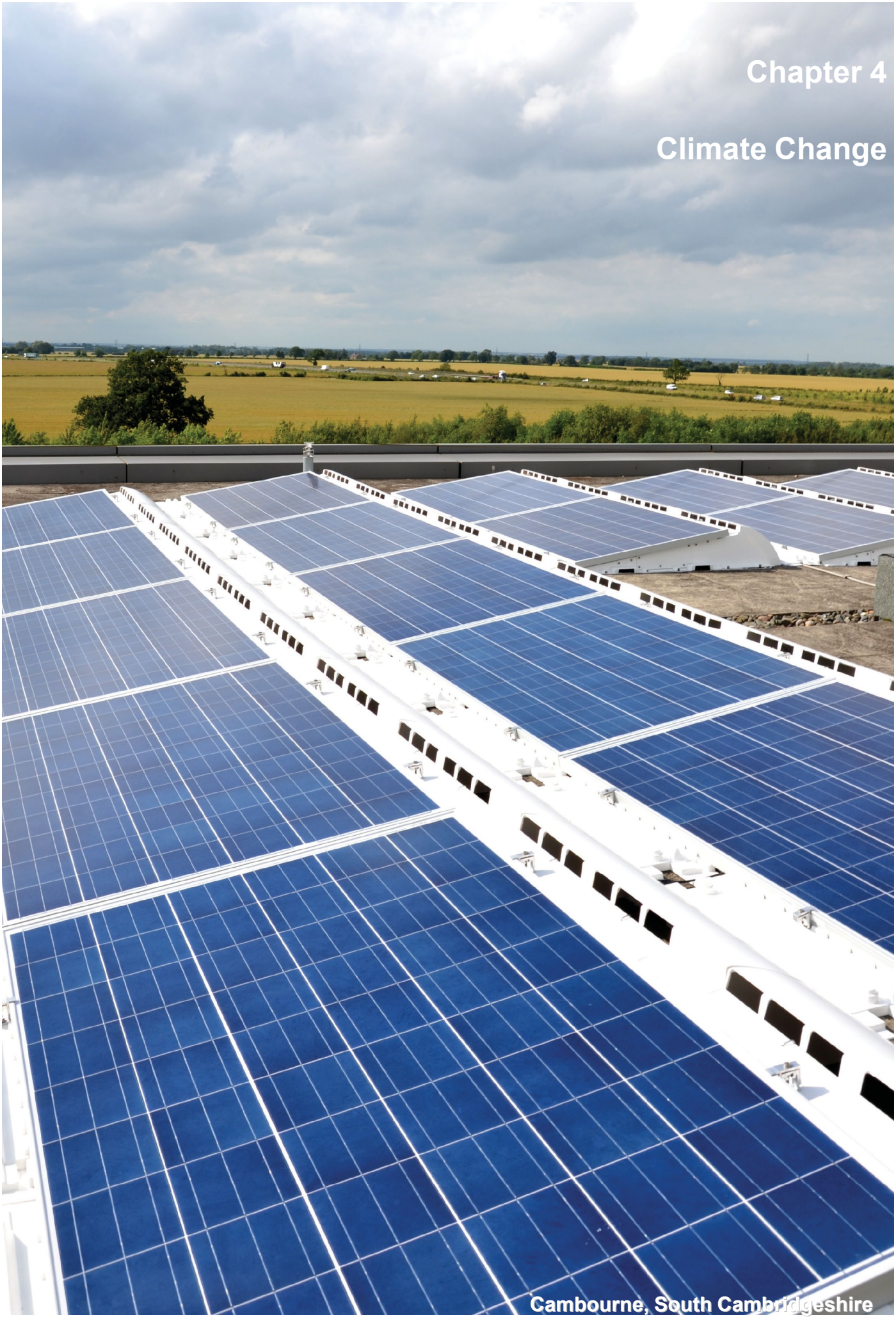
Chapter 4

Climate Change



Cambourne, South Cambridgeshire

Chapter 4 Climate Change

4.1 Our day-to-day activities and lifestyles such as heating and powering our homes and using our cars are releasing significant quantities of greenhouse gases into the atmosphere, affecting the climate in ways that could threaten how we live both today and tomorrow. Greenhouse gas emissions are the collective name for a range of gases that trap some of the sun's warmth within the earth's atmosphere, and the most prevalent greenhouse gas is carbon dioxide. The effects of climate change include shifts in our seasons, hotter drier summers, warmer wetter winters, rising sea levels and more extreme weather events such as droughts, flash floods, and strong winds. National policy is leading the response to climate change but there are measures that can be taken through the Local Plan to reduce our contributions to greenhouse gas emissions and adapt development to deal with the consequences of climate change.

4.2 Both reducing the impacts of, and being less vulnerable to, climate change is an essential part of delivering the environmental element of sustainable development. The National Planning Policy Framework (NPPF, 2012) states that planning can help to create places that secure radical reductions in greenhouse gas emissions, minimise vulnerability and provide resilience to the impacts of climate change, and deliver renewable and low carbon energy systems.

4.3 The UK has committed to targets for reducing greenhouse gas emissions, and increasing energy generation from renewable sources, these are:

- an 80% reduction in greenhouse gas emissions by 2050 (from 1990 levels);
- a 26% reduction in carbon dioxide emissions by 2020 (from 1990 levels); and
- sourcing 15% of its energy from renewable sources by 2020 (in 2010 3.3% of UK energy came from renewable sources).

Although meeting these targets will go some way to slowing down climate change, it is not going to immediately stop the changes happening, therefore developments will still need to be designed to be resilient to the predicted impacts.

4.4 A range of measures will contribute to reducing greenhouse gas emissions and protecting our residents and business from the consequences of climate change:

- buildings that will minimise heat loss in colder weather and also minimise overheating in hotter weather;
