



# **Fen Drayton Former Land Settlement Association Estate: Implications of the Withdrawal of the Code for Sustainable Homes**

**Council Policy**

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## 1. Introduction

- 1.1. The Fen Drayton former Land Settlement Association (LSA) estate is identified in the Council's adopted Local Development Framework as a Special Policy Area, where buildings no longer needed for agricultural purposes (excluding glass houses) can be reused or redeveloped for on site experimental or other ground-breaking forms of sustainable living, provided that the development would not occupy a larger footprint than the existing buildings.
- 1.2. The Council's planning guidance, set out in Policy SP/11 of the adopted Site Specific Policies Development Plan Document (DPD) and in the adopted Fen Drayton Former LSA Estate Supplementary Planning Document (SPD), requires new homes proposed within the former LSA estate to meet the Government's Code for Sustainable Homes (CfSH) Level 6.
- 1.3. The Government is now withdrawing the CfSH. This document details how the Council will now consider planning applications, and how they can demonstrate they meet the requirements of the policy.
- 1.4. This document will be applied as Council Policy, and will be a material consideration when considering planning applications alongside the adopted policy and SPD. The SPD will be reviewed in due course, incorporating this guidance.

## 2. Background

- 2.1. The South Cambridgeshire Site Specific Policies DPD (adopted in January 2010) identified the Fen Drayton former LSA estate as a Special Policy Area.

### ***POLICY SP/11 Fen Drayton Former Land Settlement Association Estate***

***Within the former Land Settlement Association Site at Fen Drayton, as defined on the Proposals Map, where it can be demonstrated that buildings (excluding glass houses) are no longer needed for agricultural purposes, planning permission for change of use or redevelopment of existing buildings will be permitted for on site experimental or other ground-breaking forms of sustainable living provided that development would not occupy a larger footprint than existing buildings.***

- 2.2. The policy is supported by the Fen Drayton Former LSA Estate SPD (adopted in May 2011). The purpose of the SPD is to provide practical advice and guidance to applicants on how to develop a proposal that will comply with Policy SP/11.
- 2.3. The SPD establishes that any proposed new dwellings within the policy area must meet the CfSH Level 6 (or Level 5 in certain circumstances) and any proposed non-residential buildings within the policy area must meet the BREEAM non-residential outstanding standard.

### **3. What has Changed?**

- 3.1. The Written Ministerial Statement (March 2015)<sup>1</sup> withdraws the CfSH aside from legacy cases.
- 3.2. Legacy cases<sup>2</sup> are described as:
- those where residential developments are legally contracted to apply a code policy (e.g. affordable housing funded through the National Affordable Housing Programme 2015 to 2018, or earlier programme); or
  - where planning permission has been granted subject to a condition stipulating discharge of a code level, and developers are not appealing the condition nor seeking to have it removed or varied.
- In these instances only it is possible to continue to register code cases and conduct code assessments.

### **4. How does this impact on the Fen Drayton Special Policy Area and SPD?**

- 4.1. The Fen Drayton former LSA estate would be considered as ‘countryside’, if it was not designated a Special Policy Area. Housing would therefore not usually be permitted in this location unless it was a replacement dwelling, reusing/convertng an existing building or a dwelling required for the functioning of a rural enterprise or tied to agricultural use.
- 4.2. For housing to be acceptable in this location, the adopted policy requires new developments to deliver ground breaking and experimental forms of sustainable living. This is defined in the SPD as developments meeting the CfSH Level 6 (see Chapter 5 of the SPD).
- 4.3. Although the Government’s CfSH is in the process of being ‘wound down’, there is still a policy requirement at national and local level for development within the Special Policy Area to be ground-breaking, innovative and deliver experimental forms of sustainable living.
- 4.4. Whilst we can no longer specifically require that the development achieves CfSH Level 6, for a development to be considered as ‘experimental and ground breaking’ it would need to deliver many of the design principles that were necessary to achieve CfSH Level 6.

