign.com](http://www.securedbydesign.com)
11. Considerate Constructors - <http://www.considerateconstructorsscheme.org.uk>
12. Environment Agency site covering light pollution and additional links - <http://www.environment-agency.gov.uk/yourenv/eff/1190084/pollution/152227/>

### **Further Reading:**

1. Guide B5 – Noise and Vibration Control, CIBSE (2002) – Call 0208 675 5211 or see [www.cibse.org](http://www.cibse.org)
2. Quiet Homes, A Guide to Good Practice, Building Research Establishment – [www.bre.bookshop.com](http://www.bre.bookshop.com)
3. Sick Building Syndrome (1995), World Health Organisation Regional Office for Europe – Local Authorities, Health and Environment briefing pamphlet, Series 2.
4. Shaping Neighbourhoods: A Guide to Health, Sustainability and Vitality (2003), Barton, H; Grant, M; & Guise, R – Spon Press.
5. But will we want to live there? – Planning for People & Neighbourhoods in 2020, Andrews, C.L; Reardon-Smith, W; & Townsend, M – [www.women2020.com](http://www.women2020.com)
6. Building the 21<sup>st</sup> Century Home: The Sustainable Urban Neighbourhood (1999), Rudlin, D; Falk, N; - Architectural Press, Oxford



## **9.0 Climate Change Adaptation**

### **Website References:**

1. UK Climate Impacts Programme  
[www.ukcip.org.uk](http://www.ukcip.org.uk)
2. Climate South East  
[www.climatesoutheast.org.uk](http://www.climatesoutheast.org.uk)

### **Further Reading:**

1. Adapting to Climate Change: A Checklist for Development (November 2005) (Three Regions Climate Change Group (TRCCG))
2. Adapting to Climate Change: A Case Study Companion to the Checklist for Development (March 2007), South East Climate Change Partnership.

## Appendix 4: Saved Policies from the Local Plan 2011

### POLICIES CONTAINED IN THE VALE OF WHITE HORSE LOCAL PLAN 2011 (ADOPTED JULY 2006)

**SCHEDULE A : Those saved policies the Council wishes to extend beyond the 3 years saved period**

Pol No.	Policy Title / Purpose	Comments
(GS1)	Developments in Existing Settlements	Sets out the main elements of the locational strategy and is also place specific. The locational strategy is a sustainable approach to development. If this policy is not saved and until the Core Strategy is adopted, there would be a policy gap which could lead to unsustainable development.
(GS2)	Development in the Countryside	Amplifies the sustainable locational strategy by providing clarity on where development in the countryside would be permitted and more detail on the particular locations which complements the general approach in PPS7.
(GS3)	Development in the Oxford Green Belt	<b>Complements the general approach in PPG2</b> by providing more detail on the approach taken to the quantitative limits on extensions and replacements of dwellings and place specific guidance.
(GS4)	Development in the Oxford Green Belt	Although this reflects the policy approach in PPG2, this is complemented by the specific locations which must be named to implement this policy approach.
(GS6)	Redevelopment of buildings outside settlements	Provides more detail than PPS7 which gives applicants and interested parties more information and certainty on how the policy will be applied.
(GS7)	Re-use of vernacular buildings outside settlements	Provides applicants and interested parties with necessary information and certainty on how the policy will be applied.
(GS8)	Re-use of non vernacular buildings outside settlements	Provides applicants and interested parties with necessary information and certainty on how the policy will be applied.
(DC1)	Design	Provides the detailed policy context to achieve high quality development.
(DC3)	Design against crime	Needed because of the policy's importance to sustainable communities.
(DC4)	Public Art	Needed because of the role public art can play in high quality development.
(DC5)	Access	Provides the detail which gives applicants