- locating new developments where they will minimise the need for travel by car and more sustainable alternatives are available;
- including energy and water efficiency in the design and construction of buildings;
- integrating renewable and low carbon energy technologies within a building(s) or delivering community renewable energy projects;
- incorporating green spaces and vegetation within developments to increase the absorption of carbon dioxide emissions and surface water run-off; and
- ensuring that buildings are designed to protect their occupiers from extreme weather events.

4.5 This chapter sets out the planning policies that will ensure that development delivered in South Cambridgeshire can better cope with the predicted impacts of

climate change as well as helping to ensure that it reduces greenhouse gas emissions. New development and refurbishment of existing buildings in the district provides an opportunity to deliver sustainable schemes and these opportunities will need to be integrated within the district's unique built and natural heritage.

Key Facts:

- In March 2012 there were planning permissions for approximately 40MW of renewable energy from 15 wind turbines, two solar energy farms, two biomass boilers, and 22 arrays of photovoltaic panels.
- Planning permission for the first community wind turbine in the district, near Gamlingay, was approved in April 2012 and installed in 2013.
- Gas and electricity consumption in the district has fallen in the last few years however fuel poverty is affecting 13.5% of households.
- The Sustainable Parish Energy Partnership consists of 27 Parish Councils working with volunteers to help residents cut fuel bills and reduce carbon emissions.
- Environmentally friendly show homes for new developments have been opened at Cambourne (February 2013) and Trumpington Meadows (August 2012).
- The district is designated an area of Water Stress and with areas subject to flood risk.

Mitigation and Adaptation to Climate Change

Policy CC/1: Mitigation and Adaptation to Climate Change

Planning permission will only be granted for proposals that demonstrate and embed the principles of climate change mitigation and adaptation into the development. Applicants must submit a Sustainability Statement to demonstrate how these principles have been embedded into the development proposal. The level of information provided in the Sustainability Statement should be proportionate to the scale and nature of the proposed development.

