Sustainable Buildings
Supplementary Planning Document

Addressing the environmental challenge
in North East Derbyshire

North East Derbyshire
Development Framework (LDF)

Adopted
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How to use this Supplementary Planning Document

i Following an introduction and summary of key local, regional and national planning policies this document is broken down into the following chapters:

- Adapting to Climate Change
- Sustainable Building Design and Layout
- Sustainable Construction Materials and Techniques
- Carbon Emissions
- Waste Minimisation
- Water and Flooding
- Sustainable Construction Codes
- Sustainability Statement and Energy Audit
- Historic Environment
- Transport and Travel

ii Each chapter will contain red boxes which hold advice on maximising existing building techniques and methods of achieving lower carbon dioxide emissions during the construction process. There is a benchmark standard to achieve as well as some information on taking this further, by going beyond existing policies and making buildings as efficient as possible. The document seeks to provide as much information as possible in order to enable the developer to achieve standards of energy efficiency expected within the existing planning policy framework.

iii In addition to the red advice boxes there is signposting to find further information. These are identified in the green boxes and contain links to websites where greater detail on the topics listed can be found.

Look out for the green boxes contained within each chapter as these provide links to additional information outside of this guidance

iv Appendix A contains information on the detail that should be included in an Energy Audit and Appendix B includes a Sustainability Statement Template to ensure all measures have been considered at the start of the development process. Appendix C sets out the full text of relevant Regional Policies and a full list of all relevant National Planning Policy documents.

v For further information on any changing policies and guidance within North East Derbyshire please contact the Planning Policy team on telephone number: 01246 231111 or email: ldfteam@ne-derbyshire.gov.uk. Alternatively you can visit the Council’s website at: www.ne-derbyshire.gov.uk/LDF.
**Introduction**

“Today almost half of the UK’s carbon emissions come from the use of buildings (27 per cent from homes and a further 17 per cent from non-domestic buildings).” Para 1.4, Page 9 of Definition of Zero Carbon Homes and Non-Domestic Buildings Consultation Document – DCLG Website 2009

i The construction of a building may be a short-term project but the end result will endure in the long-term. When considering the effects of climate change it seems irresponsible not to incorporate certain common-sense principles when designing a building. This means ensuring that it not only adapts to a changing climate, but also that it does not add to the effects of climate change itself through excessive energy use, either in construction or through its use/occupation.

ii The guidance set out in this Supplementary Planning Document complements existing policies and is aimed at achieving low-carbon and sustainable developments in North East Derbyshire District. It has been developed in accordance with local, regional and national planning policy and is a material consideration to be given weight in considering development proposals. Applicants seeking planning permission will be expected to take it into account in preparing development schemes. Applicants seeking major development\(^2\) are expected to demonstrate how they have addressed these matters in a sustainability statement and energy audit.

iii The limitations of this document are that it will not set new policy requirements that are not already contained within the existing policy framework. Whilst there are ‘going further’ points which encourage developers to go beyond existing policies, these are not policy requirements in themselves.
Policy Background

i The Planning Policy Framework in England requires Local Policies to reflect Regional Policies, which in turn reflect National Policies. Local Planning Policies should also reflect the wider aims and objectives of the Council, creating a ‘Golden Thread’ of consistency of aims and objectives. With the change in culture from Development Control to Development Management, in terms of Local Authority functions, there is an increased emphasis to take into account National Policy and guidance in considering development proposals; this is particularly important in the absence of up-to-date local policies.

ii In relation to climate change, developers will need to take into account specific national policy documents in conjunction with other national requirements. The Government’s agenda on Planning and Climate Change as set out in Planning Policy Statement 1 (PPS1) and its Supplement paragraphs 14-15 expects new developments to acquire a proportion of the energy supply from a decentralised and renewable or low carbon source. National planning policy on Renewable Energy as set out in Planning Policy Statement 22 (PPS22) provides a useful technical companion guide. Appendix C of this Supplementary Planning Document sets out other Planning Policy Statements/Guidance documents with sustainability implications. The Town and County Planning Act 1990, The Planning and Compulsory Purchase Act 2004, The Planning Act 2008 and The Localism Act 2011 provide the national legislative framework of preparing policies and dealing with planning applications. In addition the Climate Change Act, which came into effect in November 2008, sets out the Government’s legally binding, long-term framework for cutting carbon emissions by 80% by 2050.

National Policies

iii This Supplementary Planning Document reflects the requirements of national policies as set out in Planning Policy Statements. The key national planning document on climate change is the supplement to PPS1: Planning and Climate Change (Dec 2007). This document sets out how planning, in providing for new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and be resilient to changes in weather and climate. It sets out how spatial planning should make a full contribution to delivering the Government’s Climate Change Programme and energy policies; and, in doing so, contribute to global sustainability. A full list of relevant National Planning Policy Documents can be found in Appendix C.

Regional Policies

iv In addition to these national policies, this Supplementary Planning Document also seeks to build on the adopted regional policies as set out in the East Midlands Regional Plan which was adopted in March 2009. This Regional Spatial Strategy has undergone public consultation and is part of the statutory development plan, under the Planning and Compulsory Purchase Act 2004. Relevant policies are Policy 1, which relates to Regional Core Objectives; Policy 2, which relates to the promotion of better design with reduced CO2 emissions; Policy 38 which relates to regional priorities for reducing waste;
Policy 39 which relates to regional priorities for energy reduction and efficiency; Policy 40 which relates to regional priorities for low carbon energy generation and Policy 43 which relates to Regional Transport Objectives. These policies are set out in full at Appendix C. See also http://www.gos.gov.uk/497296/docs/229865/East_Midlands_Regional_Plan2.pdf.

Paragraph 1.4.2 of the East Midlands Regional Plan states “In securing a proportion of energy from decentralised and renewable or low-carbon sources, the Planning Policy Statement (PPS): Planning and Climate Change (which supplements PPS1) expects development plan documents to include policies which promote and encourage a proportion of the energy supply of new development to be secured from decentralised and renewable or low-carbon sources. In the interim period, before Development Plan Documents (DPDs) are in place, all new developments of more than 10 dwellings, or for others uses exceeding 1,000m² floorspace, should seek to secure at least 10% of their energy from decentralised and renewable or low-carbon sources unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, this is not feasible or viable”.

Local Policies

Finally the purpose of this document is to provide detailed local guidance on climate change and renewable energy issues and in particular the implementation of ‘saved’ Policy GS1 of the North East Derbyshire Local Plan (2005), which concerns sustainable development and ‘saved’ Policy CSU7, which relates to Renewable Energy. The Local Plan has been subject to public examination by an independent inspector following extensive public consultation and was adopted in November 2005. Following the introduction of Local Development Framework (LDF) legislation the Council has been working towards a replacement of the Local Plan, however a number of key policies have been saved until they are replaced by the policies contained within the Core Strategy of the Council’s Local Development Framework. This Supplementary Planning Document will be revised when new policies are adopted to ensure the most up-to-date information is provided. The relevant saved policies for this Supplementary Planning Document are set out below.

In May 2009 the Council adopted an interim planning policy in line with the supplement to PPS1: Planning and Climate Change requiring all new ‘major developments’ to show that they have been designed to be fully compatible with PPS1 and that they mitigate the impact of climate change. This interim policy was amended further in March 2010. It is anticipated that this policy, amended as necessary to reflect any additional government guidance and locally derived evidence, will be included in the forthcoming Core Strategy of the LDF.
**GS1 Sustainable Development**

All development proposals will be required to have regard to the need to maintain or improve the quality of life of our communities, maintain economic growth and preserve or enhance the environment of North East Derbyshire and contribute towards achieving a sustainable pattern of development.

Unless otherwise indicated in the Local Plan, all development proposals will:

a) be located within the defined Settlement Development Limits, unless the development is acceptable in the countryside, or overriding exceptional circumstances can be demonstrated;

b) make full use of previously developed land before greenfield sites;

c) be well related to existing, or capable of providing, public transport networks, other services and facilities, and be accessible on foot and by cycle; and

d) protect and conserve the quality of the areas natural and cultural assets (and their settings), improve the quality of the built environment and minimise pollution.

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**CSU7 Renewable Energy**

Planning permission for renewable energy installations will be granted provided that:

a) the impact of the proposal on the character and amenity of the environment is acceptable, especially with regard to sensitive areas such as the Green Belt, Special Landscape Areas, Conservation Areas, Listed Buildings, Scheduled Ancient Monuments, Historic Parks and Gardens and other significant areas of historic landscape, sites of natural history importance and built up residential areas;

b) sufficient measures can be undertaken to reduce any visual or noise disturbance or possible electrical and radio interference; and

c) any ancillary buildings are kept to a minimum and are designed and sited to limit the visual impact on the landscape.

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**Interim Policy – Creating Sustainable Buildings**

All new Major Development will be required to incorporate the following features:

a) Sustainable design and layout (such as orientation, maximising daylight, optimising solar gain);

b) A high quality external environment (such as incorporating public and private open space that affords a choice of shade and shelter and which recognises the opportunities for flood storage (where appropriate), wildlife and people provided by multifunctional green spaces);

c) Sustainable water management techniques (such as the use of SuDS and green roofs and taking into account both river flows and surface water run off);

d) Sustainable waste management facilities (through the appropriate provision of refuse/recycling bin storage);

e) Reduce non-renewable energy use (a proportion of the energy requirements of the new development should be provided from on-site renewable sources, or through other carbon reduction measures, as appropriate);

f) Reduce carbon emissions:
   - all new homes to be constructed to the highest level of the Code for Sustainable Homes (in line with the Government’s 10 year timetable for all new homes to be carbon neutral by 2016);
   - all new non-residential buildings should be constructed as sustainable as possible (encouraging the highest BREEAM rating for energy efficiency in line with the Government’s targets of reducing carbon emissions);

g) Water recycling techniques (such as grey water, rainwater harvesting); and

h) Sustainable transport (reducing reliance on the private car and incorporating sustainable transport patterns).

All new Major development will be expected to address all of the above criteria, unless it can be shown that there are significant constraints to development. In such circumstances the applicant will be expected to demonstrate, having regard to the type of development involved, its design or location, that this is not viable or feasible. This should be demonstrated through a sustainability statement, technical feasibility statement, energy audit or financial viability statement, as appropriate. Discussions at the pre-application stage are encouraged but evidence should be submitted with a planning application.
Chapter 1 - Adapting to Climate Change

AIM: To create flexibility within new developments that allows for adaptability and future changes in use as well as buildings that maximise the benefits and mitigate the adverse impacts of climate change. To create opportunities for alternative modes of transport and alternative sources of energy within new development.

CONTEXT: Whilst future climate change can be lessened by measures implemented now to cut greenhouse gas emissions, there are likely to be some inevitable changes to our climate from past actions. It is critical, therefore, that we all take steps to ensure that new development can adapt to, as well as mitigate future changes in climate.

OBJECTIVE: The Council will require, where appropriate, developments to be able to cope with extreme weather events, to have a flexible approach to sources of energy supplies over their predicted lifetime, to accommodate alternative sources of energy and modes of transport and reduce water use and waste to save unnecessary associated transportation and energy costs. Developers should also consider the physical adaptability of buildings to accommodate multiple uses, where appropriate.

1.1 Even if greenhouse gas emissions are reduced, our climate is likely to continue to change and dealing with climate change means more than just reducing greenhouse gas emissions. Whilst we must continue to act responsibly and not create a greater climate problem, we must adapt to the effects that can no longer be avoided.

1.2 The evolution of the built environment seen today has arisen as a response to a relatively stable climate and therefore many consider that the use of historic climate data no longer gives reliable grounds for future decision making. New buildings currently being constructed that meet current energy efficiency standards will not necessarily be considered efficient in the future. With continuing climate change we can expect extreme events and changes in long-term climatic conditions. The latest UK climate projections UKCP096 (June 2009) highlight key findings which suggest how our climate might change:

- All areas of the UK get warmer, and the warming is greater in summer than in winter.
- There is little change in the amount of precipitation (rain, hail, snow etc) that falls annually, but it is likely that more of it will fall in the winter, with drier summers, for much of the UK.
- Rising sea level which is likely to be greater in the south of the UK than the north.

1.3 Whatever is done to reduce emissions in the future, past emissions mean that some climate change is already inevitable. Factoring climate change into decision making means, for example, changing the way we build our houses and infrastructure, managing water better and adjusting farming practices.

1.4 The Going Further points, set out in some of the Key Action boxes, throughout this document, illustrate how developers can take steps towards future proofing their developments against expected further changes in climate. These points go beyond what is required in current policies but may be policy requirements in the future.
Achieving the benchmark

1.5 Development should take account of the predicted changes in climate over its expected lifetime or be capable of adaptation. Conflicts between adaptation and mitigation should be avoided such as when inappropriate cooling measures in buildings increase demands for energy. Designing or adapting a building to suit the environment rather than adapting the environment to suit the building can ensure adverse impacts are minimised.

1.6 Whilst there is uncertainty over future economic, social and environmental demands, and technological advances, it makes sense to design buildings (and their heating, lighting and ventilation systems) flexibly so that they can be adapted and updated in order not to become obsolete. Flexible space created by the use of non-load bearing partitions means that buildings are capable of being used for different purposes. Provision should also be made for incorporating renewable energy generation in the future. The inclusion of green spaces and trees as part of development can reduce heat around buildings, slow down water run-off whilst also giving opportunities to encourage people to walk or cycle and enhance local biodiversity. Trees can also provide shelter from cold winds, thus reducing the need for heating.

1.7 In the future, transport is increasingly likely to be less dependent on fossil fuels such as oil. Facilities can be ‘designed-in’ to new developments to support different transport modes such as the provision of secure cycle parking and charging points for electric vehicles. Showers and changing facilities should be provided in non-residential buildings to encourage cycling.

1.8 Major development schemes may take several years to build-out, during which time minimum sustainability standards set in policy may become outdated. Where planning permission is given for such development it would be appropriate for the Council to negotiate suitable mechanisms to ensure that future phases of the development are able to keep step with the most up-to-date requirements.