		and interested parties more information and certainty on how to comply with this important aspect of development.
(DC6)	Landscaping	Provides the detail which gives applicants and interested parties more information and certainty on how to comply with this important aspect of development.
(DC7)	Waste Collection and Recycling	Provides the detail which gives applicants and interested parties more information and certainty on how to comply with this important aspect of development.
(DC8)	The Provision of Infrastructure and Services	Provides the detail which gives applicants and interested parties more information and certainty on how to comply with this important aspect of development.
(DC9)	The Impact of Development on Neighbouring Uses	Needed because of the importance of this aspect to acceptable development and it provides applicants and interested parties with information and certainty on how the policy will be applied.
(DC10)	The Effect of Neighbouring or Previous Uses on New Development	Needed because of the importance of this aspect to acceptable development and it provides applicants and interested parties with information and certainty on how the policy will be applied.
(DC12)	Water Quality and Resources	Needed because of the policy's importance to safeguarding the environment.
(DC13)	Flood Risk and Water Run-off	Needed because of the policy's importance to safeguarding the environment.
(DC14)	Flood Risk and Water Run-off	Needed because of the policy's importance to safeguarding the environment.
(DC16)	Illuminated Advertisements	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(DC20)	External Lighting	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(TR1)	Wantage relief road scheme	Policy confirms that contributions will be sought for this important Wantage road scheme. Clarifies situation for applicants and interested parties.
(TR3)	A34 related development	Provides the detail which gives applicants and interested parties more information and certainty on the policy approach at this specific location.

(TR5)	The National Cycle Network	Provides the detail which gives applicants and interested parties more information and certainty on the policy approach at these specific locations.
(TR6)	Public Car Parking In the Main Settlements	Provides the detail which gives applicants and interested parties more information and certainty on the policy approach at these specific locations.
(TR7)	Rail Services – Grove Station	Provides the detail which gives applicants and interested parties more information and certainty on the policy approach at this specific location.
(TR10)	Lorries and Roadside Services	Provides the detail which gives applicants and interested parties more information and certainty on the policy approach at these specific locations.
(HE1)	Preservation and Enhancement: Implications for Development	Policy specifically covers development needing planning permission rather than conservation area consent and it provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(HE4)	Development within setting of listed building	Policy specifically covers development needing planning permission rather than listed building consent and it provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(HE5)	Development involving alterations to a listed building	Policy specifically covers development needing planning permission rather than listed building consent and it provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(HE7)	Change of use of listed building	Policy specifically covers development needing planning permission rather than listed building consent and it provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(HE8)	Historic Parks and Gardens	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(HE9)	Archaeology	Policy covers aspects relating to this important consideration in development which because of their importance benefit from being brought together and controlled

		by the grant of planning permission.
(HE10)	Archaeology	Policy covers aspects relating to this important consideration in development which, because it also covers non scheduled archaeology, needs to be controlled by the grant of planning permission.
(HE11)	Archaeology	<b>Policy covers aspects relating to this important consideration in development which because of their importance benefit from being brought together and controlled by the grant of planning permission.</b>
(NE3)	Geologically Important Sites	PPS9 sets context that Local Development Documents should contain policies against which development affecting such sites can be judged.
(NE4)	Other Sites of Nature Conservation Value	PPS9 sets context that Local Development Documents should contain policies against which development affecting such sites can be judged.
(NE6)	The North Wessex Downs Area of Outstanding Natural Beauty	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for this specific area will be applied.
(NE7)	The North Vale Corallian Ridge	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for this specific area will be applied.
(NE8)	The Landscape Setting of Oxford	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for this specific area will be applied.
(NE9)	The Lowland Vale	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for this specific area will be applied.
(NE10)	Urban Fringes and Countryside Gaps	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for these specific areas will be applied.
(NE11)	Areas for Landscape Enhancement	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for these specific areas will be applied.
(NE12)	Great Western Community Forest	Provides the detail which gives applicants and interested parties more information and certainty on how this policy for this specific area will be applied.