4.6 The National Planning Policy Framework (NPPF, 2012) requires that local planning authorities adopt proactive strategies to mitigate and adapt to climate change.

4.7 Climate change mitigation means taking action to reduce the causes of climate change, primarily through reductions in greenhouse gas emissions. Designing and constructing developments that are extremely energy efficient or make the best use of renewable energy technologies are both ways of helping to mitigate further climate change.

4.8 Climate change adaptation means ways that a development can be adapted to deal with the weather-related consequences of climate change. Using water more

efficiently, reducing overheating and controlling high levels of rainwater run-off are all examples of adapting a development to respond to changes in our climate.

4.9 The principles of climate change adaptation and mitigation are embedded within the policies included in this chapter and other chapters in this plan, and therefore references are provided in the paragraphs below to the detailed policies. Further guidance on what should be included in a Sustainability Statement will be provided in the review of the District Design Guide SPD.

4.10 To mitigate climate change, proposals should demonstrate:

- high levels of energy efficiency (Building Regulations);
- use and generation of renewable and low carbon energy (Policy CC/3);
- promotion of sustainable forms of transport, such as using buses, cycling or walking, and reduction of car use (Policy HQ/1 & Transport Policies);
- recycling and waste reduction both during construction and occupation (Policy CC/6); and
- inclusion of high-speed broadband to facilitate home working (Policy TI/10).

4.11 To adapt to the effects of climate change, proposals should:

- manage and conserve water resources (Policy CC/4);
- demonstrate that flood risk from all sources has been avoided or managed (Policy CC/9);
- use Sustainable Drainage Systems (SuDS) (Policy CC/8);
- use layout, building orientation, design, and materials to ensure properties are not susceptible to overheating and include open space and vegetation for shading and cooling, and to detain surface water run-off (Policy HQ/1); and
- create a better linked habitat network by conserving, creating or enlarging existing habitats (Policy NH/4).

4.12 The policy requires applicants to submit a Sustainability Statement to demonstrate how the principles of climate change mitigation and adaptation have been embedded within the development proposal. The Council would recommend that in the case of larger-scale developments (100 or more dwellings or exceeding 5,000m^2 of other floorspace) that a BREEAM Communities assessment is undertaken as part of demonstrating how they have integrated sustainable design into the masterplanning process.

4.13 To help local authorities, businesses and other organisations to consider the impacts of climate change and appropriate adaptation, the Environment Agency has published ‘Climate Ready’ – a set of tools and information to help live with the changing climate, guidance on adaptation, and maps showing detailed climate change information for each river basin district (using data from the UK Climate Change Projections 2009).

Renewable and Low Carbon Energy Generation

Policy CC/2: Renewable and Low Carbon Energy Generation

1. Planning permission for proposals to generate energy from renewable and low carbon sources, with the exception of proposals for wind turbines, will be permitted provided that:
   a. The development, and any associated infrastructure, either individually or cumulatively with other developments, does not have unacceptable adverse impacts on heritage assets (including their settings), natural assets, high quality agricultural land, the landscape, or the amenity of nearby residents (visual impact, noise, shadow flicker, odour, fumes, traffic);
   b. The development can be connected efficiently to existing national energy infrastructure, or by direct connection to an associated development or community project, or the energy generated would be used for on-site needs only;
   c. Provision is made for decommissioning once the operation has ceased, including the removal of the facilities and the restoration of the site; and
   d. Developers have engaged effectively with the local community and local authority.

2. Planning permission for wind energy development involving one or more wind turbines will only be permitted provided that:
   e. The development site is in an area identified as suitable for wind energy development in a Neighbourhood Plan; and
   f. Following consultation, it can be demonstrated that the planning impacts identified by affected local communities have been fully addressed and therefore the proposal has their backing.

4.14 This policy sets out the criteria that must be considered when assessing proposals for developments to generate renewable or low carbon energy from freestanding installations, such as wind or solar farms.