KEY ACTIONS

Benchmark

- Design development that adapts to and mitigates expected changes in climate.
- Design development that seeks to be water neutral (the total water use after a development does not exceed the total water use before development – See Chapter 6).
- Design buildings for flexible use during their expected lifetime.
- Design-in facilities for bicycles and electric vehicles.
- Ensure that future phases of major developments which take several years to build-out are able to keep step with the most up-to-date sustainability requirements.
- Design development that fully utilises any benefits resulting from expected changes in climate.
- Design-in facilities to maximise recycling of waste.
- Secure alternative sources of energy.

LINKS TO FURTHER INFORMATION

1. UK Climate Impacts Programme offers information on the potential national and regional impacts of predicted climate change. http://www.ukcip.org.uk
Chapter 2 – Sustainable Building Design and Layout

AIM: To maximise the use of sunlight in heating, lighting and ventilation.

CONTEXT: The generation of energy to light, heat and cool buildings accounts for around half of the total carbon dioxide emissions in the UK. According to DEFRA’s ‘Climate Change: The UK Programme 2006’, the domestic sector is responsible for about 30% of the total UK energy use and about 27% of CO2 emissions on an end-user basis.

OBJECTIVE: The Council will require the planning and design of new development to take solar gain and daylighting issues into consideration, together with the use of spaces around buildings, when determining the orientation and layout of buildings during construction.

2.1 Anybody embarking upon a building project is expected to minimise the consumption and use of energy, including fossil fuels, through the responsive design of their development. This also requires consideration to be given to designing layouts, on larger projects, which promote the use of sustainable modes of transport (public transport, walking and cycling) over the use of the private car. When proposing new developments designers should have regard to principles of good design as set out in the Council’s other adopted policies and guidance.

2.2 The material, design and means of construction of a building can affect the use and consumption of energy within it. In order to adapt to and mitigate the effects of climate change the main aim when designing any building should be to maximise natural resources and minimise the need to use additional energy. This can be achieved through good design and layout. Building-in features from the outset can ensure internal ambient room temperatures are maintained, e.g. rooms that stay cool in summer, without the need for air conditioning, and warm in winter without the need for additional heating. The energy from the sun through ‘solar gain’ can provide significant contributions to heating and lighting in a building. The sun is a key natural resource that should be considered at the start of the design process and, depending on the nature and size of the building proposed, different approaches may be needed.

2.3 The orientation of a building has a significant impact on the amount of passive solar gain available. To maximise solar gain buildings should generally be orientated with the longest face within 30 degrees of south. South easterly orientation is generally preferable to south westerly as this maximises early morning gains and reduces the likelihood of overheating in the afternoon.
2.4 Any nearby structures, trees or fences can potentially cast shadow on the southerly face and reduce solar gains. Careful layout can maximise solar gain within the constraints of higher density developments. The following principles should generally be followed:

- Garages should be sited away from southerly elevations.
- In mixed height developments taller properties should generally be placed north of detached properties to minimise overshadowing.

Figure 1. An illustration of the ideal orientation of a building with the longest face within 30° of south (Source: Author)

Figure 2. An illustration of the impact of the sun at different times of the year. Planting trees within 30m of the southerly aspect can significantly reduce solar gain (Source: Author)

KEY ACTIONS

Benchmark
- Optimise solar gain.
- Maximise natural light.
- Make use of natural ventilation and cooling.
- Maximise energy efficiency.
- Make the best use of spaces around buildings.

Going Further
- Take account of expected climate change over the expected lifetime of the development in the design of buildings and their surroundings by combining the above with those set out in the Key Actions of Chapter 1.

- Care should be taken when planting trees within 30 degrees of the southerly aspect as they can significantly reduce passive solar gain. Deciduous trees can, however, be useful for providing shading from glare and overheating during the summer, whilst the bare branches will allow solar access during the winter.


Achieving the benchmark

2.5 Not all of the following will be relevant for every development but developers should seek to incorporate as many techniques of building design as possible to maximise the use of sunlight in the development at the design stage of proposals. The following list is not exhaustive and some of the suggested measures may overlap with the Building Regulations.

2.6 In relation to non-residential developments, such as office buildings etc., a large proportion of energy use is for lighting so it is important to design these buildings to maximise the availability of natural light without resulting in excessive solar gain during the summer. Heat generated by lighting and equipment can increase the need to artificially cool the internal environment. This can be avoided if design features such as external louvers, roof overhangs and blinds are built into the development as they can all provide shade without reducing natural light. The use of grass surfacing and soft landscaping can soften the hard landscaping of a car park and cool local air temperatures and provide natural cooling in the vicinity of the building.

2.7 The installation of a green roof on a building has many proven benefits to both the environment as well as to the overall running cost of the building. A green roof can add an additional layer of insulation which reduces the need to artificially heat or cool a building; it reduces water run-off as well as filtering water for rain-water harvesting. A green roof can provide an important amenity space as well as replacing and/or creating a much needed wildlife habitat for insects and birds thus improving local biodiversity. Any new development, whether it is new housing or other non-residential uses, should seek to incorporate as many water saving devices as possible.

MAKING IT HAPPEN

Solar gain and internal temperatures can be optimised by the following:

- minimise overshadowing;
- utilise a porch, existing natural features or add additional landscaping to provide shelter from prevailing wind;
- south facing buildings will maximise solar gain;
- the inclusion of a south facing roof slope can maximise the use of solar panels;
- retain heat in the building materials by using those with a high thermal mass such as tiles and stone which absorb excess heat during the day and release it slowly;
- outbuildings such as sheds and garages located on the north side of the building can provide an additional thermal buffer to heat-loss;
- minimise the amount and size of north facing windows; and
- optimise glazing on the south side of buildings but provide opportunities for shade such as blinds or external louvers.

Measures to consider:

- Reinforced grass paving for low turnover car parking areas.
- Green roofs (which can also help improve local biodiversity).
- Trees and landscaping can provide shelter from wind, shade from sun and reduce surface water run-off as well as improve local biodiversity.

2.8 Air conditioning should be avoided as this uses a great deal of energy and buildings should be designed to create natural ventilation such as fitting opening windows and vents. The use of an atrium would
effectively draw heat upwards within the building and create air movements thus naturally cooling internal spaces.

2.9 The energy efficiency measures used to reduce carbon emissions have the added incentive of offering savings in running costs during the life of the building. These can be achieved through improved insulation to retain heat and keep buildings cool during summer.

Measures to consider for efficiency:
- Maximising insulation of walls, roofs and floors.
- Advanced double or triple glazing systems.
- Modern boilers with advanced temperature controls to respond to solar gain.
- Low energy lighting systems with automatic switch off when not in use.
- Sun pipes can light up poorly lit areas and increase daylight within the building.
- Under-floor heating.

LINKS TO FURTHER INFORMATION
1. The Building Research Establishment (BRE) website provides information on many aspects of sustainable design. http://www.bre.co.uk
2. Information on grass paving and green roofs can be obtained from the Royal Institute of British Architects product selector website. http://www.ribaproductselector.com
3. Living Roofs is an information Leaflet produced by Natural England – this provides guidance on the types of green roofs available and the different types of buildings that they can be incorporated into. The leaflet can be found here: http://livingroofs.org/NewFiles/Living%20Roofs.pdf
4. General Information leaflet 72 produced by the Energy Savings Trust is available at www.est.org.uk/bestpractice/publications/detail.jsp?pk=38. This provides information on improving insulation of walls, roof and floors.
5. Information on green roofs can be found on: http://www.livingroofs.org/index.html or the Green Roof Centre at: www.thegreenroofcentre.co.uk
Chapter 3 – Sustainable Construction Materials and Techniques

AIM: To retain local character and promote the use of materials and techniques with the lowest environmental impacts.

CONTEXT: The construction industry has a huge impact on resources, in the use of building materials and the energy to produce and transport materials and products. “It is responsible for some 120 million tonnes of construction, demolition and excavation waste every year – around one third of all waste in the UK” (WRAP.org.uk). About 10% of national energy consumption is used in the production and transport of construction products and materials. Over 70 million tonnes of construction waste are generated each year accounting for 48% of the waste produced in the UK, 13% of which is construction materials delivered to sites but never used due to poor design and project planning. In most cases over 85% of demolition materials can be reduced, reused, reclaimed or recycled but only around 19% of materials are being recycled and 1% reclaimed.

OBJECTIVE: The Council will encourage developers to consider a range of materials for the construction process, to ensure that sustainable development is supported by the use of sustainable products and methods.

3.1 The type of materials used to construct a building can have a significant impact upon climate change. A Life Cycle Assessment (LCA), developed by the Building Research Establishment (BRE) enables manufacturers to demonstrate the performance of their product over its entire lifetime and provide credible environmental information. Developers are encouraged to use materials that have been assessed through this process and have been found to be more environmentally sound than other products. Figure 3 is an illustration of the Building Materials Lifecycle which is a simple diagram that identifies the progression of materials used in construction. The LCA introduces a level playing field to enable the comparison of different materials. Sustainable construction and the use of such materials makes economic sense as it involves the prudent use of existing and new resources and the efficient management of the construction process. It can also help preserve local character. Reusing and recycling materials will often be the most sustainable choice.

Figure 3. Building materials lifecycle (Source: BRE.co.uk/greenguide)

3.2 The chemicals contained in some paints, treatments and insulation materials can contribute to the health problems of those who use the building. Such chemicals and hazardous substances often used in the construction of a building can also be difficult to dispose of. It is therefore important to select materials that have a long life and low maintenance, but this must be balanced with good design and
environmental impact. For example asbestos has been used historically as it has good fire retardation properties, but it is associated with poor health and fatal asbestos related diseases. Aluminium\(^9\), however, is a low maintenance material with a long life and whilst its initial production involves a large energy input, over the long-term, it requires less energy and resources; it is low maintenance and can often be recycled. Where possible building materials should be from recycled sources and the carbon footprint should be considered.

3.3 Materials sourced locally can help to ensure that any new buildings not only reflect the local area but also reduce transport costs. The vernacular of North East Derbyshire has been traditionally characterised by the outcrop of magnesian limestone together with coal measures. This underlying geology has had a great influence on the character of buildings in the area and on the economy of coal mining and farming. The use of local traditional materials is not only attractive, but these materials can be more durable and have fewer environmental impacts than man-made synthetic alternatives.

3.4 In addition to using more traditional, natural and locally sourced materials and in order to minimise heat loss, consideration should be given to the u-value\(^{10}\) of the materials used in construction. The materials and techniques used in construction can have an influence on climate change. Developers are expected to minimise the consumption and use of energy, including fossil fuels, by the choice of materials and to use sustainable construction techniques.

KEY ACTIONS

Benchmark

- A significant proportion (target – 60%) of new timber and timber products should be sourced from Forest Stewardship Council (FSC) or other known source with a sustainable purchasing policy.
- Insulation materials containing substances known to contribute to ozone depletion or with the potential to contribute to global warming should not be used.
- The use of toxic glues, solvents, treatments and coatings should be avoided.
- Non-recycled aggregates should be minimised.
- During construction and demolition, waste should be reduced by sorting on site and re-using where practical.
- Where possible locally sourced natural materials should be used.
- In relation to new houses seek to achieve Level 3 or higher of the Code for Sustainable Homes (see chapter 7 for more information on the Code for Sustainable Homes).
- In relation to non-residential development seek to achieve a ‘Very Good’ or higher BREEAM Rating or equivalent. (see chapter 7 for more information on BREEAM).

Going Further

- Seek to ensure 100% of new timber and timber products come from an FSC source or other known source with a sustainable purchasing policy.
- The use of materials derived from recycled and reused content should be maximised in products and materials selected.
- In relation to new houses seek to achieve the highest rating of the Code for Sustainable Homes.
- In relation to non-residential development seek to achieve the highest BREEAM rating.
3.5 When considering use of certain man-made products such as concrete (surfacing and tiles etc), the high energy demands of manufacture compared to the potential energy savings of its use in buildings should be considered. In addition developers should seek to incorporate the recycling of existing concrete on site prior to redevelopment, and where possible re-use to avoid energy lost through transportation.

Achieving the benchmark

3.6 Clearance and preparation of a site prior to starting the development is key to achieving sustainable construction. If demolition is required this should be considered carefully to ensure any materials can be recycled and used in the new building and that other materials can be sorted on site to maximise recovery and recycling.

3.7 Waste minimisation can be achieved by specifying and only purchasing what is needed for the project. Reclaimed and/or recycled materials should be used wherever possible as this can reduce the environmental impacts associated with extraction, processing and disposal. Storing recovered materials should be done in such a way as to prevent damage from the weather. Not all of the following will be relevant for every development but developers should seek to incorporate as many techniques as possible to retain local character and promote the use of materials and techniques with the lowest environmental impact. The following list is not exhaustive and some of the suggested measures may overlap with the Building Regulations.

MAKING IT HAPPEN

Keep in mind the following factors when specifying new materials and components for a construction project:

- Source materials locally, wherever practical, in order to reduce the need for transport.
- Select materials that have low levels of embodied energy (energy used in manufacture), have a long life and require little maintenance.
- Wherever possible specify materials with low toxicity. Use natural, non-toxic and low VOC (volatile organic compounds) glues, solvents, treatments and coatings.
- Consider the full life-cycle of alternative materials i.e. the impacts of raw material extraction, processing, manufacture, transport, use and disposal. Consider also the impact on biodiversity of the use of peat, weatherworn limestone and other materials from vulnerable habitats. This applies to landscaping materials as well as buildings.
- Maximise the use of timber from sustainable Forest Stewardship Council (FSC) sources. If other timber is used it should be from a known source with a sustainable purchasing policy.

LINKS TO FURTHER INFORMATION

3. Information on the procurement of sustainable timber is available from the Central Point of Expertise on Timber Procurement (CPET). http://www.proforest.net/cpet
Chapter 4 - Carbon Emissions

**AIM:** To seek reductions in CO2 and other greenhouse gas emissions in order to comply with targets set in National Indicators, adopted in North East Derbyshire as part of the Local Area Agreement.

