Matter 3
Strategy and locations for major growth in the NPA (policies 9 and 10, and Appendix 5), including consideration of related access & transportation issues (policy 6) and other infrastructure issues

Part B

MATTER 3
ITEM B-2

Part B Old Catton/Sprowston/Rackheath/Thorpe St Andrew growth triangle (part policy 10 and appendix 5)

Soundness of the proposal

B2 Is this strategic allocation justified, effective and consistent with national policy? No

The concentration of development in this sector of the NPA is unjustified because the location is remote from the employment sources, it was selected because of the ECO Town, the infrastructure costs of development are unjustifiable. It will also increase the urban sprawl of the suburbs and draw in an undesirable proportion of available investment. This will be to the detriment of the remainder of Norfolk

1. The origins of the ECO town at NORWICH

The decision to launch an initiative to create ECO communities was taken by the Labour Government principally through the office of the Deputy Prime Minister and later brought into the public domain following a headline visit to Sweden by Gordon Brown. The essence of these developments in Europe were re-generation schemes involving run down or de-industrialised urban locations where by linking high density, low energy housing with good facilities, they were able to reduce the carbon footprint of residents. However there was a marked difference between these and the plans put forward in this country.
Here the sites were largely rural in nature and many were not brownfield sites as proposed by the PPS. There were originally a list of some 57 locations and the reasons most of these would be excluded would be equally applicable to Rackheath. A report in the Independent newspaper at the time noted that the only real difference was the level of high profile celebrity opposition which some locations could muster.

Rackheath which despite early claims had been returned to agriculture was a not a brownfield site. Disused airfields were a favoured choice, many of them still in state ownership. The land at Rackheath was used as a hostilities only American Base and is now owned by German interests.

The proposal for an eco town at Coltishall in Norfolk was put forward in 2007 by a developer following the closure of RAF Station in December 2006. The Government accepted this into the programme and it was was still the preferred solution in April 2008 when Caroline Flint launched *Eco-towns – Living a greener future.*[1]

The Coltishall plan [2] was eventually abandoned, apparently when the developer, withdrew. In July 2008, a review of ecotowns described as Session 2 of the eco-challenge had excluded Coltishall but still contained no reference to Rackheath[3]

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[1] www.communities.gov.uk/documents/.../pdf/livinggreenerfuture.pdf
[2] Appendix 2 Planning Daily 1st August 2008

This alternative scheme at Rackheath was promoted by the Department for Communities and Local Government. After comparing the merits of Rackheath and Coltishall[4], the Department came out in favour of relocating the ECO town to Rackheath.

The Greater Norwich Development Partnership was instrumental in facilitating this change. In an extract from the Encyclopedia Brittanica on-line the following report was submitted by Katie Daubney in August 2008. In it she said that 'last week, the Greater Norwich Development Partnership (GNDP) put Rackheath forward for the DCLG eco-town programme. The timing in the middle of the summer break meant that this announcement had little impact. The eco-town at Rackheath in Broadland, north-east of Norwich, looked, she said, set to replace Coltishall as a contender on the government's shortlist.' Also in November the Government responded to the Coltishall e-petition, with only 340 signatures and announced that they would be taking forward the alternative proposal of Rackheath.

The time scale and the fundamental change represented here calls into question the reasons why Rackheath was any more suitable for this purpose than Coltishall, since most of the negative criteria applied equally to both. It certainly did not meet the requirements set out in PPS12. It was not a development of more than 5000 dwellings, the lack of infrastructure was common and Rackheath could not be considered a brownfield site as it had been returned to agricultural use shortly after the war. It is also worthy of note that it was incorporated into the ECO town plans before any of the criteria for its inclusion were agreed. The consultation on the Sustainability Assessment was not issued until November 2008[5] and a Water Study has only just been undertaken., though there still remain questions about its outcome.

So by March 2009 when the Rule 25 Consultation commenced Rackheath had already been included in the Government's ECO town programme.

It is clear from the timing of these announcements and the way in which Government and Ministers drove these proposals that any subsequent consultation was meaningless. There has been no appraisal of this proposal which does not start with a presumption that whatever its merits, the scheme would go ahead. It was therefore not subject to any meaningful analysis and it has been progressively extended throughout the development of the Joint Core Strategy. The question now posed is whether or not this aspect of the Joint Core Strategy so distorted the overall outcome that it has rendered the whole process void.