4.15 Renewable and low carbon energy generation sources can either fully or partially displace the use of fossil fuels. These sources include technologies such as photovoltaic panels, wind turbines, solar thermal panels, air or ground source heat pumps, anaerobic digestion, combined heat and power plants, and biomass boilers where heat is generated. These technologies need to be located on-site or close to the energy users.

4.16 Using renewable and low carbon energy technologies to generate electricity and/or heat will help to reduce greenhouse gas emissions and should also progressively improve the security, availability and affordability of energy by increasing the diversity of sources we can access.

Renewable and Low Carbon Energy in New Developments

Policy CC/3: Renewable and Low Carbon Energy in New Developments

1. Proposals for new dwellings and new non-residential buildings of 1,000m^2 or more will be required to reduce carbon emissions by a minimum of 10% (to be calculated by reference to a baseline for the anticipated carbon emissions for the property as defined by Building Regulations) through the use of on-site renewable energy and low carbon technologies.

2. This could be provided through the installation of an integrated system or site wide solutions involving the installation of a system that is not integrated within the new building. For a site wide solution, evidence must be submitted demonstrating that the installation is technically feasible and is capable of being installed.

3. For growth areas and new settlements, site wide renewable and low carbon energy solutions that maximise on-site generation from these sources will be sought, such as renewable and low carbon district heating systems.

4.17 New developments, such as housing, employment and community uses, can generate their own renewable energy by integrating smaller technologies such as solar panels into their design. This will also contribute to the achievement of national renewable energy targets. To meet the requirements of the policy, an applicant should design the development to achieve compliance with Part L of Building Regulations, and then use this as the baseline for calculating the amount of carbon emissions that should be met through the provision of renewable or low carbon energy technologies in accordance with the policy. The choice of which renewable or low carbon energy technology to use to deliver compliance with the policy rests with the applicant and should respond to the specific characteristics of the development proposed. Detailed guidance on the implementation of Policy CC/3 and the supporting documents that should be submitted to demonstrate compliance with the policy will be provided in a Supplementary Planning Document.

4.18 The Council, in partnership with three other local authorities in Cambridgeshire, commissioned a review of their existing policies that require reduction in carbon emissions from new developments through the installation of on-site renewable energy generation technologies. The 'Review of Merton Rule policies in four local planning authorities in Cambridgeshire' considered the effectiveness of these policies and highlighted assessment, enforcement and monitoring concerns and inconsistency in delivery of the policy. The study found that either solar thermal or photovoltaic panels or a combination of both were the most tried and tested technologies that are also low maintenance and customer friendly.

Water Efficiency

Policy CC/4: Water Efficiency

1. All new residential developments must achieve as a minimum water efficiency equivalent to 110 litres per person per day.

2. Proposals for non-residential development must be accompanied by a water conservation strategy, which demonstrates a minimum water efficiency standard equivalent to the BREEAM standard for 2 credits for water use levels unless demonstrated not practicable.

4.19 The NPPF (2012) states that planning should support the transition to a low carbon future in a changing climate, and to achieve this should seek ways to radically reduce greenhouse gas emissions, actively support energy efficiency improvements and use nationally described standards when setting any local requirements for a building's sustainability.

4.20 The Government has created a new approach for the setting of technical standards for new housing, including relating to water efficiency. The web based planning practice guidance (PPG) states that local planning authorities have the option to set additional technical requirements exceeding the minimum standards required by Building Regulations in respect of water efficiency where there is a clear local need.

4.21 The Cambridge Water Company is in an area of water stress as designated by the Environment Agency. The average person in the UK uses 150 litres of water per day. Water is a finite resource, and abstraction can have environmental costs. Cambridge Water Company's Resources Management Plan shows that beyond 2035, without additional resources or greater efficiency, the need for water to serve development will be greater than currently available supply. Cambridge Water Company are carrying out an enhanced programme of installing water meters to encourage reduced water use and are raising awareness of the need to save water.