**CONTEXT:** The Government has set targets to reduce CO2 emissions by 20% from 1990 levels by 2010 and targets of achieving 10% of UK electricity from renewable sources by 2010 and 20% by 2020.

**OBJECTIVE:** To ensure new developments reduce demands for energy and use of fossil fuels, to use energy more efficiently, to use renewable energy and to ensure any continuing use of fossil fuels is clean and efficient for co-generation energy.

4.1 As carbon dioxide is the most significant greenhouse gas that contributes to global warming, it is important to reduce carbon dioxide emissions both during construction (and the sourcing of materials) through to the use and occupation of the building. This can be achieved by adhering to the following hierarchy of guidelines:

1. Increase building insulation.
2. Utilise efficient energy generation through the use of combined heat and power (CHP) and district heating (DH) systems. Distant energy supplies through the national grid can be inefficient; whilst producing energy at the point of use reduces such transmission losses.
3. Generate energy from renewable sources such as solar water heaters, photovoltaic (PV) arrays, wind turbines, air/ground source heat pumps.

4.2 Clearly not all of these will be suitable or even available for every development but a careful assessment of the contribution of each will be necessary to achieve the Council’s policy requirements. Some of the following measures may overlap with the requirements of the Building Regulations.

**Achieving the benchmark**

The relationship between energy consumption, carbon and carbon dioxide

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**KEY ACTIONS**

**Benchmark**

- Unless it can be demonstrated otherwise through financial, feasibility or viability arguments, in respect of major developments, a proportion of the energy required to run the development throughout its expected lifetime should be from a renewable or decentralised low carbon source.
- All developments should aim to achieve a reduction in the carbon emissions that directly result from the construction and occupation of the buildings by building in accordance with the current highest recommended levels of the Code for Sustainable Homes (for residential developments) and BREEAM (for non-residential developments).
- Carry out an energy audit of the proposed development to demonstrate the achievement of the required carbon emission reduction.

**Going Further**

- All development to exceed the minimum standards aiming to achieve carbon neutrality in line with government targets.
- All development to carry out an energy audit to demonstrate reduction of carbon emissions.
- Provide guidance to building occupiers to optimise use of heating and lighting systems.

4.3 As electricity is a secondary power source, generated from a mix of primary fuels (oil, gas, coal, nuclear etc), which can vary from time to time, it is less of a known quantity than gas. Therefore the mix of gas and electricity needs to be taken into account when calculating carbon dioxide emissions.
The requirements of the Council’s Interim Sustainable Buildings Policy

4.4 The Council’s policy relates only to major developments. For such developments the requirement is to minimise carbon dioxide emissions by measures which include building to the current highest recommended levels of the Code for Sustainable Homes and BREEAM, achieving a proportion of the energy requirements to run the buildings from a renewable, decentralised or low-carbon source, by minimising energy consumption, maximising cooling and avoiding excessive solar gain in the summer (This policy is set out in full on Page 7). In some cases the Council may ensure compliance with the policy by granting planning permission for the development conditional on the submission of an energy audit. Information concerning energy audits is given in the final section of this document, an example Energy Audit is provided in Appendix A. On some sites it may not be practical to achieve these requirements through on-site measures alone and, if available, connections will need to be made to neighbouring decentralised renewable and low-carbon supply infrastructure. Merely purchasing “green electricity” from the national grid would not be considered sufficient to satisfy the objectives of the policy.

4.5 Notwithstanding the design and layout of a building there are other ways, in terms of the functionality of a building, where energy consumption can be reduced. Future occupiers should be well informed about the efficiency of their boilers and heating systems. A Welcome Pack explaining efficiency measures (similar to the former Home Information Packs) could provide this information. From June 2007 it became compulsory for anybody selling a home to provide an energy rating certificate in the form of an Energy Performance Certificate (EPC).

4.6 Any in-built appliances should have the highest rating for energy efficiency and the house should be fitted with smart meters. The provision of an external space for drying laundry can reduce the need to use tumble driers or place clothes on radiators which can make them operate inefficiently. Measures such as these that reduce energy consumption should be fully explored before measures for generating energy are considered.

MAKING IT HAPPEN
Utilising features such as:
- auto switch-off for lights and energy saving light bulbs;
- effective insulation through properly installed and inspected insulation in floors, walls, and attics ensures even temperatures throughout the house, reduced energy use, and increased comfort;
- high-performance windows: energy-efficient windows that employ advanced technologies, such as protective coatings and improved frames, to help keep heat in during winter and out during summer. These windows also block damaging ultraviolet sunlight that can discolour carpets and furnishings;
- ensuring ducts are tightly sealed; by removing holes and cracks in the home’s “envelope” and in heating and cooling duct systems helps reduce drafts, moisture, dust, pollen, and noise. A tightly sealed home improves comfort and indoor air quality whilst reducing utility bills and maintenance costs;
- energy efficient electrical appliances;
- smart meters to monitor electricity usage; and
- external space for drying laundry to avoid the need to dry clothes on radiators and in tumble-driers.
4.7 Due to the potential to lose a percentage of the power during the process of physically transporting it, the use of energy from the national grid is not the most efficient or sustainable source, even when a green energy tariff is used as this will also be from an off-site source. Any building can benefit from decentralised or on-site heating and there are a number of options to choose from.

**Combined Heat and Power (CHP)**

4.8 The simultaneous generation of heat and power in a single process is known as CHP. This is essentially the waste heat generated by the production of power utilised and stored instead of allowing it to dissipate into the environment. This also removes the transportation issue and is a way of having a low-carbon energy supply that is more efficient than conventional forms of power generation. This works particularly well for larger mixed use schemes where the heat and power needs throughout the day are more evenly balanced.

“CHP systems can be employed over a wide range of sizes, applications, fuels and technologies. In its simplest form, it employs a gas turbine, an engine or a steam turbine to drive an alternator, and the resulting electricity can be used either wholly or partially on-site. The heat produced during power generation is recovered, usually in a heat recovery boiler and can be used to raise steam for a number of industrial processes, to provide hot water for space heating, or, as mentioned above with appropriate equipment installed, cooling”. (Source: Combined Heat and Power Association: http://www.chpa.co.uk/)

**Using renewable energy**

4.9 Further information on the renewable technologies is set out in government guidance in PPS 22: Renewable Energy and its Companion Guide. Where renewable energy schemes are proposed, information should be provided on rated power output in KW or MW as this will be required for monitoring purposes. A number of renewable energy (low and zero carbon) technologies may be suitable for on-site and decentralised power generation. These include:

- solar water heating
- ground / air source heating / cooling
- wind turbines
- photovoltaics (PV)
- biomass heating / power.
- anaerobic digesters

**Solar water heating**

4.10 Solar water heating systems use solar panels, called collectors, fitted to the roof of a building which collect heat from the sun and use it to warm water which is stored in a hot water cylinder. For the system to be effective, collectors should face between south-east and south-west at an angle of about 40° and not be shaded by obstructions.

**Ground / air source heating / cooling**

4.11 Heat pumps work by utilising the natural heat energy produced by the sun. This energy is absorbed into the earth’s surface which acts as a giant heat store. Pipes are then buried in a looped array in the ground or under water which absorbs this low temperature heat from the ground and directs it into a pump. Ground and air
source heat pumps operate on similar principles to refrigerators. An electric pump extracts heat (from the ground or air) using an exchanger and transfers it to a heating distribution system - usually through under-floor pipes. The pump can be designed to operate in reverse to provide cooling. Ground source heat pumps generally require a large outdoor space for the burial of the heat exchanger pipes, although vertical boreholes can be used instead. Air source heat pumps can be fixed to the outside of a building. Both ground and air source heat pumps require a supply of electricity to power the system but generally contribute around four to five times the amount of energy consumed. Heat can be obtained from rivers, streams, ponds, the sea or water wells – in theory wherever there is a medium of heat or a heat source, a heat pump can be utilised.

Wind turbines

4.12 Energy is extracted from the wind using either a vertical axis rotor or a two/three blade rotor. Vertical axis turbines do not have to re-orientate with changing wind direction and are generally more efficient at low wind speeds. Wind turbines can be either mounted on a free-standing pole or (if small) fixed directly to a wall or roof. For wind turbines to be effective, average wind speeds will need to exceed 4.5 metres per second, although small roof-mounted turbines (typically up to 1.5kW) can work at wind speeds as low as 3.5 metres per second. Noise, appearance and ‘shadow flicker’ may be a concern in some locations. Large scale wind turbines need to be carefully sited to avoid adverse effects on biodiversity, cultural heritage and landscape. Possible areas of opportunity for wind turbine development have been identified in the Council’s Low and Zero Carbon Energy Study. However, visual amenity constraints may outweigh technical potential. PPS22 The Companion Guide on Renewable Energy should be referred to for more detail particularly in relation to the impact on birds and biodiversity.

Photovoltaics

4.13 Photovoltaic (PV) systems convert energy from the sun into electricity through semiconductor cells. A cell consists of a junction between two thin layers of dissimilar semiconducting materials, usually based on silicon. When light shines on the junction an electrical current is produced. PV systems can be designed as wall cladding or roof tiles as well as roof-mounted arrays. For optimum results, PV arrays should face between south-east and south-west and should not be shaded.
Biomass heating / power

4.14 This uses plant or animal material as a fuel source for energy production. Although carbon is emitted when such material is burned, this is equivalent to the amount absorbed from the environment during its growth. Thus biomass fuel is carbon neutral and is a renewable source of energy, provided that it comes from a local sustainable supply. Common biomass fuels include: fast-growing energy crops such as willow and miscanthus, poultry litter, wood chips and wood pellets. As biomass fuels tend to be bulky in relation to the amount of energy they provide, transport costs (and carbon dioxide emissions resulting from transport) can be a significant factor which should be taken into account in assessing their suitability. The use of land for large areas of biomass, if associated with large scale energy production may require planning permission as well as an Environmental Impact Assessment (EIA), particularly if it requires additional engineering operations or buildings. It would be advisable therefore to contact the Council's Development Management Team to determine whether the scale proposed requires planning permission and, if so, whether or not there is a need to undertake an EIA as part of this. PPS22 provides technical guidance on the various types of renewable energy generation.

Anaerobic Digesters

4.15 Most biodegradable waste is currently sent to landfill where it breaks down and produces methane, a powerful greenhouse gas. Anaerobic digesters comprise a hermetically sealed unit which composts the waste, in the absence of oxygen, to produce a biogas that can be used to generate electricity and heat. The left-over waste is then clean and can be used as a fertiliser. As a means of energy production it not only removes a contributing factor of climate change by diverting waste from landfill, but it also produces 100% renewable energy.

Local Energy Networks / Community / District Heating Systems

4.16 Investigations should be made as to the availability of Local Area Energy Networks which can supply multiple sites with decentralised and renewable or low-carbon technology energy sources. The economies of scale are such that increased carbon savings can be achieved as well as cost effectiveness of a local low-carbon energy supply. The existence of a local area energy network means that individual developments can connect to it for their energy needs rather than provide their own on-site renewable energy or rely entirely on the national grid.

4.17 Community or district heating has many advantages over traditional national grid energy supplies by utilising a central boiler to supply energy and heat to a number of dwellings. Not only does it become more flexible to change the fuel type, but fuel can be purchased in bulk leading to reduced running costs for residents. Such a system would need to be built-in to a housing scheme and the developer would need to set up or identify a company to install, manage and operate the scheme including billing tenants and homeowners for energy used.

The path to carbon neutrality

4.18 According to the previous Government's 'Building a Greener Future' Policy Statement of 2007 all new homes built
after 2016 will have zero net carbon dioxide emissions from all energy uses. The current Government has not changed this requirement. However, it has announced a revised definition for zero carbon homes\textsuperscript{15}. The Housing Minister has rejected calls to make housebuilders anticipate the lifetime emissions from each property because it was not considered reasonable that they should be responsible for the use of electrical appliances by the families who buy their homes. Housebuilders will only be responsible for emissions from the homes themselves (as covered by the Building Regulations) so they will need to ensure that emissions associated with energy use from heating, lighting, hot water and building services are reduced. The Government expects carbon savings to be made beyond this by building homes with renewable energy on site, such as solar power and through off site measures such as local community energy schemes. However, the mechanism for this has yet to be decided. Homes started after 2016 will be built to this standard. Ahead of this target however a staggered reduction in carbon dioxide emissions from 25% at 2010 and 44% by 2013 is sought. The Core Strategy may consider more ambitious climate change or site specific policy requirements should it be found to be necessary at the local level. The Low and Zero Carbon Energy Study recommends that the LDF Core Strategy, when adopted, introduces moving to a 35% carbon reduction standard and that the carbon reduction is framed in terms of renewable energy (i.e. 10% carbon reduction through renewable energy) to support the development of microgeneration locally.

4.19 Clearly not all of the above means of energy production will be suitable for all developments and other policies in relation to siting and amenity will need to be taken into account to ensure negative impacts on neighbouring properties or the character and appearance of the area are avoided as far as possible. However developers are encouraged to explore renewable energy sources before off-site supplies and fossil fuels are used. Developers are required to take into account the national policy framework in relation to sustainability and renewable energy ahead of locally specific targets on renewable energy/carbon emissions reductions. All development should be in accordance with national targets to reduce carbon emissions by 80% by 2050 and reduce the use of unsustainable forms of energy in line with PPS1 Supplement and PPS22 on Renewable Energy.