(H3)	Housing Sites in Botley	As policy includes sites which have yet to be developed, the policy is needed to give applicants and interested parties information and certainty about development in this location.
(H4)	Housing Sites in Faringdon	As policy includes sites which have yet to be developed, the policy is needed to give applicants and interested parties information and certainty about development in this location.
(H5)	Strategic Housing Site West of Grove	As policy applies to a site which is yet to be developed, the policy is needed to give applicants and interested parties information and certainty about development in this location.
(H6)	Housing Sites in Wantage	As policy includes sites which have yet to be developed, the policy is needed to give applicants and interested parties information and certainty about development in this location.
(H7)	Major Development West of Didcot	As policy applies to a site which is yet to be developed, the policy is needed to give applicants and interested parties information and certainty about development in this location.
(H8)	Housing on the Harwell Science and Innovation Campus	As policy applies to a site which is yet to be developed, the policy is needed to give applicants and interested parties information and certainty about development in this location.
(H10)	Development in the Five Main Settlements	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in these specific locations.
(H11)	Development in the Larger Villages	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in these specific villages.
(H12)	Development in the Smaller Villages	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in these specific villages.
(H13)	Development Elsewhere	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H14)	The Sub-division of Dwellings	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H15)	Housing Densities	Provides the detail which gives applicants

		and interested parties more information and certainty on how this policy will be applied.
(H16)	Size of Dwelling and Lifetime Homes	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H17)	Affordable Housing	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H18)	Affordable Housing on Rural Exception Sites	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H19)	Special Housing Needs	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in these specific locations.
(H20)	Accommodation for Dependent Relatives	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H22)	Sites for Gypsies	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H23)	Open Space in New Housing Development	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(H25)	Garden Extensions	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(CF1)	Protection of Existing Services and Facilities	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(CF2)	Provision of New Community Services and Facilities	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(CF3)	Cemetery Provision in Faringdon	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in this specific location.
(CF4)	Cemetery Provision in Wantage	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in this specific location.
(CF5)	Public Houses	Provides the detail which gives applicants and interested parties and interested parties more information and certainty on how this policy will be applied.
(CF9)	Proposed Reservoir	Provides the detail which gives interested

		parties more information and certainty on how this policy will be applied.
(CF10)	Production of Renewable Energy on a Commercial Basis	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(L1)	Playing Space	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(L2)	Urban Open Space and Green Corridors	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in these specific locations.
(L3)	Urban Open Space and Green Corridors	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied in these specific locations.
(L4)	Allotments	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied.
(L6)	Major Leisure and Entertainment Facilities	Development consistent with this policy will be central to the Council's aims to revitalise the district's towns and this policy will have an important role to play.
(L7)	Retention of small-scale Local Leisure Facilities	Policy context will help the Council to retain facilities valued by communities.
(L8)	Provision of small-scale Local Leisure Facilities	Whilst the Council would wish to support the provision of new local facilities, the policy context will ensure that such proposals are not unacceptable.
(L9)	The Provision of Countryside Recreation Facilities	Whilst the Council would wish to support the provision of new facilities for countryside recreation, the policy context will ensure that such proposals are not unacceptable.
(L10)	Safeguarding and Improving Public Rights of Way	Policy context will help the Council to safeguard rights of way.
(L11)	The Ridgeway	Provides the detail which gives applicants and interested parties more information and certainty on how this policy will be applied to this specific footpath.
(L12)	The Thames Path	The policy safeguards a specific important footpath which runs through the district.
(L13)	Proposed Park at Folly Hill, Faringdon	This policy proposes the extension of an existing public park in Faringdon which acts as a locally popular informal recreation area for walking and unrivalled views. The policy should be saved in order to ensure that the improvements to this local amenity are