4.22 Reflecting these local circumstances the policy requires higher water efficiency standards than the national Building Regulations. The efficiency measures required can be delivered at relatively low additional cost.

Sustainable Show Homes

Policy CC/5: Sustainable Show Homes

1. On developments where a show home is being provided, a sustainable show home must be provided (either separately or instead of the show home) demonstrating environmentally sustainable alternatives beyond those provided to achieve the standard agreed for the development.

2. The sustainable alternatives can be purchased when a dwelling is bought off-plan and must be fully functional in the show home and positively marketed. Purchasers should be clear on where alternatives are available, why it is more sustainable, and the cost of including the alternative.

3. It must be as practical as possible for the purchaser to buy the sustainable alternatives as to purchase the standard options and the environmentally friendly options must be offered at a price (including cost of delivery and/or installation) that reflects the same profit margin to the developer as other standard buyer's options or extras.

4.23 Sustainable show homes can demonstrate environmentally sustainable alternatives for finishes, materials, fixtures and technologies as options that can be purchased when a dwelling is bought off-plan. Examples of options include:

- renewable technologies such as solar panels;
- rainwater harvesting and greywater recycling devices;
- windows and doors from sustainably sourced materials, with significantly improved 'u' values;
- mechanical ventilation and heat recovery;
- smart energy metering and management systems;
- low energy internal and external light fittings;
- water efficient toilets and other sanitary ware fixtures or fittings;
- white goods with high energy efficiency ratings and low water consumption;
- raised growing beds, composting and enhanced recycling bins;
- sustainably sourced and low embodied energy flooring and wall finishes, kitchens and furniture.

4.24 The Council has secured the provision of sustainable show homes at Trumpington Meadows and Cambourne.

Construction Methods

Policy CC/6: Construction Methods

1. Development which by its nature or extent is likely to have some adverse impact on the local environment and amenity during construction and/or generate construction waste must:
   a. Carefully manage materials already on-site (including soils), or brought to the site, to reduce the amount of waste produced and maximise the reuse or recycling of materials either onsite or locally. Any construction spoil reused within the development should take account of the landscape character and avoid the creation of features alien to the topography;
   b. Ensure that constructors are considerate to neighbouring occupiers by restricting the hours of noisy operations and by locating storage compounds and using plant or machinery to avoid noise, smells, dust, visual or other adverse impacts.

2. Where practicable, construction traffic will be required to be routed to avoid roads passing through villages.

3. Any temporary haul roads must:
   c. Be agreed with the Local Planning Authority;
   d. Be located, designed and landscaped in such a way as to avoid any adverse impacts on existing residents and businesses;
   e. Have an agreed methodology for where they cross public rights of way; and
   f. Include provision for the cleaning of vehicle tyres to avoid the deposition of mud / debris on the public highway and the generation of dust.

4. Applicants must submit supporting documents with any planning application to demonstrate how their development will comply with this policy; this should include a Construction Environmental Management Plan (CEMP) or similar document and may include registration with the Considerate Constructors Scheme. The level of information provided in the supporting documents, including CEMP or similar document, should be proportionate to the scale and nature of the proposed development.

4.25 The construction process for any new development utilises a significant amount of natural resources and generates construction waste and spoil. Construction of new developments can adversely affect the amenity of surrounding occupiers and the local environment through the generation of noise, smells and dust.

4.26 A Construction Environmental Management Plan or similar document should set out the management measures which the builders will adopt and implement for the

construction of the proposed development to avoid and manage any construction effects on: the environment and surrounding communities.

4.27 The 'Considerate Constructors Scheme' is a national initiative set up by the construction industry. Any construction sites and companies that register with the scheme are monitored against a Code of Considerate Practice, which includes guidelines for respecting the community by considering the impact on their neighbours, and for protecting and enhancing the environment.