### **5. What will be required instead of the Code for Sustainable Homes?**

- 5.1. We have revised specific paragraphs in Chapters 4 and 5 of the SPD to remove the references to the CfSH and to set out guidance on what is expected instead that will still ensure that any proposals within this Special

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<sup>1</sup> [Written Ministerial Statement](#) (March 2015)

<sup>2</sup> [Energy Efficiency in Buildings](#) (updated 8 May 2015)

Policy Area meet the requirements of Policy SP/11. The revisions to Chapters 4 and 5 are shown in Appendix 1 using strikethrough for text to be deleted and underlining for new text to be added.

- 5.2. These revisions to the SPD provide Council Policy regarding the implementation of Policy SP/11, and in particular how the Council will consider whether a development provides for on site experimental or other ground-breaking forms of sustainable living. All other sections of the SPD remain unchanged and planning applications should still demonstrate how they comply with all adopted development plan policies and all other aspects of the SPD, other than the CfSH.
- 5.3. The SPD will be formally revised following the adoption of the new Local Plan.



**Appendix 1: Fen Drayton Former LSA Estate SPD – Revised Chapters 4 and 5**

## 4. DEFINITIONS AND AN EXPLANATION OF TERMS

### DEFINING GROUNDBREAKING AND EXPERIMENTAL SUSTAINABLE LIVING

- 4.14 Policy SP/11 requires that any new development within the policy area must be for experimental or other groundbreaking forms of sustainable living. The supporting text accompanying Policy SP/11 states that in this location, a requirement of sustainable living will be a development that is carbon neutral.
- 4.15 The planning system cannot directly influence all aspects of sustainable living. However through policies in the LDF, the planning system can create sustainable developments that allow residents the opportunity to have a lifestyle that aspires to the principles of sustainable living. The overarching development strategy for South Cambridgeshire set out in the LDF focuses the majority of development on the most sustainable locations where both residential and non-residential uses are accessible by high quality public transport. It is recognised that the former LSA estate at Fen Drayton is not one of the most sustainable locations within the district; however the policy area does have significant opportunities to pursue sustainability principles related to energy generation and food production.
- 4.16 The concept of sustainable living encapsulates more than simply the design and sustainability of any new buildings within the policy area. **Sustainable living** can be defined as a lifestyle that attempts to reduce an individual's use of resources and therefore their carbon footprint. This is generally achieved by changing either an individual's or a community's methods of transport, types and amount of energy consumption, level of water consumption, sources of food and other products, and home and work locations.
- 4.17 Developments of highly sustainable buildings will go some way to achieving the principles of sustainable living and should ensure that carbon emissions in construction and occupation are minimised. ~~The Code for Sustainable Homes (CfSH) and the Building Research Establishment Environmental Assessment Method (BREEAM) for non-residential buildings are nationally recognised assessments for measuring the sustainability of buildings and pay particular attention to their carbon emissions.~~
- ~~4.18 The CfSH is used to assess the sustainability of new dwellings built in the UK. Each new dwelling is assessed against nine sustainability categories: energy / carbon dioxide; water; materials; surface water run-off; waste; pollution; health and wellbeing; management; and ecology. Within each category a number of credits are available. Credits for each of the categories are weighted and added together to produce a single overall score. The score is translated into a rating from 1 to 6 stars to provide the~~



~~overall sustainability performance of a dwelling. CfSH Level 6 (6 stars) is the highest rating and dwellings meeting this standard are seen as exemplar sustainable dwellings as the development must be zero carbon.~~