4.20 In requiring a percentage of the energy to run new developments to come from a renewable source, the Council is aware that this may not be technically feasible or viable in every case. The requirement to provide a proportion of the energy from such sources is only applied to developments where the installation of renewable energy generation equipment is viable given the type of development proposed, its location and design. This is in accordance with PPS22.
LINKS TO FURTHER INFORMATION
2. The Building Research Establishment offers guidance on a variety of energy conservation measures, Building Regulation requirements, SAP and SBEM. http://www.bre.co.uk
4. The Carbon Trust promotes low carbon technology and gives information on how to work out the carbon dioxide emissions associated with energy use. http://www.thecarbontrust.co.uk
5. Information on combined heat and power and community heating is available from the Combined Heat and Power Association. http://www.chpa.co.uk
7. Information on product suppliers can be found from the Royal Institute of British Architects product selector website. http://www.ribaproduckselector.com
10. Further information on biomass fuels the Biomass Energy Centre website: http://www.biomassenergycentre.org.uk/portal/page?_pagcid=73,1&_dad=portal&_schema=PORTAL
11. Further guidance from the cross-government initiative ‘ACT ON CO2’ and the use of Energy Performance Certificates (EPCs) can be found at http://actonco2.direct.gov.uk/actonco2/home.html
5.1 Waste that is generated as a result of development adds to the burden of existing waste that must be managed. Despite the efforts of many agencies, a large proportion of waste is still disposed of to landfill. This is harmful to the environment and a waste of resources. Developers are expected to follow the waste management hierarchy (see figure 5) and incorporate facilities to minimise waste as part of development proposals both during construction and when subsequently occupied. The guidance in this chapter should be used in conjunction with that contained in Chapter 3 in relation to the management of waste for the construction industry.

5.2 Whilst the production of waste is an inevitable consequence of modern life that is unlikely to change, what we do with it and how we manage it can reduce how much is produced. The following information outlines how the waste associated with construction can be managed more effectively.
5.3 In accordance with the hierarchy of waste disposal, developers should seek to minimise the amount of waste produced throughout the development process. Consideration should be given to re-using site preparation and demolition waste on-site as part of the new development or otherwise recycling it. Following a demolition protocol or demolition recovery index (DRI) can ensure that the recovery of materials from the demolition site for reuse or recycling is maximised. Secondary and recycled construction materials should be used wherever possible as part of the development. The ordering of construction materials should be carefully monitored to avoid wasteful over-ordering. A waste audit should be produced at an early stage in planning development proposals to demonstrate how waste will be minimised during implementation and occupation of the scheme.

5.4 The principles of sustainable waste management are just as valuable for smaller developments and a waste audit should be considered for them also. The design of developments should ensure that there is sufficient space for occupiers of completed schemes to store separated waste awaiting collection for recycling and disposal.

5.5 The construction of estates, either residential or industrial, should take into account the need to accommodate specific sizes of refuse vehicles to ensure
refuse and recycling bins can be collected by the local council. Derbyshire County Council, as Highway Authority, is consulted on planning applications and work to guidance set nationally in the ‘Manual for Streets’ and as such will require compliance with these standards. The Manual for Streets sets out the requirements of both PPS10 on Waste Management and Part H of the Building Regulations and developers should comply with these standards when designing new street layouts.

5.6 In relation to non-residential development, whilst North East Derbyshire District Council does not presently offer a commercial recycling collection service, developers should seek to encourage future occupiers to manage commercial waste effectively to avoid disposing of waste where there is the potential to recycle it. This could be achieved by arrangements with waste contractors. In addition, where locally and mutually convenient, businesses can work together through less obvious solutions. This could include reusable waste cardboard for a packaging company or pallets for a delivery company. These solutions are often cost free, and make a big saving straight away.

**LINKS TO FURTHER INFORMATION**

1. The Construction Industry Research Information (CIRIA) publishes guidance on various construction issues, including aggregate recycling. http://www.ciria.org.uk


3. Information on recycling construction waste can be found through the Waste and Resources Action Plan (WRAP) at: http://www.wrap.org.uk/downloads/CD_HowTo_8_Concrete_low-res1.af58799d.2780.pdf

4. Information on Demolition and Demolition Protocols from the Institute of Civil Engineers (ICE) can be found at:http://www.ice.org.uk/downloads//Demolition%20Protocol%20-%20Cover%20Sheet%20Executive%20Summary%20-%20Final.pdf

5. Information on Demolition Recovery Index can be found at: http://www.wrap.org.uk/downloads/Pre-demolition_Audit.8d2f179b.1760.pdf


7. Additional information on Rubbish, Waste and Recycling in North East Derbyshire can be found here: http://www.ne-derbyshire.gov.uk/environment--planning/refuse-collection

Chapter 6 – Water and Flooding

AIM: To improve efficiency in the use of water, conserve water resources, slow-down run-off and minimise vulnerability to flooding.

CONTEXT: Domestic water consumption has increased 70% in the past 30 years and is now on average over 150 litres per person per day. Although this water is purified to very high standards using high levels of chemicals and energy, approximately 35% of this water is used for toilet flushing, whilst another 40% of water is used for watering and washing. In the average office, two-thirds of water use takes place in the toilets. Homes built to Level 3 of the Code for Sustainable Homes can cut water use by 30%.

OBJECTIVE: In all new development the Council will seek implementation of water conserving methods, techniques and systems, including the means to conserve and utilise rainfall and grey water, and will seek the reduction of surface water run-off rates.

Minimising Water Use

6.1 Whilst the effects of climate change may increase global temperatures and the likelihood of extreme weather events overall, for the UK it is predicted, in the latest climate projections (UKCP09) produced in June 2009, that the amount of rainfall is likely to increase during the winter and decrease over the summer. Reducing water waste and conserving water supplies is therefore an important consideration with all new developments. Using less water means having to treat and supply less water thus reducing carbon dioxide emissions through this energy cost. Developers are expected to minimise water use and consumption as part of proposals for development. Water saving technologies should be incorporated to ensure efficient use of natural resources.

Achieving the benchmark

6.2 Water can be saved by incorporating water saving devices, using alternative water sources and by careful design of landscaping / garden areas. Any new development, whether it is new housing or other non-residential uses, should seek to incorporate as many water saving devices as possible.

KEY ACTIONS

Benchmark
- Install a water meter with all new developments.
- Provide water butts for new residential units that have private gardens, prior to occupation.
- Commercial developments that include areas of landscaping will be expected to make appropriate provision for collecting rainwater.
- Wherever possible, specify low water use fittings and appliances.
- Provide guidance to householders on how to conserve water.
- Ensure that the design of buildings and their surrounding landscape maximises water efficiency and minimises water wastage.

Going Further
- Provide a rainwater harvesting and ‘grey water’ recycling system as part of the development.
- Ensure that the design of surface water drainage systems take into account expected future changes in rainfall.
- Assess the amount of water likely to be used during the construction and operation of any development and identify opportunities to use water more efficiently.
- Incorporate products and systems that detect leaking and burst pipes that either sound an alarm or shut off the water supply to reduce the amount of water wasted in a development.
MAKING IT HAPPEN

Water saving devices

- Water-efficient toilets
  Toilets can account for a quarter of water-use in a typical household and more in non-domestic situations. Low-flush toilets and dual-flush toilets, which enable the flush to be varied depending on the amount of waste, reduce water usage.
- Waterless urinals
  These can replace existing flushing systems. They are most effective in buildings with high occupancy rates such as schools, offices and public buildings.
- Taps
  Spray and low-flow taps reduce the amount of water used. Self closing and infrared controlled taps ensure that water cannot be left running.
- Showers
  Showers (apart from power showers) generally use less water than baths. Low volume baths are also available. (Tapered or peanut shaped baths may provide more space for bathing with less water.)
- Appliances
  Where these are supplied by the developer rather than the occupier, low water use washing machines and dishwashers should be specified.
- Meters
  Although water meters do not themselves save water, by making the user more aware of the cost of supply they can reduce water wastage.

Alternative water sources

- Rainwater harvesting
  This involves collecting rainwater from a building’s roof and storing it in a tank, often underground. Such water, once filtered, can be used in toilet flushing, cleaning and washing. If used within the building it should be additional to the standard mains supply which is needed to provide drinking water and a backup. If used outside, it can take the form of a simple water butt. All buildings with gardens or landscaped areas that require regular maintenance should be provided with water butts fitted via a diverter to the rainwater down pipe. Such water can also be used in general cleaning and car washing.
- Water recycling
  ‘Grey water’ (water that has already been used in hand basins, baths and showers) can be stored, filtered and disinfected, and then reused for toilet flushing, garden watering or car washing. It is also possible to recycle ‘black water’ (water used for toilet flushing and washing up) although this is more resource intensive. Both ‘grey water’ and ‘black water’ systems will require regular maintenance to ensure their ongoing quality and effectiveness. A separate standard mains supply will always be needed in addition to provide drinking water.
- Groundwater
  In some locations it may be feasible to source water from a borehole or river. Permission will be required from the Environment Agency.
- Landscaping and gardens
  When considering detailed landscaping schemes as part of development proposals, careful consideration should be given to the design of gardens and landscaped areas not only to minimise the amount of water needed to maintain them but also to ensure that they can cope with episodes of heavy rain. Drought-resistant plants should be chosen as a preference and these should ideally be native species found locally. Plants and lawns should be set out as early in spring as possible as less watering is required than if planted in the summer. Where regular watering cannot be avoided, automatic drip irrigation systems can be efficient and plants should be watered in early morning or late evening to reduce evaporation. Water-retaining mulches, adding organic matter to the soil and using ground-cover plants can also help to retain moisture in the ground. Water should be obtained from water butts or recycled sources. Careful planting not only reduces surface water run-off but can also be a good source of shade which slows down the evaporation of water during summer months which can reduce soil erosion.
Flooding

6.3 Left unaltered the high emissions prediction\textsuperscript{17} for future climate change is likely to increase the number of storms and heavy downpours of rain, particularly in winter. Flash flooding can occur almost anywhere, especially in built-up areas with a high proportion of impermeable surface. Developers are expected to minimise the risk of flooding, including likely future flood risks. For the past 5 years it has become increasingly apparent that spatial planning needs to incorporate flood management strategies including assessing risk, urban drainage systems and raising awareness generally of future flood risks. It is therefore essential that watercourses are given sufficient consideration when planning development layouts to ensure they do not exacerbate or create flooding problems in the vicinity or locally.

6.4 Developers are advised to check with the Environment Agency\textsuperscript{18} to determine whether an area is at risk of flooding, however, even living miles away from the coastline or a river, there is still a chance flooding could occur. Locations that could be at risk are areas at the bottom of a hill or valley, or in an area below sea level. Within such areas extra precautions may be required.

\textit{Figure 6 Local Flooding in nearby Chesterfield during the floods of Summer 2007. (Source: Mat Wilson NEDDC)}
Figures 7, 8, 9 and 10: Photos of Eckington and the Eckington Depot taken during the floods of Summer 2007. (Source: Paul Worthington NEDDC)

6.5 Properties located at the bottom of even small hills can be vulnerable to rainwater surface run-off, which can be dangerous during excessive rain. Such sites may also be susceptible to groundwater flooding. In addition, blocked sewers can feed back and flood homes.

6.6 It is good practice to prevent development on a flood plain. However, the evolution of existing places may put development pressure on such areas. If development is proposed in an area that is at risk or has a higher probability of flooding, the Local Planning Authority will apply the sequential test as set out in Annex D of Planning Policy Statement 25: Development and Flood Risk (PPS25).

6.7 In addition to the Environment Agency's records, the Council has undertaken a Level 1 Strategic Flood Risk Assessment, in conjunction with Chesterfield Borough and Bolsover District Councils. This study identifies known areas at risk of flooding within the District which should be taken into account when preparing development plans. Proposals for development therefore should take into account the recommendations of this document.

KEY ACTIONS

Benchmark
- Use sustainable drainage systems (SuDS) (backed by management and maintenance provisions) wherever practical, justifying the use of conventional systems if such sustainable systems are not used.
- Avoid use of large areas of impermeable hard-surfacing.

Going Further
- Achieve 100% attenuation of the undeveloped site’s surface water run-off.
Achieving the benchmark

6.8 The amount of hard-surfacing has a direct link to the amount and level of local flooding. Government guidance in PPS25 advises on the types of development that are appropriate in areas at risk of flooding. The Environment Agency publishes flood risk maps showing which parts of the country are within an area considered to be ‘at risk’ of flooding. When proposing development in such areas (Flood Zones 2 and 3) and development proposals of 1ha or greater in Flood Zone 1, it will be necessary to submit an individual flood risk assessment to show that the development will not add to flood risk and should, where practicable, reduce the risk of flooding. Any new development should remain safe throughout the expected lifetime of the proposed development, demonstrating that the development will not be at flood risk and that it will not have a negative impact on third parties, taking climate change into account.

6.9 In order to reduce the risks of flooding both within and outside development sites, developers should incorporate a means of slowing down the rate of surface water run-off through attenuation. This consists of a temporary storage for surface water in a suitable chamber below ground level. This chamber needs to be of sufficient size to accommodate the calculated run-off during peak periods of rainfall. The stored water is then gradually released in a controlled manner into a surface water or combined drainage system or watercourse, subsequently effectively reducing the risk of flooding.

6.10 The rate and amount of run-off associated with new development can be reduced by avoiding large areas of impermeable hard-surfacing and using soft landscaping and permeable surfaces wherever possible. A sustainable drainage system (SuDS) allows surface water to be controlled as near to its source as possible and is an approach which seeks to mimic natural drainage systems and retain water on or near the site as opposed to the traditional drainage approach which involves piping water off-site as quickly as possible. There are significant advantages over conventional piped drainage systems to reducing flood-risk through control over the rate and quantity of surface water run-off from a site, promoting groundwater recharge and improving water quality. The variety of SuDS techniques available means that virtually any development should be able to include a scheme based around these principles.

6.11 Many ecosystems that support biodiversity can be damaged or lost through excessive surface water run-off or loss of habitat. The use of SuDS in new development will significantly reduce the risk of destruction of local wildlife that depends on specific conditions to survive. Many of the suggestions under ‘Making it Happen’, in this section, have both passive and direct effects in terms of minimising the impact on biodiversity either through reduced surface water run-off or through the provision of additional sites in which wildlife can establish and thrive. It will be particularly important therefore to consider the impact of the proposed SuDS system on local wildlife to ensure the optimum solution is used.

A site specific Flood Risk Assessment will need to be undertaken when:
- The site falls within Flood Zones 2 and 3 and the development is of any size.
- The site falls within Flood Zone 1 when the development is 1 hectare or greater.