Water Quality

Policy CC/7: Water Quality

1. In order to protect and enhance water quality, all development proposals must demonstrate that:
   a. There are adequate water supply, sewerage and land drainage systems (including water sources, water and waste water infrastructure) to serve the whole development, or an agreement with the relevant service provider to ensure the provision of the necessary infrastructure prior to the occupation of the development. Where development is being phased, each phase must demonstrate sufficient water supply and waste water conveyance, treatment and discharge capacity;
   b. The quality of ground, surface or water bodies will not be harmed, and opportunities have been explored and taken for improvements to water quality, including renaturalisation of river morphology, and ecology;
   c. Appropriate consideration is given to sources of pollution, and appropriate Sustainable Drainage Systems (SuDS) measures incorporated to protect water quality from polluted surface water runoff.

2. Foul drainage to a public sewer should be provided wherever possible, but where it is demonstrated that it is not feasible, alternative facilities must not pose unacceptable risk to water quality or quantity.

4.28 The quality of water bodies is measured in terms of their overall 'ecological status' which is made up of their chemical, biological and physical attributes. The Local Plan needs to ensure that development does not result in a deterioration of water quality, and that opportunities are taken for enhancement to support the achievement of the Water Framework Directive standards.

4.29 In South Cambridgeshire the majority of rivers are currently of moderate or poor ecological status. Most failures are due to phosphates and man-made alterations to river and bank form. In much of the south east of the district the underlying geology is chalk, providing a significant source of groundwater which is used for the public drinking water supply. It is particularly important that the quality of this water is

protected from pollution in these areas. Groundwater Protection maps are prepared by the Environment Agency, identifying zones of greatest risk.

4.30 Anglian Water and the Cambridge Water Company are the statutory undertakers responsible for water supply, sewerage and sewage disposal. The Environment Agency is responsible for water resource management, fluvial flooding, river management, pollution control and regulating the handling and disposal of waste water. Internal Drainage Boards (IDBs) manage all drainage within their areas excluding main rivers. Those applying for planning permission should consult statutory undertakers and IDBs as they may levy an infrastructure charge. Maps showing the area covered by individual Internal Drainage Boards can be found in the Council's Strategic Flood Risk Assessment, and in the Cambridgeshire Flood and Water Supplementary Planning Document.

4.31 South Cambridgeshire is a rural district, and not all developments will have access to a public sewer. It is essential that development provides appropriate plant that will treat effluent safely and protect the environment. A package treatment plant will be sought where practicable, and only where it is not practicable will a system incorporating septic tanks be acceptable.

Sustainable Drainage Systems

Policy CC/8: Sustainable Drainage Systems

Development proposals must incorporate appropriate sustainable surface water drainage systems (SuDS) appropriate to the nature of the site. Development proposals will be required to demonstrate that:

a. Surface water drainage schemes comply with the Sustainable Drainage Systems: Non-statutory technical standards for sustainable drainage systems and the Cambridgeshire Flood and Water Supplementary Planning Document or successor documents;
b. Opportunities have been taken to integrate sustainable drainage with the development, create amenity, enhance biodiversity, and contribute to a network of green (and blue) open space;
c. Surface water is managed close to its source and on the surface where it practicable to do so;
d. Maximum use has been made of low land take drainage measures, such as rain water recycling, green roofs, permeable surfaces and water butts;
e. Appropriate pollution control measures have been incorporated, including multiple component treatment trains; and
f. Arrangements have been established for the whole life management and maintenance of surface water drainage systems.

4.32 Well planned and well designed surface water management infrastructure is necessary for the creation and ongoing maintenance of sustainable communities. It provides a flood risk management function alongside benefits for amenity and

biodiversity and can be linked to a network of green (and blue) open spaces. It can also conserve water resources and help improve the quality of water as it passes through the system. All these aspects make a significant contribution to climate change adaptation.