- ~~4.19~~ The CfSH also includes mandatory targets relating to the reduction of carbon emissions that will be introduced through changes to UK Building Regulations. From 2016, all new dwellings constructed are expected to be zero carbon.
- 4.20 The Standard Assessment Procedure (SAP) is the recommended method for calculating the energy efficiency and carbon dioxide emissions of new dwellings and t. The calculation is used to ensure that the dwelling complies with building regulations ~~and is also used to inform the CfSH rating.~~
- 4.21 Energy Performance Certificates (EPCs) are statutorily required for all new dwellings and when a dwelling changes ownership or tenancy. The certificates provide a measure of the energy efficiency and carbon dioxide emissions. Each dwelling assessed is graded 'A' to 'G', with 'A' being the most energy efficient and least polluting in terms of CO<sub>2e</sub>. EPCs also provide a detailed recommendation report suggesting improvements to the dwelling to increase its energy efficiency and reduce its carbon emissions.
- ~~4.22~~ The BREEAM non-residential standard is used to assess the environmental performance of new and refurbished non-residential buildings, such as offices, schools, prisons, hospitals and multi-residential buildings (e.g. sheltered housing or halls of residence). The BREEAM non-residential standard assesses each building against ten categories: energy; water; materials; waste; pollution; health and wellbeing; management; land use and ecology; transport; and innovation. Within each category a number of credits are available and the credits for each of the categories are added together to produce a single overall score. The score is translated into a rating from 'pass' to 'outstanding' to provide the overall sustainability performance of a building. ~~It is the Government's intention that all new non-residential buildings are zero carbon from 2019.~~
- 4.23 A ~~zero carbon~~ (or ~~carbon neutral~~) **carbon neutral** development can be defined as one where the building and its use contribute no net additional carbon dioxide emissions to the atmosphere during occupation in a calendar year. This includes emissions from 'regulated' energy use covered under Part L of the UK Building Regulations (space and water heating, lighting and ventilation) as well as those relating to 'plug loads' or 'process loads' (electricity usage by 'unregulated' appliances and equipment used within the building). In a calendar year, to be ~~zero carbon~~ **carbon neutral** the emissions from both 'regulated' energy use and expected energy use from 'unregulated' appliances, must be cancelled out by the generation of renewable energy. As renewable energy is generated irregularly throughout

the year and may not allow a match between supply and demand at any given time, the net amount of renewable energy generated in the year is used (i.e. imports to and exports from the National Grid should be equal).

- 4.24 The net annual emissions figure is used as otherwise there would be a need for each building to include an energy storage device, as it would in essence have to be 'off-grid' and surplus energy generated would need to be stored for use at a later time. The net annual emissions definition permits the use of the National Grid as both a virtual storage device and backup supply. It should be noted that, for the purposes of Policy SP/11, this definition does not seek to preclude or disincentivise development that achieves independence from the National Grid.
- ~~4.25 At the time of preparing this SPD, the definition of zero carbon for new dwellings included in the CfSH correlates with that set out above; however, there is not a definition of zero carbon for new non-residential buildings included in the BREEAM non-residential standard. The Government is however in the process of preparing a revised zero carbon definition that could extend to include both new dwellings and new non-residential buildings; therefore during the lifetime of Policy SP/11, it is likely that the definition of zero carbon (or carbon neutral) will be changed.~~
- ~~4.26 The Government has previously consulted on a revised definition of zero carbon that includes the option of investment in off-site 'allowable solutions' for tackling any remaining carbon emissions that cannot be offset on-site. 'Allowable solutions' might involve: the establishment of off-site renewable energy generation; the export of excess renewable heat for use in a nearby community; the installation of agreed energy conservation and efficiency measures in a nearby community; or simply a financial contribution (per tonne of CO<sub>2e</sub> needing to be offset) to a locally held fund for use on carbon reduction measures in the local area. It is also possible that the Government will set out different 'allowable solution' levels to be applied to different scales and types of development according to how practical and viable it is to approach a comprehensive zero carbon standard through solely on-site means.~~
- ~~4.27 Therefore for purposes of Policy SP/11, the Council will use the definition of zero carbon (or carbon neutral) as included in the CfSH or BREEAM non-residential standard at the time that any planning permission is granted. Until a zero carbon definition for non-residential buildings is included in the BREEAM non-residential standard or in a new Code for Sustainable Buildings, the Council will adopt the definition of zero carbon as set out in this SPD (see paragraph 4.23).~~
- 4.28 There are no standard definitions for the terms **groundbreaking** and **experimental**, however they are generally interpreted to mean innovative and being ahead of the times. Therefore, **experimental and**

**groundbreaking forms of sustainable living** can be defined as development that is innovative and ahead of the times by achieving standards significantly above those required and achieved elsewhere and that would allow a lifestyle that aspires to the principles of sustainable living. Any proposal should achieve ~~zero carbon (or carbon neutral) development ahead of the Government's requirements.~~ The carbon neutrality and the development and design principles set out in Chapter 5 provide guidance on how to ensure that any proposed development meets this definition.