The Environment Agency has interactive maps which can identify whether or not the site is within a flood zone.
6.12 The soil and ground conditions of a site together with the size and type of development will largely dictate the possible methods of drainage particularly the suitability of different natural filtration methods. A suitable drainage system will therefore need to be designed to match the local geological and hydrological conditions. This could be achieved as follows:

- Carry out soakage/percolation tests in accordance with BRE365 standards to determine the scope of filtration on the site.
- Consult the Environment Agency early in the process regarding SuDS requirements.
- Assess the long-term cost of maintaining the drainage system over the lifetime of the development and a fully costed and funded proposal will need to be agreed with the Council before planning permission is granted.
- Consider woodland and other green infrastructure to help reduce surface water run-off by slowing precipitation, binding soil to prevent erosion and expiring water to the atmosphere.

Protecting water quality

6.13 It is important to protect rivers and groundwater sources from pollution. SuDS can benefit local water quality by removing/filtering out pollutants from run-off; returning cleaner water to the environment when compared to conventional drainage systems. Additionally, by reducing the peak flow of water in areas served by combined foul and surface water sewers, SuDS reduce the number of times sewer overflows operate and therefore there is less discharge of...
Polluted water to watercourses. Planning Policy Statement 23: Planning and Pollution Control (2004) (PPS23) sets out the Government’s objectives in relation to the protection of land, air and water from pollution. In relation to water quality it recognises the need to strike a balance between environmental and socio-economic needs, in line with the EU Water Framework Directive (2000/60/EC). This allows for considerations of disproportionate cost and technical feasibility in clearly defined circumstances, to be taken into account. However it is made clear in Appendix 1 “the assessment of need and of sustainability issues should take into account a comprehensive assessment of social, environmental and economic factors” particularly in environmentally-designated or sensitive areas. “It should be recognised that the need for a development in a particular location can outweigh negative impacts that would, in other locations, warrant refusing planning permission” (paragraph 1.54).

There are other basic measures to be included within a development that can help to protect the water quality such as:
- prepare a drainage plan and mark manholes to prevent pollutants accidentally reaching surface water sewers;
- carry out any potentially polluting activities in designated, bunded areas away from rivers or boreholes and where possible with a connection to the main public foul sewer;
- use settlement ponds to remove silty water;
- store all oils and chemicals in a fully bunded area to prevent leaks or spills; and
- incorporate control mechanisms into non-residential development to ensure water quality is protected in the event of flooding.

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<tr>
<th>Type of Development</th>
<th>Scale of Development</th>
<th>Green Roofs</th>
<th>Rainwater Harvesting</th>
<th>Permeable Surfacing</th>
<th>Infiltration trenches, basins and filter drains</th>
<th>Swales and detention basins</th>
<th>Retention ponds and wetlands</th>
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This table shows that some techniques are more suited to large scale development whereas other techniques can be incorporated into almost any type of development. This table is for illustrative purposes and does not form a policy requirement so the references to small scale and large scale are not defined.
6.14 In relation to non-residential development; measures can be incorporated into the design of drainage systems to isolate water flow and provide storage capacity in the event of flooding or potential pollution incidents. A sluice or gate installed into the drainage system, often referred to as a ‘penstock valve’ can give control over the flow of water which can protect local water supplies from pollution in a flooding incident. Recent UK flooding events highlight the serious pollution that can occur as a result of flooding when there are no controls attached to the drainage systems of development.

Water Neutrality

6.15 Water neutrality like carbon neutrality is about being sustainable and ensuring there is enough water to support new development without requiring additional water resources. The definition used by the Government and the Environment Agency is that “the total water use after a development does not exceed the total water use before development”. Not only does water neutrality have environmental benefits of saving water but there are also economic benefits. The less demand there is for ‘treated’ water, the less cost there is for the occupier. Key measures that in combination could help achieve water neutrality include:

- Making new developments much more water-efficient;
- ‘Offsetting’ new demand by retrofitting existing homes and other buildings with more efficient devices and appliances and
- Expanding metering of existing homes in the area and introducing innovative tariffs for water use to encourage households to use water more efficiently.”
LINKS TO FURTHER INFORMATION

1. The Construction Industry Research Information (CIRIA) publishes guidance on various construction issues, including sustainable drainage systems. http://www.ciria.org.uk
5. Information on product suppliers can be found from the Royal Institute of British Architects product selector website. http://www.ribaproductselector.com
7. Further information on SuDS can be found in: PPS25 Annex F; PPS25 Practice Guide; the CIRIA C522 document Sustainable Drainage Systems – design manual for England and Wales; the CIRIA C697 document SUDS manual; the Interim Code of Practice for Sustainable Drainage Systems, which provides advice on design, adoption and maintenance issues and a full overview of other technical guidance on SuDS.
9. For more information on the most recent Climate Projections and the UKCP09 figures visit: http://ukcp09.defra.gov.uk/
12. The Joint Strategic Flood Risk Assessment can be found here: http://www.ne-derbyshire.gov.uk/sys_upl/templates/AssetBrowser/AssetBrowser_disp.asp?ItemID=13461&tbasketPage=tbasketItem=tABTKeywords=Strategic&tSearchDocContent=1&tpgid=34858&ttid=165&tpage=3
13. Living Roofs is an information leaflet produced by Natural England – this provides guidance on the types of green roofs available and the different types of buildings that they can be incorporated into. The leaflet can be found here: http://livingroofs.org/New%20Files/Living%20Roofs.pdf
15. In relation to water and pollution control, Planning Policy Statement 23: Planning and Pollution Control (PPS23) provides detailed guidance on the consideration of the quality of land, air or water and potential impacts arising from development. A copy of this document can be found here: http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/pps23/
Chapter 7 - Sustainable Construction Codes

AIM: To ensure development is managed in the context of sustainability, seeking to ensure all developers follow consistent codes of practice in relation to the type of development proposed and that all necessary steps are taken to achieve the greatest efficiency savings throughout the development process.

CONTEXT: In 2004 the Stern Review highlighted that more than a quarter of the UK’s carbon dioxide emissions came from the energy we use to heat, light and run our homes. Reducing greenhouse gas emissions from homes will therefore be a major step towards achieving the Government’s 80% target for cutting greenhouse gas emissions by 2050. The Code for Sustainable Homes (Dec 2006) identifies that as much as one third of the total housing stock needed by 2050 will come from the new homes we are building between now and 2050. It is important that we take this opportunity to make new homes as sustainable as possible by not only reducing the amount of energy it takes to construct them but also the amount of energy it takes to run them. This applies equally to non-residential buildings where the same principles and techniques can be applied.

OBJECTIVE: In all new development the Council will seek compliance with the Code for Sustainable Homes for residential development or similar alternative codes of practice such as BREEAM, where they exist for other types of development, seeking justification for exceptional circumstances, where this cannot be achieved.

7.1 Following a sustainable construction code is a useful means of ensuring that a development takes account of a range of sustainability factors, including those described in this guidance document. The Code for Sustainable Homes is specifically aimed at new dwellings, whereas the Building Research Establishment’s Environmental Assessment Method (BREEAM) covers other types of development.

7.2 Developments that seek a rating under the Code for Sustainable Homes or BREEAM are assessed by suitably qualified independent inspectors. The benefits of using independent environmental assessment methods to rate new developments include:

- helping to meet the various sustainability requirements of planning authorities;
- demonstrating environmental credentials to investors, thus minimising investment risk; and
- making customers aware of environmental advantages such as reduced running costs.

KEY ACTIONS

Benchmark
- Meet the mandatory elements of energy efficiency as set out in BREEAM and the Code for Sustainable Homes.

Going Further
- All residential development to achieve the highest Code for Sustainable Homes rating which would exceed the requirements of the current Building Regulations.
- All non-residential development to achieve the highest BREEAM rating which would exceed the energy requirements of the current Building Regulations.
Achieving the benchmark

7.3 The Code for Sustainable Homes provides a national standard for designing and constructing sustainable homes. It also involves an independent assessment, which gives new homes a star rating from 0 to 6 based on their sustainability against a variety of categories including energy, construction materials, waste, water and ecology. To achieve a star rating there is a mix of minimum standards plus the ability to obtain points for additional sustainable design features.

7.4 The sustainability of a new home is assessed independently by specially trained and accredited assessors. There is a design stage assessment and then a post completion check to verify the rating.

7.5 The Government's Building a Greener Future Policy Statement of 2007 aims to ensure that all new homes built after 2016 will have zero net carbon dioxide emissions from all energy uses, with interim targets to reduce emissions regulated by Building Regulations by 25% at 2010 and 44% at 2013. These are equivalent to the energy requirements of a 3-star and 4-star rating of the Code for Sustainable Homes respectively, with zero carbon being equivalent to a 6 star rating.

7.6 The Code for Sustainable Homes is derived from EcoHomes, the Building Research Establishment’s Environmental Assessment Method (BREEAM) for residential development, which it replaced. BREEAM is a voluntary measurement rating used for non-residential development which is used to assess other types of development, including offices, retail, industrial buildings and schools. Other building types, such as leisure facilities, can be assessed using a bespoke version of BREEAM. The method of assessment for BREEAM is similar to that for the Code for Sustainable Homes, but ratings are awarded as ‘pass’, ‘good’, ‘very good’ or ‘excellent’. A software tool to assist with the assessment is available from the Building Research Establishment.

7.7 It is recognised that constructing new developments to higher standards of efficiency can have an impact on a developer's ability to deliver sites. Building new homes, for example, to different levels set out in the Code for Sustainable Homes can have an impact on overall building costs. Very approximately the additional costs\textsuperscript{21} per dwelling can range from:

- Level 1: £1600 - £3000
- Level 3: £2000 - £4000
- Level 6: £28000 - £38000

\textit{(NB Extra costs of building above standards required by Part L of 2006 Building Regulations)}

However it is a mandatory requirement for all new homes being sold to have an Energy Performance Certificate. Whilst some elements of micro-renewable technology, for example, can add-on significant costs, there are many other simple ways of achieving points contained within the Code, if this is considered at the initial design stage of a project. The information contained in this document seeks to cover most of the different categories covered in the Code.

7.8 Developers are encouraged to take into account the ‘Considerate Constructor’ Scheme. This is a voluntary code that builders and developers can sign up to. The code is concerned with the image of the construction industry primarily but also

\textsuperscript{21} http://www.communities.gov.uk/documents/planningandbuilding/pdf/1972728.pdf, Cost of building to the CSH. Updated Cost Review, August 2011
covers environmental impact of construction. It is also a good means to demonstrate responsible as well as green credentials of the built development.

7.9 The Council’s Core Strategy and other Development Plan Documents will consider the scope for more ambitious climate change policy requirements to apply on individual sites that may be allocated for development.

**LINKS TO FURTHER INFORMATION**

1. Code for Sustainable Homes  
   http://www.communities.gov.uk/the code
2. BREEAM http://www.bre.co.uk
3. More information on the Considerate Constructor Scheme can be found at www.ccscheme.org.uk
Chapter 8 - Sustainability Statement and Energy Audit

AIM: To ensure development is managed in the context of sustainability, seeking to ensure all developers follow consistent codes of practice in relation to the type of development proposed and that all necessary steps are taken to achieve greater efficiency savings throughout the development process.

CONTEXT: In line with guidance set out within the UK Government Sustainable Development Strategy, the Council aims to address sustainability issues by planning and operating in an environmentally, socially and economically responsible way. Government guidance set out in ‘The Validation of Planning Applications (Dec 2007)’ advises Local Planning Authorities on adopting a Local List of requirements for validating different types of planning applications. Sustainability Statements will become a local requirement for submitting a planning application on most types of development. The Local List of Validation Requirements for North East Derbyshire is likely to be published in 2012.

OBJECTIVE: The Council will ensure, wherever appropriate, that new development makes provision for reductions in both energy use and CO2 emissions.

8.1 The purpose of a sustainability statement is to demonstrate how the proposed development has taken account of climate change and other sustainability issues. Designing for sustainability will affect location, site layout, form and building design. It therefore needs to be considered from the very start of a project. The preparation of a sustainability statement will assist a developer in making a scheme as sustainable as possible, ensuring that the minimum requirements of the Council’s policy, as set out in this guidance document, have been met and, where appropriate, exceeded.

8.2 The sustainability statement will normally be expected to be submitted in the form of the Council’s Sustainability Checklist. However, a separate written sustainability statement can be submitted as an alternative to the checklist, provided it covers all the relevant items. (If possible, the format of the sustainability statement should follow the format of the checklist as this is likely to assist a swifter handling of the accompanying application by the Council).

8.3 A sustainability statement (including an energy audit where appropriate) should be submitted with all planning applications for ‘major’ development. The statement will be used by planning officers in their assessment of the planning application.

KEY ACTIONS

Benchmark
- All major planning applications for built development must be accompanied by a sustainability statement.
- The sustainability statement should include an energy audit where there is a requirement to demonstrate a reduction of carbon dioxide emissions.

Going Further
- Undertake a sustainability statement (and energy audit if necessary) for all development regardless of scale.
Achieving the benchmark

Sustainability Statement

8.4 The sustainability statement need not necessarily be a long document provided that all of the topics covered in this Supplementary Planning Document are addressed. The level of detailed information to be submitted is expected to reflect the scale and nature of the development. For example, a minor application may just have a few sentences on some of the items in the checklist; whereas a larger application (say, for the erection of one or two new houses) would be expected to provide more information. An application for a major scheme (e.g. a large new supermarket) would be expected to cover all relevant items.

8.5 If the relevant information is present elsewhere in the application documents, for example in a design and access statement, when one is required, this should be cross-referenced rather than repeated. Where an aspect is not considered to be relevant, this will need to be justified. In addition and where appropriate, other features of the proposed development that contribute to its sustainability should be referred to in the sustainability statement. These may include the efficient use of resources and infrastructure (including land), biodiversity, transport, and social or economic benefits. A template has been included at Appendix B in order to assist developers in producing a sustainability statement.

8.6 Precise details of some of the matters to be covered in the sustainability statement, for example construction materials, may not be known at the planning stage, particularly if an outline planning application is being submitted. In such cases the sustainability statement should consider how the guidance contained in this Supplementary Planning Document can be taken into account in the detailed design of the proposed development. Where it is appropriate to do so, conditions may be used to ensure that features referred to in the sustainability statement are actually delivered as part of the development.