4.33 The Government is committed to protecting people and property from flood risk and expects that SuDS will be provided in new developments wherever this is appropriate. However, there is still a risk that SuDS are seen as later additions to development, and do not fully realise their potential multifunctional benefits. They should be considered from the beginning of the design and masterplanning process, taking account of all opportunities and constraints, including heritage and wildlife assets.

4.34 In some areas of the district infiltration SuDS will not be practicable due to ground conditions, but there are a wide range of measures that can be implemented to find suitable solutions for all sites. Detailed guidance on developing proposals that include the use of SuDS that effectively manage water, are aesthetically pleasing, conserve, accommodate and enhance biodiversity, and provide amenity for local residents is provided in the Cambridgeshire Flood and Water Supplementary Planning Document.

Managing Flood Risk

Policy CC/9: Managing Flood Risk

1. In order to minimise flood risk, development will only be permitted where:
   a. The sequential test and exception tests established by the National Planning Policy Framework demonstrate the development is acceptable (where required).
   b. Floor levels are 300mm above the 1 in 100 year flood level plus an allowance for climate change where appropriate and where appropriate and practicable also 300mm above adjacent highway levels.
   c. Suitable flood protection / mitigation measures are incorporated as appropriate to the level and nature of flood risk, which can be satisfactorily implemented to ensure safe occupation, access and egress. Management and maintenance plans will be required, including arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime;
   d. There would be no increase to flood risk elsewhere, and opportunities to reduce flood risk elsewhere have been explored and taken (where appropriate), including limiting discharge of surface water (post development volume and peak rate) to natural greenfield rates or lower, and

(continued)

e. The destination of the discharge obeys the following priority order:
   i. Firstly, to the ground via infiltration;
   ii. Then, to a water body;
   iii. Then, to a surface water sewer;
   iv. Discharge to a foul water or combined sewer is unacceptable.

2. Site specific Flood Risk Assessments (FRAs) appropriate to the scale and nature of the development and the risks involved, and which takes account of future climate change, will be required for the following:
   f. Development proposals over 1ha in size;
   g. Any other development proposals in flood zones 2 and 3;
   h. Any other development proposals in flood zone 1 where evidence, in particular the Strategic Flood Risk Assessment or Surface Water Management Plans, indicates there are records of historic flooding or other sources of flooding, and/or a need for more detailed analysis.

3. FRAs will need to meet national standards and local guidance (including recommendations of the South Cambridgeshire and Cambridge City Strategic Flood Risk Assessment (2010) and the Phase 1 and 2 Water Cycle Strategy or successor documents).

4.35 The NPPF (2012) requires a risk based sequential approach to flood risk, to avoid high risk areas and steer development to areas at lower risk. As well as minimising risk to the development itself, development should not increase flood risk elsewhere, and opportunities should be taken to reduce risk downstream, such as by reducing run off rates.

4.36 The Environment Agency publishes a Flood Map for Planning on their website, which identifies areas with an annual likelihood of flooding greater than 1% in any year for fluvial inland flooding (equivalent to 1 flood event in 100 years). They do not take account of existing flood defences but show where these are present.

4.37 South Cambridgeshire District Council, in partnership with Cambridge City Council, commissioned a Strategic Flood Risk Assessment, which explores the nature and extent of flood risk across the area, taking account of the anticipated impacts of climate change. In addition, Cambridgeshire County Council, now the lead local flood management authority, has prepared a Surface Water Management Plan. These should be used to support the consideration of planning applications. A flooding and water management Supplementary Planning Document will be prepared in liaison with stakeholders to assist developers and key stakeholders with the effective delivery and implementation of the policy.

4.38 The appropriate responsible bodies including The Environment Agency, Anglian Water, Internal Drainage Boards and Cambridgeshire County Council should be

consulted, as appropriate, during the initial design process for any new development or redevelopment.