		achieved.
(L14)	The Wilts and Berks Canal	<b>The canal is an important historic feature which</b> runs through the district. The policy should be saved in order to ensure that the restoration of this feature can be achieved.
(L15)	The Wilts and Berks Canal	<b>The canal is an important historic feature which</b> runs through the district. The policy should be saved in order to ensure that the restoration of this feature can be achieved.
(L17)	The River Thames	The Thames is a major river in the area and a major leisure resource. The policy should be saved in order to ensure that the special environmental qualities of this river as they relate to the district are protected.
(L18)	Land south of the Abingdon marina	The area south of the Abingdon marina is considered suitable for quiet informal recreation which this policy would facilitate.
(E1)	Abingdon	The policy gives applicants and interested parties information and certainty about development at these sites in Abingdon.
(E2)	Botley Area	The policy gives applicants and interested parties information and certainty about development at these sites in Botley.
(E3)	Faringdon	The policy gives applicants and interested parties information and certainty about development at these sites in Faringdon.
(E4)	Grove Technology Park	The policy gives applicants and interested parties information and certainty about how this policy will be applied at the Grove Technology Park.
(E5)	Milton Park	The policy gives applicants and interested parties information and certainty about how this policy will be applied at Milton Park.
(E6)	West of Didcot Power Station	The policy gives applicants and interested parties information and certainty about how this policy will be applied at this site to the west of Didcot Power Station.
(E7)	Harwell Science and Innovation Campus	The policy gives applicants and interested parties information and certainty about how this policy will be applied at the Harwell Science and Innovation Campus.
(E8)	Local Rural Sites	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these rural business sites.
(E9)	New Development on Sites not Identified in the Local Plan	The policy gives applicants and interested parties information and certainty about how this policy will be applied.

(E10)	Key Business Sites	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these business sites in the district.
(E11)	Rural Multi-user Sites	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these rural sites.
(E12)	Large Campus Style Sites	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these locations.
(E13)	Ancillary Uses on Key Employment Sites	The policy gives applicants and interested parties information and certainty about how this policy will be applied to the sites listed under policies E10 to E12.
(E14)	The Retention of Small Scale Commercial Premises in Settlements	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(E15)	Steventon Storage Facility (former Home Office Stores Site, Steventon)	The policy gives applicants and interested parties information and certainty about how this policy will be applied at the Steventon Storage Facility.
(E16)	New buildings Required for Agricultural Purposes	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(E17)	Farm Diversification	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(E18)	Farm Shops	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(E19)	Farm Shops	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(E20)	The keeping, rearing and training of horses	The policy gives applicants and interested parties information and certainty about the application of a policy which addresses a particularly important issue in the district.
(E21)	Loss of facilities for the keeping, rearing and training of horses	The policy gives applicants and interested parties information and certainty about the application of a policy which addresses a particularly important issue in the district.
(S1)	New Retail Provision	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these locations.
(S2)	Primary Shopping Frontages for Abingdon and Wantage	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these locations.
(S3)	Secondary Shopping Frontages	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these locations.

	for Abingdon and Wantage	parties information and certainty about how this policy will be applied at these locations.
(S4)	Non Retail uses in Abingdon and Wantage Town Centres	The policy gives applicants and interested parties information and certainty about how this policy will be applied within Abingdon and Wantage town centres.
(S5)	Non Retail uses in Faringdon Town Centre	The policy gives applicants and interested parties information and certainty about how this policy will be applied within Faringdon town centre.
(S6)	Upper Floors in Town Centres	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(S7)	The Bury Street Precinct, Abingdon	The Council seeks a comprehensive approach to the environmental enhancement of the Bury St and Charter areas and this policy gives applicants and interested parties information and certainty about how this policy will be applied.
(S8)	The Limborough Road Area, Wantage	The Council seeks a comprehensive approach to the redevelopment of the Limborough Road area and while much of the redevelopment has been carried out this policy should be saved to ensure its proper completion.
(S10)	Ock Street, Abingdon	The policy gives applicants and interested parties information and certainty about how this policy will be applied to the Ock Street policy area
(S11)	Park Road, Faringdon	The policy gives applicants and interested parties information and certainty about how this policy will be applied to the Park Road frontage.
(S12)	Policies for local shopping centres	The policy gives applicants and interested parties information and certainty about how this policy will be applied at these locations.
(S13)	Development of village shops	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(S14)	Loss of village and other local shops	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(S15)	Garages and Garage Shops	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(T1)	New tourist related development	The policy gives applicants and interested parties information and certainty about how this policy will be applied.

(T2)	Tourist facilities on existing sites	The policy gives applicants and interested parties information and certainty about how this policy will be applied.
(T4)	Camping and Caravanning	The policy gives applicants and interested parties information and certainty about how this policy will be applied.