## 5. DEVELOPMENT AND DESIGN PRINCIPLES

### ASSESSMENT OF SUSTAINABILITY

- 5.22 Based on the definitions set out in Chapter 4, any proposed new dwellings within the policy area must ~~meet the Code for Sustainable Homes (CfSH) Level 6~~ be carbon neutral and any proposed non-residential buildings within the policy area must meet the BREEAM non-residential outstanding standard. This will ensure that any development proposals are groundbreaking and experimental in their design and sustainability, especially in the context of a rural location adjacent to a South Cambridgeshire village.
- 5.23 ~~The assessment of the proposed new buildings against either the Code for Sustainable Homes or the appropriate BREEAM non-residential standard must be carried out by a certified assessor at both the detailed design stage and the post construction stage. At each stage a certificate of attainment will be issued that must be submitted to the Council. The buildings must not be occupied until the final certification has been issued and the Council is satisfied that the required standard has been met. Any planning application made for residential development must clearly set out how it will achieve carbon neutrality, by demonstrating how the building will balance the amount of carbon dioxide released into the air by saving and lowering emissions elsewhere. Carbon is released into the atmosphere during each stage of a building's life:~~
- Building construction
  - Building operation
  - Building renovation and deconstruction
- Therefore reduction calculations should consider all stages of the building's life.
- 5.23a The assessment of proposed new residential buildings for carbon neutrality must be supported by a full Standard Assessment Procedure (SAP) based report, carried out by an accredited assessor, at both the detailed design stage, which is submitted with the planning application and the post construction stage. The buildings must not be occupied until the SAP assessment proving the buildings carbon neutrality has been issued and the Council is satisfied that the required standard has been met.
- 5.23b The assessment of proposed non-residential buildings using the BREEAM non-residential standard must be carried out by a certified assessor at both the detailed design stage and the post construction stage. At each stage a certificate of attainment will be issued that must be submitted to the Council. The buildings must not be occupied until the final certification has been issued and the Council is satisfied that the required standard has been met.

5.24 It is recognised that achieving ~~CfSH Level 6~~ carbon neutrality is a challenging target for an individual new dwelling and also that the focus in Policy SP/11 entirely on the new sustainable buildings will leave the existing dwellings in stark contrast to the new sustainable buildings in terms of their energy efficiency and carbon emissions. Therefore in certain circumstances where there is agreement between the Council and the applicant and as an alternative to achieving ~~CfSH Level 6~~ carbon neutrality on a proposed new dwelling, the Council will consider development proposals for a less comprehensive carbon reduction standard on the new dwelling provided that the proposals include retrofitting of energy efficiency solutions and/or renewable energy micro-generation technologies to the existing dwelling. This alternative can only be applied where an existing dwelling is included in the proposed development. For each existing dwelling a maximum of one ~~new CfSH Level 5 dwelling~~ new dwelling achieving annual net zero carbon emissions from 'regulated' energy uses can be proposed.

5.25 In practical terms, this would mean:

- (a) that the proposed new dwelling must achieve ~~CfSH Level 5~~ which requires annual net zero carbon emissions from the 'regulated' energy uses within the proposed new dwelling (essentially space and water heating, lighting and ventilation);

AND

- (b) the energy performance rating of the existing dwelling must be significantly improved through a comprehensive scheme of energy and carbon reduction measures to be agreed with the local planning authority.

5.26 To guide the energy and carbon reduction measures necessary to improve the energy performance rating of the existing dwelling, a full Standard Assessment Procedure (SAP) based report with recommendations, carried out by an accredited assessor, must be undertaken and submitted with the planning application. Based on the recommendations in the report, a list of improvement measures must be agreed with the local planning authority. As an indicative guide, the cost of the improvement measures to the existing dwelling should be equivalent to around 10% or more of the total cost of materials, equipment and construction of the new ~~CfSH Level 5 dwelling~~ achieving annual net zero carbon emissions from the 'regulated' energy uses. The agreed improvements will be subject to a planning agreement (in the form of either an s106 agreement or a unilateral undertaking). The new dwelling must not be occupied until the improvements to the existing dwelling have been undertaken and ~~the final certification~~ a final full Standard Assessment Procedure (SAP) based report for the new dwelling has been issued and the Council is satisfied that the required standards have been met.