8.7 It is expected that details on the checklist form will correlate with what is shown and/or annotated on the drawings. If an item addressed in the Sustainability Statement relates to internal matters that would not require planning permission on its own – such as the use of non-toxic paints or the incorporation of a condensing boiler, the drawings should be annotated or the details included in a schedule accordingly.

Energy Audit

8.8 The sustainability statement should also include an energy audit if a specified reduction of carbon emissions is to be demonstrated. The audit should assess likely energy demand from the development, consider the feasibility of techniques for
reducing energy consumption, increasing energy efficiency and renewable energy technologies, and set out the extent to which they reduce carbon emissions. It should set out a comparison between the carbon emissions of a ‘do nothing’ approach i.e. just meeting Building Regulations, and an approach which aims to achieve at least a 10% reduction in carbon emissions below the normal requirement of the Building Regulations. This will result in two reports – one illustrating the ‘do nothing’ and the second one illustrating the improved thermal values and plant to achieve the minimum 10% saving.

8.11 Building Regulation Approved Document Part L gives guidance on calculations. Expert advice from suitably qualified practitioners may be required.

c) Code for Sustainable Homes

8.12 Developers intending to build a residential property to meet the standards set out in the Code for Sustainable Homes, are encouraged to aim for the highest possible rating. For non-residential buildings, a report prepared by a BREEAM licensed assessor demonstrating a minimum 10% reduction in carbon emissions below the current requirement of the Building Regulations is desirable.

8.13 To comply with the requirements of the Council’s Interim Sustainable Buildings Policy, the developer should provide a detailed statement/report, prepared by a qualified accredited/licensed energy assessor, to accompany the planning application which definitively demonstrates how the requirements will be met. It should be noted that this may have implications in terms of land use allocation, access, noise and other issues which will need to be addressed through supporting application documents.

8.14 Larger developments involving phased delivery of housing and non-residential development should definitively explain, as
part of the planning application, any phased approach to the delivery of decentralised and renewable or low carbon energy provision.

8.15 Green tariff electricity supplied from the national grid is not counted towards the consideration of a scheme’s ability to meet requirements. It should be borne in mind that the above information on energy audits only relates to energy use regulated by Building Regulations and ignores the substantial emissions that result from electrical appliances, lighting and cooking.

8.16 To ensure that the sustainability and energy measures proposed as part of development are carried out, planning permission will be subject to appropriate conditions. Sustainability statements and energy audits submitted with outline planning applications should set the context for detailed proposals at reserved matters stage. They should consider the range of approaches that may be employed and how they affect the scheme. Further detailed information will then be required to be submitted at a later stage.

8.17 In relation to energy audits, it will be necessary to submit a copy of the post-completion Energy Performance Certificate and Code rating certificate, required by the Building Regulations, prepared by an accredited assessor to demonstrate the actual energy consumption/carbon emissions of a completed building. Whilst a number of organisations currently offer energy assessment services, to ensure the impartiality and quality of the assessment, an Energy Performance Certificate can only be issued by an energy assessor who is both qualified and a member of an accreditation scheme approved by the Secretary of State. Such assessors will have a duty of due diligence to provide impartial reports. Such accredited schemes include:

- The Chartered Institution of Building Services Engineers (CIBSE) accredited Low Carbon Consultant
- The Code for Sustainable Homes Assessors
- Licensed BREEAM Assessors.

8.18 To ensure that Energy Performance Certificates relate to buildings as actually constructed, the Council may check the submitted information against the drawings approved by the local authority building control service or other approved inspector.

LINES TO FURTHER INFORMATION

1. Information about the principles of sustainable development and how to work out the carbon emissions associated with energy use is contained in the Department for Environment, Food and Rural Affairs web site. http://www.defra.gov.uk

2. The Building Research Establishment offers guidance on a variety of energy conservation measures, Building Regulation requirements, SAP and SBEM. http://www.bre.co.uk

3. The Carbon Trust promotes low carbon technology and gives information on how to work out the carbon emissions associated with energy use. http://www.thecarbontrust.co.uk


Chapter 9 – Historic Environment

AIM: To retain and protect the historic environment.

CONTEXT: The District has 487 Listed Buildings, 30 Conservation Areas and 33 Scheduled Ancient Monuments. Not all nationally important remains meriting preservation are designated. The Historic Environment Record (HER) for the District includes over 700 sites of known archaeological interest. All of them contribute to the historical wealth of the area and the Council will seek to protect such sites and features from the effects of unsympathetic development.

OBJECTIVE: The Council will require that all proposals for sustainable development affecting designated or non-designated heritage assets recognise and respect their special integrity.

9.1 To achieve the objective set out above, the following matters should be assessed and considered in the design of new development:

Special considerations

9.2 Any development proposal that affects a designated or non-designated heritage asset needs to be sensitively considered. Early discussions should be held with the Council’s Conservation Officer and advice sought to help achieve a balanced and sympathetic scheme. There are several issues specific to the historic environment that will need to be taken into consideration in an assessment of any proposal including the effect on the appearance of the building and its setting and whether the fabric of the building will be able to support the technology.

Principles of minimum intervention

9.3 Traditional buildings need to be considered as a whole and treated in a holistic way. Their structure, materials and methods of construction and patterns of air and moisture movement should be properly understood. A fundamental principle is to minimise intervention. The stock of historic buildings is finite and every loss or major alteration to the fabric is significant. Therefore a conservative approach is needed with knowledge and experience to determine what is important and how changes can be made with the least effect on the character of the building. For these reasons, special care is needed when ‘retrofitting’ measures to improve sustainability.

9.4 Through innovative, imaginative and well thought out design, historic buildings can, in most cases, be modified to meet modern day requirements including implementation of energy efficient and sustainable features. The need to conserve the special characteristics of historic buildings must be recognised. The aim should be to improve energy efficiency where practicable ensuring that the work does not prejudice the character of the historic building, or increase the risk of long term deterioration to the building fabric or fittings. In arriving at an appropriate balance between historic building conservation and energy conservation, it will be essential to take into account the advice of the Conservation Officer.

9.5 When assessing the acceptability of renewable energy developments, including wind energy, within the setting of listed
buildings or conservation areas, factors such as visual dominance, scale, intervisibility, vistas and sight-lines, movement, sound or light effects and unaltered settings should be considered. Consultation with Historic Environment Records (HERs) should be undertaken at the earliest stage and reference should also be made to relevant English Heritage Guidance.

Understanding how the building works

9.6 Many historic buildings include soft, weak or permeable materials, e.g. mortars, plasters, renders and paints. These cause the fabric to respond in fundamentally different ways to air, moisture and structural movement differing from the hard, strong, impervious materials and membranes widely used in modern construction. Before any work is carried out, it is therefore important that a historic building’s system of construction (and the way in which this might have changed over time) is understood and that alterations are compatible with this system.

Understanding the historic landscape

9.7 An assessment of the historic landscape should be included in development proposals and where appropriate historic field patterns and routes should be preserved. The Derbyshire Landscape Character Assessment identifies the different land use classifications which should be used to inform decision making on applications that may affect the most sensitive and historic landscape assets in North East Derbyshire.

LINKS TO FURTHER INFORMATION

2. English Heritage technical website for use by householders can be found at: www.climatechangeandyourhome.or.uk/live/
4. Derbyshire Historic Landscape Assessment can be viewed: http://www.derbyshire.gov.uk/environment/landscapecharacter/default.asp/conservation/
Chapter 10 Transport and Travel

AIM: To maximise development and facilities that encourage the use of sustainable transport.

CONTEXT: Transport or travel is responsible for 25% of the UK's CO2 emissions; the East Midlands Region seeing an above average figure of 29.9% (2005 data). In terms of emissions it is growing faster than any other sector and has seen an increase of 15 fold over the past 50 years and continues to grow by 4% annually. Increased car ownership and longer distances being travelled, along with a greater proportion of local trips now done by car are significant factors in this increase. Not only is it a major contributor to climate change but it also reduces air quality, which is a major cause of respiratory problems and has a significant impact on people and biodiversity. The East Midlands Regional Plan under Policy 43 includes a requirement to improve air quality and reduce carbon emissions from transport by reducing the need to travel and promoting modal shift away from the private car, (particularly towards walking and cycling and public transport and away from other road based transport) and encouraging and supporting other innovative transport technologies.

OBJECTIVE: The Council will ensure, wherever appropriate, that new development makes provision for viable modes of transport as an alternative to a reliance on private vehicles.

10.1 To achieve the objectives set out above, the following matters should be assessed and considered in the formulation of new development proposals

KEY ACTIONS

Benchmarks

- Where development is likely to have an impact on local travel and transport undertake a Transport Assessment or prepare a Travel Plan to accompany a planning application.
- Incorporate facilities such as showers and changing rooms to enable staff of new employment developments (including retail, leisure and services) to walk/cycle to work as a viable option to the private car.
- Developers should engage with transport authorities/providers to explore expansion or improvements to existing public transport options in consultation with the local/highway authorities.
- Avoid developing in unsustainable locations where there would be a reliance on the private car.

Achieving the benchmark

Promotion of walking

10.2 New routes should connect into existing routes and movement patterns. The degree of connection in a new development is often the key to its success. Established footpaths and minor roads can become the basis of enduring links. Low traffic speeds (20mph or less) for vehicles will also create a safer and more acceptable environment.

Promotion of cycling

10.3 If cycling is to be encouraged, cycle routes as well as secure and convenient cycle parking needs to be provided. In non-residential developments, showers and lockers should be provided to reduce the inconvenience of cycling. Availability of parking will affect the mode people choose to get around from place to place. Secure cycle parking will encourage cycling and
improve natural surveillance as well as cut down on avoidable car journeys.

Use of Public Transport

10.4 To promote the use of public transport, walking distances between major land uses and public transport stops should be minimised and transport stops should be increased. Whenever possible, all schemes should be served by or be within easy reach of a bus network and new development can sometimes facilitate and help to make this possible for existing development that would otherwise be poorly served. To achieve this, close co-operation is required between public transport operators, the local authority, the highway authority and the developer. Early consultation from the developer is considered paramount particularly in relation to major development.

Car sharing and Special Works Bus Services

10.5 Employers are a major generator of travel, especially during peak times. They have the ability to influence the travel behaviour of their employees via workplace travel plans. Car sharing can form an important part of any such travel plan, alongside other sustainable measures including special works bus services. Non-residential developments should investigate potential introduction funding and management support to car sharing and special works bus services and encourage the use of more efficient vehicles. Details of one car sharing scheme operating in Derbyshire is available from www.carsharederbyshire.com

Transport Assessments

10.6 Transport assessments consider the potential impact of proposed developments on roads in the surrounding area and explain how these impacts will be dealt with. A Transport Assessment provides relevant detailed information on a range of transport conditions and related transport issues before, during and after the implementation of a proposed development. A Transport Assessment must demonstrate satisfactorily that the development will not have a negative impact on or directly cause problems of safety, cause congestion or lead to illegal or additional inappropriate parking near the site of the proposed development. It must also show how it is likely to contribute to an improvement in the overall transportation environment, through the provision of access by public transport, cycling and walking and restrict travel by car.

When is a Transport Assessment Required?

10.7 The Department for Transport (DfT) has issued “Guidance on Transport Assessment” which provides advice to developers on assessing the transport impacts of proposed developments. In their role as Highway Authority, Derbyshire County Council has adopted this guidance for determining when a Transport Assessment is required; developers should take this into account when preparing schemes for development, within North East Derbyshire, that may impact on transport in the vicinity of the proposed development. The key features cover an assessment of the development’s impact across all modes, not just road traffic, and sets out thresholds for two levels of assessment:

- Transport Statement: for development that has relatively small transport implications.
- Transport Assessment: for development that has significant transport implications.
10.8 The guidance sets out guidelines (in the form of indicative thresholds) as to when the different types of assessment should be carried out, including a minimum below which no assessment is required. This consists of separate thresholds for each type of land use. The guidelines identify the need for a Transport Statement where a development generates 30 or more vehicle movements in any hour and a Transport Assessment where the vehicle movements in any hour are greater than 30. This addresses the issue of a mixed use development where no individual land use on its own requires a Transport Statement or Assessment but the overall scale of development would require one. As this guidance does not address the impact of minor developments on lightly-trafficked roads, the County Council will also seek a Transport Statement for development generating more than 100 two-way trips per day where this would represent more than a 5% increase in traffic on local roads. The full Department for Transport document “Guidance on Transport Assessment” is available from the link in the box at the end of this chapter.

Travel Plans

10.9 As set out in the adopted Local Plan, Travel Plans should include measures to promote cleaner travel choices and reduce reliance on the car. They involve the development of mechanisms, initiatives and targets that will enable an organisation to reduce the impact of travel and transport on the environment and, at the same time, bring other benefits to the organisation such as staff with more active and healthy lifestyle choices as well as helping to achieve reduced CO2 levels associated with road transport. Saved Policy T4 of the North East Derbyshire Local Plan sets out the requirements of when a Travel Plan is required to be submitted in support of a planning application.

**MAKING IT HAPPEN**
- Utilise public transport where possible.
- Provide walking and cycling options as part of the development.
- Provide secure cycle parking.
- Provide links to existing cycle routes.
- Encourage car sharing and special work bus networks.

**LINKS TO FURTHER INFORMATION**
- Department for Transport Guidance on Transport Assessments can be found here: http://www.dft.gov.uk/adobepdf/165237/202657/guidanceontapdf
## Appendix A – Energy Audit Example

### A.1
The proposal consists of the installation of a vertical axis turbine within the car parking and loading area of the proposed development.

### A.2
The site is located in an elevated part of the District which lends itself to wind energy creation. Wind speeds are thought to be in the region of 7 metres per second. The table below sets out how the requirements of the Council’s Interim Policy – Creating Sustainable Buildings (as set out on page 7) can be achieved in relation to a reduction in carbon emissions for major development. The figures and methodology are taken from the London Renewables Toolkit.