- 5.27 The Council will accept development proposals that involve combining of the footprint of the existing house and any eligible footprint, provided that the resulting dwelling achieves CfSH Level 5 annual net zero carbon emissions from the 'regulated' energy uses. The Council will accept this less comprehensive carbon reduction standard, as the demolition of the existing dwelling will achieve a reduction in carbon emissions that should be recognised. Development proposals involving the use of eligible footprint to extend or upgrade the existing dwelling will not be permitted as they cannot achieve the sustainability levels required by Policy SP/11.

## DESIGN PRINCIPLES

- 5.28 To design a building that meets the level of sustainability expected by Policy SP/11, the proposed development will need to include sustainable design solutions that will affect the internal design and layout of the building and the external appearance and location of the building. ~~The Code for Sustainable Homes: Technical Guide (May 2009) [http://www.communities.gov.uk/publications/planningandbuilding/codeguide]~~ outlines how a development can achieve the different CfSH levels. Similarly ~~detailed assessor manuals are available covering the implementation of the BREEAM non-residential standards.~~ The following paragraphs summarise the key design principles that should be considered when creating a development seeking to achieve CfSH Level 6 or BREEAM non-residential outstanding standard high standards of sustainability. This SPD should also be read alongside the general design principles for all developments in the district that are set out in the Development Control Policies DPD and the District Design Guide SPD.

## Energy, Materials and Health & Wellbeing

- 5.29 To achieve a ~~zero carbon~~ carbon neutral development, the design and construction of each building needs to incorporate very high energy efficiency measures. Any wasted or misused energy sourced from fossil fuels (oil, gas or national grid electricity) would increase carbon emissions from the site and therefore need to be offset by increased renewable energy generation on site. A new dwelling designed to meet the PassivHaus standard [www.passivhaus.org.uk] will achieve high standards of energy efficiency through high thermal performance and may help to meet the requirements of a carbon neutral dwelling.
- 5.30 The energy efficiency of a building can be improved through the implementation of one or more of the following measures:
- insulation of the loft, roof, walls and floor;
  - double or triple glazing;
  - draught proofing;
  - installation of a highly energy efficient boiler;

- improvements to central heating controls e.g. room thermostats, radiator valves; and / or
  - installation of mechanical ventilation and heat recovery systems.
- ~~For the highest standards of CfSH (Levels 5 and 6) and BREEAM non-residential outstanding standard, the implementation of all these measures to a high standard would be taken as the default position.~~

- 5.31 The internal and external layout of a proposed building, its orientation and the amount of shading from adjacent buildings or vegetation all have a direct effect on the amount of daylight and heat from the sun that enter the building and therefore the demand for energy, heat and cooling. A south facing elevation and roof plane enable optimal use of solar power in all its forms: solar panels (for electricity and hot water), passive solar heat gain, and natural light. The fabric of the building is also important in determining the energy demands of the building. High performance building materials and construction methods can minimise the loss of energy and carbon from the building.
- 5.32 Improving the energy efficiency of a building through its design, construction and materials should always be considered before low and zero carbon renewable energy technologies are installed to provide heat and power. However to achieve the highest levels of sustainability, it will be necessary to include some of these technologies, such as solar thermal panels, photovoltaic panels, biomass boilers or wind turbines, to provide energy for hot water, lighting, cooking and the use of other electrical appliances. Micro domestic scale Combined Heat and Power (CHP) systems are very much a rarity and tend to be gas powered.
- 5.33 Some technologies are more suited to multi-dwelling or mixed-use developments, by providing energy from a single shared source. For example, a community scale biomass CHP system maybe an option for Fen Drayton but it would require a very high level of co-ordination and management between the different building owners to facilitate effective heat distribution.
- 5.34 The renewable heat technologies most likely to be applicable under Policy SP/11 are:
- biomass boilers for space and water heating – using logs, wood pellets or chips in place of fossil fuels;
  - heat pumps – collecting heat from the air, water or ground and using compression and expansion (like a refrigerator in reverse) to magnify the heat and transfer it to a space and/or water heating system inside the dwelling; or
  - solar hot water – capturing the heat from the sun to raise the hot water tank temperature via a solar panel.

- 5.35 The use of different types of renewable electricity generating technologies is likely to be more restricted in Fen Drayton. The two options available are wind turbines or photovoltaic panels. The wind speed data for the local area suggests that this resource is not sufficient to make wind turbines an especially viable option. Photovoltaic cells are likely to prove a more universal solution although large areas of coverage are likely to be required to produce enough electricity.
- 5.36 The Council would also consider the case for several applicants to work together in the financing and construction of a more community scale installation that could serve more than one dwelling or non-residential building.
- 5.37 The Government has recently shifted its financial support for local renewable energy projects away from one-off grants to the offer of a guaranteed income stream from all the energy that has been renewably generated. For electricity this is termed the Feed-in Tariff and was introduced on 1 April 2010 – it offers a guaranteed return for each kWh generated. The Renewable Heat Incentive (~~due to be introduced 1 April 2014~~) should does something similar for all renewable heat energy technologies.
- 5.38 A building will be more sustainable over its lifetime if it is designed to be adaptable to the different needs of its occupiers over time. The Joseph Rowntree Foundation has developed the Lifetime Homes standard that sets out standards relating to the accessibility of a dwelling that would allow it to be adapted to the changing needs of its occupiers. This includes measures such as ensuring that the approach to all entrances is level or gently sloping, including sufficient circulation and turning spaces for wheelchair users, and ensuring that the downstairs space is designed to allow the adaption of rooms to include a shower room and bedroom. Achievement of the Lifetime Homes standard is ~~a mandatory requirement for CfSH Level 6~~ encouraged.

## Water

- 5.39 The East of England is an area of serious water stress as it is one of the driest areas in the UK. A key part of achieving sustainable development is making sure new developments are as water efficient as possible. ~~To meet the CfSH Levels 5 or 6, As a result, new residential development would be expected to deliver~~ predicted water consumption ~~must be~~ below 80 litres per person per day. Typical water usage in a standard home is approximately 150 litres per person per day.
- 5.40 Part of the water saving required can be achieved through water efficiency measures such as low flush toilets and water efficient taps, showers, dishwashers and washing machines. However ~~for any development~~



~~proposal to achieve CfSH Levels 5 or 6, any development proposal must also include water recycling through rainwater harvesting and/or greywater recycling is required.~~

- 5.41 Rainwater harvesting involves capturing the rainwater that lands on the roof and storing it in a tank for later use. Due to the size of storage tank required to capture enough rainwater to supply the occupants until the next rainfall, the tank is often located externally, and in most cases underground. Greywater recycling involves treating and reusing waste water from the bath, shower and sinks. Unlike rainwater harvesting systems, the supply of greywater is available on a daily basis, so the storage tanks for greywater systems are much smaller and can be incorporated into the dwelling and in some cases concealed within the bathroom of the dwelling. Information guides on greywater recycling and rainwater harvesting are available from the Environment Agency (see Chapter 6 for further details). Further details on the practicalities of using greywater recycling and rainwater harvesting are included in the Cambridge Water Cycle Strategy (Phase 2), ~~which is due to be published in Spring 2011.~~

### **Surface Water Run-off**

- 5.42 Any development on the site should not increase either peak or annual run-off rates. Sustainable Drainage Systems (SuDS) are the preferred approach to managing rainfall runoff and should be used in any proposed development. They can be used to reduce the rate and volume of surface water discharges from sites to the receiving environment (e.g. watercourses), as well as reduce pollutants, maintain recharge to groundwater and provide a natural amenity and green space within a development. SuDS comprise of a range of techniques that allow surface water to be managed through infiltration and attenuation in a more natural manner through the use of permeable surface treatments and swales, basins and ponds. In a well designed SuDS scheme a number of different features should be provided in sequence, referred to as the management train. Evidence should be provided that all potential SuDS options have been considered and suitable justifications given where options have been discounted. Further guidance on SuDS can be found in the District Design Guide SPD.