### A.3
This example identifies an 18.25% saving in carbon emissions through the installation of a wind turbine. This exceeds the current policy requirements of the Council which relate to major development only at present. The Government is requiring that all new non-domestic buildings should be zero carbon by 2019 and all new homes should be built to zero carbon standards from 2016. In order to achieve this, the Government has set out a staggered reduction in carbon dioxide emissions from new dwellings from 25% at 2010 and 44% by 2013. Clearly these figures are likely to affect future policies on climate change.

### Key:
- Kwh = Kilowatts per hour
- C = Carbon
- M2 = Metres Squared
- Kg = Kilogram’s
- Pa = per annum (per year)

### Development Proposed

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<td>B1 Industrial manufacturing building:</td>
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### Convert into Carbon (kg/C/pa)

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</tr>
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<tbody>
<tr>
<td>Gas (x 0.19):</td>
<td>(98875 x 0.19) 18786 Kg/C/pa</td>
</tr>
<tr>
<td>Electricity (x 0.43):</td>
<td>(19995 x 0.43) 8598 Kg/C/pa</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>(18786 + 8598) 27384 Kg/C/pa</td>
</tr>
<tr>
<td>10% total:</td>
<td>(10% of 27384) 2738 kg/C/pa</td>
</tr>
</tbody>
</table>

### Carbon reduction method

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x vertical axis turbine each averaging 8000 Kwh per year</td>
<td>5000 kg/C/pa</td>
</tr>
<tr>
<td>TOTAL</td>
<td>18.25% (5000kg/C/pa is 18.25% of the total carbon emitted per year from the proposed building)</td>
</tr>
</tbody>
</table>
All major planning applications for new development, except householder developments, must be accompanied by a Sustainability Statement. To ensure statements are consistent and comprehensive applicants should use the template below.

When sending in a paper copy of this statement, please be economical with paper and print double-sided. Thank you.

**Part 1: Land and building use, noise, air quality and transport**

<table>
<thead>
<tr>
<th>Land and Building Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Is the proposed development on contaminated land and, if so, what remediation techniques will be sought?</td>
</tr>
<tr>
<td>2 Does the proposal involve the loss of green spaces such as playing fields, allotments and wildlife sites? If so, what on-site provisions or like-for-like provisions, through S106, will be gained?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 How will the development be designed to reduce the impacts of noise?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 How significantly(^23) will the development increase road traffic? What mitigation measures will be put in place to minimise negative impact?</td>
</tr>
<tr>
<td>2 What mitigation measures will be put in place to reduce the impact on air quality during the construction phase, for example from dust?</td>
</tr>
</tbody>
</table>
**Transport (developers impacting significantly on the local environment will need to submit a stand-alone Transport Assessment).**

1. Is the site within:
   a) 400m walking distance of a bus stop;
   b) 1Km walking distance of a railway station?

2. Please give details of expected vehicular movements generated by the site with reference to any daily totals and distribution throughout the day.

3. How many parking spaces will the site provide?

4. How will the site encourage access by non-car modes? Please give details of the following:
   a) Proximity to public transport;
   b) Safe and convenient access to the site for pedestrians and cyclists;
   c) Proximity to cycle and pedestrian routes;
   d) Workplace travel plan;
   e) Parking spaces reserved for car-sharers;
   f) Car-club;
   g) On-site parking and/or cycle lockers; facilities for cyclists such as showers and lockers.

5. Will the site provide charging points for electric vehicles or space where these could be provided? Please provide details.

6. Will the site include measures to reduce travel demand? Please give details.

---

**Part 2: Climate Change Checklist**

This section of the statement mirrors the topic areas covered in the Supplementary Planning Document. The ‘Making it Happen’ sections contained within each chapter provide information on how you can address the ‘Key Actions’ and help to create development that can contribute towards mitigating the effects of climate change. Please answer each question with a Y or N and make any necessary comments in the space provided.

Please note that the Council may impose conditions on granting planning permission in respect of any of the sustainability requirements set out below. If a condition is imposed on a requirement, the developer will have to provide proof that it has been met.
Chapter 1 – Adapting to Climate Change

Benchmark Standard

01 Have you designed the development to adapt to and mitigate expected changes in climate?

If no, explain why this was not possible. If yes, please explain how:

02 Have buildings been designed for flexible use during their expected lives?

If no, explain why this was not possible. If yes, please explain how:

03 Have facilities been designed into the development for bicycles and electric vehicles?

If no, explain why this was not possible. If yes, please explain how:

04 Has the development been designed to ensure that future phases of major developments which take several years to build-out are able to keep step with the most up-to-date sustainability requirements?

If no, explain why this was not possible. If yes, please explain how:

Chapter 2 – Building Design and Layout

Benchmark Standard

05 Have you sought to optimise solar gain?

If no, explain why this was not possible, if yes, explain how:

06 Have you sought to maximise natural light?

If no, explain why this was not possible, if yes, explain how:

07 Have you sought to make use of natural ventilation and cooling?

If no, explain why this was not possible, if yes, explain how:
08. Have you sought to maximise energy efficiency?

If no, explain why this was not possible, if yes, explain how:

Going Further

09. Have you sought to take account of expected climate change over the expected lifetime of the development in the design of buildings and their surroundings?

Explain how:

Chapter 3 - Construction Materials and Techniques

Benchmark Standard

10. Have you sought sustainably sourced timber from the Forest Stewardship Council (FSC) or other known source with a sustainable purchasing policy?

If no, please explain why this was not possible. If yes, what percentage (if less than 60% please explain why this could not be achieved) and identify the source:

11. Have you sought to avoid the use of insulation materials containing substances known to contribute to ozone depletion, or with the potential to contribute to global warming, throughout the development?

If no, please explain why this was not possible. If yes, provide specifications of the insulation materials used:

12. Have you sought to avoid the use of toxic glues, solvents, treatments and coatings?

If no, please explain why this was not possible. If yes, provide specifications of the products used:

External:

Internal:

13. Have you sought to avoid the use of non-recycled aggregates throughout the development?

If no, please explain why this was not possible. If yes, explain how:
14 During construction and demolition have you sought to reduce waste by sorting on site and re-using where practical?

If no, please explain why this was not possible. If yes, explain how:

15 Have you sought to use locally sourced natural materials where possible?

If no, please explain why this was not possible. If yes, explain how:

16 Have you sought to use construction materials with a low u-value?

If no, please explain why this was not possible. If yes, explain how:

17 In relation to new houses have you sought to achieve level 3 of the Code for Sustainable Homes?

If level 3 has not been achieved explain why and what level has been achieved:

Going Further

18 Have you sought to use the majority of timber and timber products from sustainable sources (90%)?

Explain what % has been achieved and its source:

19 Have you sought to maximise the use of materials derived from recycled and reused content in products and materials selected?

Explain how:

20 In relation to new houses have you sought to achieve a rating in the Code for Sustainable Homes?

Explain what level you expect to have achieved:
Chapter 4 – Carbon Emissions

Benchmark Standard

21 Have you sought to reduce carbon emissions from the development?

If no, please explain why this was not possible. If yes, explain what percentage of carbon emissions reduction has been achieved and how:

22 Have you sought a percentage supply of the energy requirements for the development from decentralised and renewable or low-carbon energy source?

If no, please explain why this was not possible. If yes, explain what percentage of total energy supply is achieved and how:

23 Have you carried out an energy audit of the proposed development to demonstrate the achievement of the required carbon emission reduction?

If you have not carried out an energy audit please explain why this was not possible. If yes please attach a copy.

Going Further

24 Have you sought to exceed the minimum standards aiming to achieve carbon neutrality in line with government targets?

Explain how:

25 Have you provided guidance to building occupiers on how to optimise use of heating and lighting systems?

If applicable, attach an example of the documentation intended to be supplied for future occupiers of the development.

Chapter 5 – Waste Minimisation

Benchmark Standard

26 Have you provided appropriate storage capacity for domestic/commercial refuse and recyclable waste which is convenient both for users and for collection?

If no, please explain why this was not possible. If yes, explain how:
27 Have you provided a home composting unit for new residential units that have private gardens?

If no, please explain why this was not possible. If yes, explain how:

28 Will you be providing guidance prior to occupation to householders about composting, local refuse and recycling arrangements?

If no, please explain why this is not possible. If yes, please attach an example guidance document.

29 Are you intending to adhere to the waste hierarchy (as set out on page 29)

If no, please explain why this is not possible. If yes, please explain how you intend to achieve this:

30 For all new construction projects worth more than £300,000 there is a legal requirement to have a site waste management plan (SWMP). Will this be carried out in connection with this development?

If no, please explain why. If yes, please attach a copy.

31 Will a registered waste carrier be used to convey any waste material off site to a suitable authorised facility?

If no, please explain why. If yes, identify who and if possible which facility:

32 Will you be intending to comply with the Duty of Care regulations for dealing with waste materials to ensure all materials removed go to an appropriate licensed disposal site and all relevant documentation is completed and kept in line with regulations?

If no, please explain why. If yes, identify which facility:

33 If you intend to re-use any waste on site, have you obtained the appropriate exemption or authorisation from the Environment Agency?

If no, please explain why. If yes, please attach a copy:
### Chapter 6 – Water and Flooding

#### Minimising Water Use: Benchmark Standard

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>34 If applicable, will you be installing a water meter(s) with this development?</td>
<td>Y/N</td>
</tr>
<tr>
<td>If no, please explain why this is not possible. If yes, please explain how many and relevant specification if possible:</td>
<td></td>
</tr>
<tr>
<td>35 If applicable will you be providing water butts for new residential units that have private gardens?</td>
<td></td>
</tr>
<tr>
<td>If no, please explain why this is not possible:</td>
<td></td>
</tr>
<tr>
<td>36 In relation to commercial developments that include areas of landscaping, will provision be made for collecting rainwater?</td>
<td></td>
</tr>
<tr>
<td>If no, please explain why this is not possible. If yes, please explain how:</td>
<td></td>
</tr>
<tr>
<td>37 Wherever possible, will you be using low water use fittings and appliances?</td>
<td></td>
</tr>
<tr>
<td>If no, please explain why this is not possible. If yes, please explain where and any relevant specifications:</td>
<td></td>
</tr>
<tr>
<td>38 Are you intending to provide guidance to householders on how to conserve water?</td>
<td></td>
</tr>
<tr>
<td>If no, please explain why this is not possible. If yes, please provide an example guidance document:</td>
<td></td>
</tr>
<tr>
<td>39 Have you sought to ensure that the design of buildings and their surrounding landscape maximises water efficiency and minimises water wastage?</td>
<td></td>
</tr>
<tr>
<td>If no, please explain why this is not possible. If yes, please explain how:</td>
<td></td>
</tr>
</tbody>
</table>

#### Minimising Water Use: Going Further

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 Will you be providing a rainwater harvesting and 'grey water' recycling system as part of the development?</td>
<td></td>
</tr>
<tr>
<td>If yes, please provide details:</td>
<td></td>
</tr>
</tbody>
</table>
41 Will you be seeking to ensure that the design of surface water drainage systems takes into account expected future changes in rainfall?

If yes, please provide details:

42 Have you assessed the amount of water likely to be used during the construction and operation of any development and identified opportunities to use water more efficiently?

If yes, please provide details:

43 Will you be incorporating products and systems that detect leaking and burst pipes that either sound an alarm or shut off the water supply to reduce the amount of water wasted in a development?

If yes, please provide details:

Flooding: Benchmark Standard

44 Have you incorporated sustainable drainage systems (backed by management and maintenance provisions) wherever practical, justifying the use of conventional systems if such sustainable systems are not used.

If no please explain why this is not possible and the alternative conventional systems proposed. If yes, please provide details:

45 Have you avoided using large areas of impermeable hard-surfacing?

If no please explain why this is not possible. If yes please explain how:

Flooding: Going Further

46 Have you achieved or sought to achieve 100% attenuation of the undeveloped site’s surface water run-off?

Explain how and state the actual percentage achieved:
Chapter 7 Sustainable Construction Codes

Benchmark Standard

<table>
<thead>
<tr>
<th>47</th>
<th>Have you sought to meet the national standards for building performance set by the current Building Regulations?</th>
</tr>
</thead>
</table>

If no, explain why this is not possible. If yes, explain how:

Going Further

<table>
<thead>
<tr>
<th>48</th>
<th>Do you intend to ensure all residential development achieves a Code for Sustainable Homes rating which would exceed the requirements of the current Building Regulations?</th>
</tr>
</thead>
</table>

Explain how:

<table>
<thead>
<tr>
<th>49</th>
<th>Do you intend to ensure all non-residential development achieves a BREEAM rating which would exceed the energy requirements of the current Building Regulations?</th>
</tr>
</thead>
</table>

Explain how:

Chapter 8 - Sustainability Statement and Energy Audit

Benchmark Standard

<table>
<thead>
<tr>
<th>50</th>
<th>Have you produced a Sustainability Statement for the proposed development?</th>
</tr>
</thead>
</table>

If no, explain why this has not been possible, if yes please attach a copy with this questionnaire.

<table>
<thead>
<tr>
<th>51</th>
<th>Have you undertaken an energy audit to demonstrate a reduction in carbon emissions?</th>
</tr>
</thead>
</table>

If no, explain why this has not been possible, if yes please attach a copy with this questionnaire.