### **Waste and Recycling**

- 5.43 Waste management should be considered during and after construction. All developments must minimise waste during construction and include suitable spaces in the buildings, and where appropriate across the site, for the storage of waste and recycling when the building is occupied. More

detailed guidance is provided in the RECAP Waste Management Design Guide SPD, which is due for adoption in 2011.

- 5.44 ~~Both the CfSH and The~~ BREEAM non-residential standard incorporates design and construction elements to promote the recycling of waste through local authorities conventional collection and disposal practices, and any new residential development would also be expected to support these principles. In South Cambridgeshire, the local authority kerbside collection service achieves a recycling rate for household waste of over 50% with a revised target of 65% for 2011/12, aiming towards an estimated maximum of 90%.
- 5.45 To improve the household waste recycling levels beyond those already achieved in the district would require a change in the behaviour of the occupants of the new sustainable buildings constructed on the former LSA estate. Occupants would need to embrace the two vital waste management elements of a more sustainable lifestyle: reducing the extent and altering the nature of consumption so that less waste is generated in the first place and, where possible, reusing goods that are no longer required either as their original use or for alternative uses.
- 5.46 Organic compostable waste produced can be usefully collected for on-site usage or brought together to develop one or more community composting facilities in suitable locations that could serve as many members of the local community as possible without the need for vehicular transportation (e.g. via a wheelbarrow). Generating and using compost locally reduces the transport costs associated with a more conventional local authority collection, and draws attention to the benefits of reusing or recycling a resource within local boundaries.
- 5.47 In designing developments, sustainably managing sewage waste should be considered. Because of the availability of land within the policy area, relatively natural reed-bed solutions may be an option. Other options to consider include the use of composting toilets. The Council would welcome the incorporation of such measures in accordance with the appropriate Codes of Practice and British Standards.

## Ecology

- 5.48 Any new development proposal should consider the existing ecology and biodiversity of the site and minimise its impact during and post construction. Opportunities should be taken to enhance biodiversity where possible. More information is provided in the Biodiversity SPD.

## Summary of Design Principles

- 5.49 Drawing together the various aspects of sustainable design covered in this chapter, the following list is a summary of the design principles that should be considered when developing any proposals:
- orientation of buildings to face within no more than 45 degrees of south to maximise solar gain;
  - provision of shelter and shading from vegetation and other buildings to minimise heat loss in winter and provide adequate shading in summer;
  - consideration of the internal layout and position of windows, doors and roof lights to make best use of higher temperatures and daylight – to maximise solar gain, circulation rooms (e.g. living rooms and kitchens) incorporating tall windows should be located along the south facing elevation whilst operational rooms (e.g. bathrooms and utility spaces) with small windows should be located along the northern elevation;
  - use of high specification insulation materials and draught proofing to minimise heat escape;
  - reduction of energy demand through the use of energy efficient appliances and lighting;
  - use of materials with reduced energy inputs (e.g. sustainably produced timber) or that are locally manufactured or made from recycled materials;
  - use of exposed materials with a high thermal mass, such as concrete or masonry, to allow the building to store heat in warmer temperatures and release heat in cooler temperatures;
  - inclusion of suitable renewable energy technologies for heat and power generation;
  - inclusion of design solutions that allow the building to meet the Lifetime Homes standard;
  - use of water efficient or water limiting systems such as low flow taps and showers;
  - inclusion of water recycling systems such as greywater recycling or rainwater harvesting;
  - inclusion of SuDS to control surface water run-off;
  - use of sustainable construction processes which avoid or reduce waste;
  - inclusion of suitable spaces for the storage of recycling within the building; and
  - use of measures to sustainably manage sewage waste.

The Council would expect a detailed Sustainability Strategy, detailing how residential development will meet these requirements, including any SAP assessments undertaken, to be submitted at the detailed design stage with the planning application.

## An Example

- 5.50 The ZED factory have developed the rural ZED kit house to provide a zero carbon housing solution for schemes where the density is less than 50 dwellings per hectare. ~~The rural ZED can be tailored to meet CfSH Levels 3 to 6.~~ A typical 3 bedroom two storey rural ZED house or a 4 bed two and half storey rural ZED house has a footprint of 68.25 sqm (10.5m x 6.5m). More information is available at [www.ruralzed.com](http://www.ruralzed.com).