<table>
<thead>
<tr>
<th>52</th>
<th>Have you calculated the projected carbon emissions?</th>
</tr>
</thead>
</table>

If no explain why this has not been possible, if yes please provide a copy and specify which method was used to make the calculations:

- ✔ London Renewables Toolkit
- ✔ SAP/SBEM
- ✔ Code for Sustainable Homes

58 Sustainable Buildings Supplementary Planning Document
### Other Information

(We are required to monitor this information so if you seek to achieve these standards then you will need to submit a copy of the certificate to demonstrate which level was actually achieved)

**Does the Proposal seek to achieve a Building for Life Rating?** (applies to residential developments)  **Y/N**

Please state which level you are aiming to achieve:

- **Very Good**  **GOLD 16-20/20**
- **Good**  **SILVER 14-15/20**
- **Average**  **10-13/20**
- **Poor**  9 or less/20

**Does the proposal seek to achieve a BREEAM rating?** (applies to non-residential developments)  **Y/N**

Please state which standard you are seeking to achieve:

- **Excellent**
- **Very Good**
- **Good**
- **Pass**
- **Fail**

**Does the proposal seek to achieve a Code for Sustainable Homes rating?** (applies to residential developments)  **Y/N**

Please state which level of the Code you are aiming to achieve:

- **Level 1 – 36-47 points**
- **Level 2 – 48-56 points**
- **Level 3 – 57-67 points**
- **Level 4 – 68-83 points**
- **Level 5 – 84-89 points**
- **Level 6 – 90 + points**
### Policy 1 Regional Core Objectives

To secure the delivery of sustainable development within the East Midlands, all strategies, plans and programmes having a spatial impact should meet the following core objectives:

1. **To ensure that the existing housing stock and new affordable and market housing address need and extend choice in all communities in the region.**
2. **To reduce social exclusion through:** the regeneration of disadvantaged areas, the reduction of inequalities in the location and distribution of employment, housing, health and other community facilities and services, and by; responding positively to the diverse needs of different communities.
3. **To protect and enhance the environmental quality of urban and rural settlements to make them safe, attractive, clean and crime free places to live, work and invest in, through promoting: ‘green infrastructure’; enhancement of the ‘urban fringe’; involvement of Crime and Disorder Reduction Partnerships; and high quality design which reflects local distinctiveness.**
4. **To improve the health and mental, physical and spiritual well being of the Region’s residents through improvements in:** air quality; ‘affordable warmth’; the availability of good quality housing; and access to health, cultural, leisure and recreation facilities and services.  
5. **To improve economic prosperity, employment opportunities and regional competitiveness through:** the improvement of access to labour and markets; and ensuring that sufficient good quality land and premises are available to support economic activity in sectors targeted for growth by the Regional Economic Strategy.
6. **To improve accessibility to jobs, homes and services through:** the promotion and integration of opportunities for walking and cycling; promotion of the use of high quality public transport; and encouragement of patterns of new development that reduce the need to travel especially by car.
7. **To protect and enhance the environment through:** protection, enhancement, sensitive use and management of the Region’s natural cultural and historic assets, giving particular attention to designated sites of international importance; avoidance of significant harm and securing adequate mitigation or compensation for any unavoidable damage; reducing the amount of waste produced and increasing the amount recycled or otherwise beneficially managed; and recognition of the limits to the capacity of the environment to accept further development without irreversible damage.
8. **To achieve a ‘step change’ increase in the level of the Region’s biodiversity through:** the management and extension of habitats, both to secure net gains in biodiversity and to facilitate species migration to allow the biosphere to adapt to climate change; and ensuring that no net loss of priority habitats or species is allowed to occur.
9. **To reduce the causes of climate change by minimising emissions of CO2 in order to meet the national target through:** maximising ‘resource efficiency’ and the level of renewable energy generation; making best use of existing infrastructure; promoting sustainable design and construction; and ensuring that new development, particularly major traffic generating uses, is located so as to reduce the need to travel, especially by private car.
10. **To reduce the impacts of climate change, in particular the risk of damage to life and property from flooding and sea level change and the decline in water quality and resources. This will be achieved through the location, design and construction of new development in ways that include:** reducing the build up of heat island effects in urban areas; providing carbon sinks; and providing sustainable drainage and managing flood water.
11. **To minimise adverse environmental impacts of new development and promote optimum social and economic benefits through the promotion of sustainable design and construction techniques.**
Policy 2 Promoting Better Design
The layout, design and construction of new development should be continuously improved, including in terms of reducing CO2 emissions and providing resilience to future climate change, by:

- design led approaches which take account of local natural and historic character;
- minimising energy use, reducing the heat impact of urban areas, using sensitive lighting, improving water efficiency, providing for sustainable drainage (SuDS) and management of flood water, reducing waste and pollution, securing energy from decentralised and renewable or low carbon energy technologies, incorporating sustainably sourced and recycled materials wherever possible, and considering building orientation at the start of the design process;
- ensuring that all urban extensions that require an Environmental Impact Assessment achieve the highest viable levels of building sustainability;
- making the most efficient use of land;
- locating and designing access from new development to local facilities on foot, by cycle or by public transport;
- highway and parking design that improves both safety and the quality of public space;
- design which helps to reduce crime and the fear of crime, supports community safety, promotes vitality, maintains amenity and privacy, and benefits the quality of life of local people; and
- taking account of the need to develop carbon sinks and 'green infrastructure' networks and provide for access to open space and the enhancement of biodiversity and landscape quality.

Policy 38 Regional Priorities for Waste Management
All relevant public and private sector organisations, including manufacturing, importing and packaging firms, should work together to implement the Regional Waste Strategy and promote policies and proposals that will result in zero growth in all forms of controlled waste by 2016 and waste being treated higher up in the 'waste hierarchy' set out in the National Waste Strategy (Waste Strategy for England 2007).

All Waste Collection Authorities and Waste Disposal Authorities should achieve a minimum target for the recycling and composting of Municipal Solid Waste of 30% by 2010 and 50% by 2015. Waste Planning Authorities, with the exception of the Peak District National Park Authority, should make provision in their Waste Development Frameworks for waste management capacity equal to the amount of waste generated and requiring management in their areas, using the apportionment data set out in Appendix 4, subject to further research and analysis as part of the annual monitoring process and recognition of the particular operational and locational requirements of individual waste process technologies.

In the Northern Sub-area, the broad pattern of facilities should combine a centralised strategy of larger facilities on previously used land (including former colliery land) with the expansion of existing facilities.

Waste development plan documents should secure high standards of restoration and, where appropriate, the aftercare of waste management facilities to contribute to the objectives of the regional spatial strategy, particularly those relating to biodiversity, recreation and amenity.

Waste facilities should also be sited to avoid the pollution or disturbance of designated nature conservation sites of international importance. Increased traffic levels on roads near to sensitive sites should also be avoided.
Policy 39 Regional Priorities for Energy Reduction and Efficiency
Local Authorities, energy generators and other relevant public bodies should:

- promote a reduction of energy usage in line with the ‘energy hierarchy’; and
- develop policies and proposals to secure a reduction in the need for energy through the location of development, site layout and building design.

Policy 40 Regional Priorities for Low Carbon Energy Generation
Local Authorities, energy generators and other relevant public bodies should promote:

- the development of Combined Heat and Power (CHP) and district heating infrastructure necessary to achieve the regional target of 511 MWe by 2010 and 1120 MWe by 2020; and
- the development of a distributed energy network using local low carbon and renewable resources.

In order to help meet national targets low carbon energy proposals in locations where environmental, economic and social impacts can be addressed satisfactorily should be supported. As a result, Local Planning Authorities should:

- safeguard sites for access to significant reserves of coal mine methane;
- identify suitable sites for CHP plants well related to existing or proposed development and encourage their provision in large scale schemes;
- consider safeguarding former power station and colliery sites for low carbon energy generation;
- support the development of distributed local energy generation networks; and
- develop policies and proposals to achieve the indicative regional targets for renewable energy set out in Appendix 5.

In establishing criteria for onshore wind energy, Local Planning Authorities should give particular consideration to:

- landscape and visual impact, informed by local Landscape Character Assessments;
- the effect on the natural and cultural environment (including biodiversity, the integrity of designated nature conservation sites of international importance, and historic assets and their settings);
- the effect on the built environment (including noise intrusion);
- the number and size of turbines proposed;
- the cumulative impact of wind generation projects, including ‘intervisibility’;
- the contribution of wind generation projects to the regional renewables target; and
- the contribution of wind generation projects to national and international environmental objectives on climate change.

In establishing criteria for new facilities required for other forms of renewable energy, Local Planning Authorities should give particular consideration to:

- the proximity to the renewable energy resource;
- the relationship with the existing natural and built environment;
- the availability of existing surplus industrial land in close proximity to the transport network; and
- the benefits of grid and non-grid connected micro-generation.
Policy 43 Regional Transport Objectives

The development of transport infrastructure and services across the Region should be consistent with the following objectives:

1. To support sustainable development in the Region's Principal Urban Areas, Growth Towns and Sub-Regional Centres described in Policy 3;
2. To promote accessibility and overcome peripherality in the Region’s rural areas;
3. To support the Region's regeneration priorities outlined in Policy 19;
4. To promote improvements to inter-regional and international linkages that will support sustainable development within the region;
5. To improve safety across the Region and reduce congestion, particularly within the Region's Principal Urban Areas and on major inter-urban corridors;
6. To reduce traffic growth across the Region;
7. To improve air quality and reduce carbon emissions from transport by reducing the need to travel and promoting modal shift away from the private car (particularly towards walking, cycling and public transport and away from other road based transport) and encouraging and supporting innovative transport technologies.

A full list of all National Planning Policy Documents including circulars and statutory instruments can be found at the Planning Portal: www.planningportal.gov.uk (or click this hyperlink)

<table>
<thead>
<tr>
<th>PPS1: Delivering Sustainable Development</th>
<th>PPS3: Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Address causes and potential impacts of climate change</td>
<td>• Delivery of homes that are well-designed</td>
</tr>
<tr>
<td>• Reduce energy use</td>
<td>• Making the best use of land</td>
</tr>
<tr>
<td>• Reduce emissions</td>
<td>• Making use of new building technologies to deliver sustainable development</td>
</tr>
<tr>
<td>• Promote renewable energy use</td>
<td></td>
</tr>
<tr>
<td>• Location and design of development</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PPS4: Planning for Sustainable Economic Growth</th>
<th>Practice Guide to PPS4 Planning for Town Centres</th>
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</thead>
<tbody>
<tr>
<td>• Reduce the need to travel</td>
<td>• Reduce the need to travel</td>
</tr>
<tr>
<td>• Location of development</td>
<td>• Encourage use of public/alternative transport</td>
</tr>
<tr>
<td></td>
<td>• Facilitate multi-purpose journeys</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PPS7: Sustainable Development in Rural Areas</th>
<th>PPS9: Biodiversity and Geological Conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Planning applications should recognise the need to protect natural resources</td>
<td>• Account for climate change on distribution of habitats and species, and geomorphological processes and features</td>
</tr>
<tr>
<td>• Provide for sensitive exploitation of renewable energy sources</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PPS10: Planning for Sustainable Waste Management</th>
<th>PPS12: Local Spatial Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Encouraging more sustainable waste management which respects the waste hierarchy (avoid, reuse, recycle, energy recovery, recycling)</td>
<td>• Create a positive framework for action on climate change</td>
</tr>
</tbody>
</table>

<table>
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</thead>
<tbody>
<tr>
<td>• Reduce the need for travel, especially by car, by influencing the location of development, fostering development which encourages walking, cycling or public transport etc</td>
<td>• Increased development of renewable energy resources through Regional Spatial Strategies and local development documents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PPS23: Planning and Pollution Control</th>
<th>PPS25: Development and Flood Risk and Practice Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Planning should reduce greenhouse gas emissions and take account of potential effects of climate change where possible</td>
<td>• Planning policies should reflect the increased risk of coastal and river flooding as a result of climate change</td>
</tr>
</tbody>
</table>
List of Figures

Figure 1 An illustration of the ideal orientation of a building with the longest face within 30° of south (Source: Author).

Figure 2 An illustration of the impact of the sun at different times of the year. Planting trees within 30m of the southerly aspect can significantly reduce solar gain (Source: Author).

Figure 3 Building materials lifecycle (Source: BRE.co.uk/greenguide)

Figure 4 Heat Pumps Illustration (Source: Author)

Figure 5 Energy Hierarchy (Source: Author)

Figure 6 Local Flooding in nearby Chesterfield during the floods of Summer 2007. (Source: Mat Wilson NEDDC)

Figures 7, 8, 9 and 10 Photos from Eckington and the Eckington Depot taken during the Floods of Summer 2007. (Source: Paul Worthington NEDDC)

Figure 11 Table of suggested flood mitigation measures (Source: Author)
Footnotes

1 A standard of excellence or achievement against which similar can be measured.
2 10+ dwellings or 1000+ square metres non-residential development.
3 Weather occurs on a daily basis and Climate is a 30 year average of the weather.
4 The East Midlands Regional Plan (RSS8) comprises the Regional Spatial Strategy for the East Midlands for the period up to 2026 under the provisions of the Planning and Compulsory Purchase Act 2004. It replaces all policies in adopted structure plans.
5 This is where the number of dwellings proposed is 10 or more or, where the number of dwellings is not given, the site area exceeds 0.5 hectares or more or in all other cases the floor space of the new building(s) is 1000 square metres or more or where the site area exceeds 1 hectare.
6 UKCP09 is United Kingdom Climate Projections 2009.
7 Solar Gain is a measure of heat from the sun and is the amount of heat produced in a building by solar radiation, e.g. through windows or transparent walls. (MSN Encarta definition)
8 A green roof is an engineered surface usually above a building that slows down the flow of rainwater and reduces the risk of storm surges after intense rainfall.
9 Aluminium is not given here as an example of a direct replacement for asbestos.
10 A measure of the flow of heat through an insulating or building material: the lower the U-value, the better the insulating ability.
11 10+ dwellings or 1000+ square metres non-residential development.
12 Smart Meters are designed to provide accurate readings of energy consumption enabling people to make choices on how much energy they use. The device is a two-way communication system that displays accurate real-time information on energy use in the home to the consumer and back to the energy supplier.
15 Announcement by Housing Minister, Grant Shapps, 17 May 2011.
16 The Manual for Streets is a joint publication produced by the Department for Transport (DfT) and Communities and Local Government in 2007.
17 High, medium and low emissions scenarios have been predicted for future weather in the UK produced in UKCP09. Full details of this study can be found at: http://ukclimateprojections.defra.gov.uk/
19 The movement of surface water to groundwater.
20 Soakaway Design
22 http://www.communities.gov.uk/news/housing/1905496
23 & 24 The scales of significance are in line with the Department for Transport: Guidance for Assessing Transportation Impact of New Development.
25 400m takes an average 5 minutes to walk.
26 1Km takes an average 12 minutes to walk.
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