2. The Rackheath Plan

The decision to allocate the eco town to Rackheath may simply have been because it was within the Norwich Planning Area.

Once the decision about Rackheath was taken the whole development plan was fast tracked through the system. The Greater Norwich Development Partnership had been

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[3] www.communities.gov.uk/documents/housing/pdf/ecotownchallenge.pdf

[4] DCLG-Sustainability Appraisal and Habitats Regulations Assessment of the draft Planning Policy Statement: eco-towns – Addendum dated july 2009

[5] www.communities.gov.uk/documents/planningandbuilding/pdf/greaternorwich.pdf

created in 2006 in order to exploit the bid made by the Councils for Growth Point Status[6]. The creation of an extraordinary planning group combined Councils who in normal events are individually responsible for planning. None of these Councils had an LDF which met the requirements for this Growth Point designation but pursued the Growth notwithstanding and to the extraordinarily high levels which are contained in this JCS. They also did this without any public consultation. When it later appeared in the Joint Core Strategy it was presented as agreed policy.
It also allowed the Councils to limit the debate at the responsible level to that of rubber stamping the decisions made beyond the democratic process by officers and a few members of other councils

A legal opinion sough by the Local Government Association stated that if these housing commitments wer included within the housing targets there was no justification for them being fast tracked or even being given any other treatment that normal planning process. Therefore, to have rushed through the planning process within eighteen months and curtailed the usual development processes surely renders this process clearly unsound.

This is pertinent in relation to Rackheath. North Norfolk District Council are not in the GNDP but the Council was instrumental in the decision in respect of the Coltishall eco project. The Coltishall airfield site is not in Broadland but almost exclusively in North Norfolk. It is also worthy of note that North Norfolk challenged this project on the basis that it was unsound. So why was it sound when presented as part of the Joint Core Strategy. This information about soundness was reported to Councillors in Broadland at an Extraordinary meeting held on 25th February 2010[7]; despite the fact that this was accompanied by a letter from Natural England which stated that there was not sufficient certainty for them to consider it legally compliant with the HRA; despite this they later approved the JCS.

3. Credible evidence

There are a number of documents provided by the GNDP which include consultants reports on Housing Viability An assessment of this evidence shows that the recommendations are not supported by the text and that the claims made in the JCS are flawed. High Density housing is claimed not to be a problem but the so called examplar will be constructed at a density which is double that in the surrounding rural area. This appears to be necessary to make financial justification of affordable houses. We overlook the fact that these settlements are going to be permanent at our peril and should not be swayed by short term priorities when considering whether or not these developments are appropriate.
Energy This was a desk study which gave rise to the claim that the potential for renewable energy in the GNDP area was 177% of the demand. There is no practical way that 734 large wind turbines will be built around Norwich. An accompanying map shows that one of the unconstrained areas for wind turbines includes Rackheath which is on the Norwich Airport Flight path. The proposed CHP plant requires 88,000 tonnes of feedstock which is not quoted as annual but appears to be so. This is

[6] Appendix 3 DCLG New Growth Points Norwich
[7] Appendix 3 The Extraordinary Meeting of Broadland District Council dated 25 February 2010 Papers and minutes

not available locally which destroys a large part of the rationale. No reference is provided for the material or the source but it has been suggested that this will be imported and brought in to a rail head. Even so the principle reason for using this as a power source is for its carbon neutrality, what is omitted is that it is also very inefficient and wastes much of the available heat resource. The TCPA worksheets state that CHP is not a viable proposition below a housing density of 50 units per hectare and Austrian experience has shown that it does not fully replace domestic installation. How can this energy study be used to justify the proposals?.
A smaller application for green energy was successfully challenged by local residents using data sets which were collected on site. The results of this are in a separate booklet [8]
Sustainability The sustainability appraisal which would underpin the environmental impacts assessment actually does the opposite. The latest changes seek to revise the environmental gains downward and need to be challenged as they are contrary to the obligations set by the Aarhus convention.
Water Cycle The planning application at Brook Farm has been deferred until further assessment has been conducted because of its proximity to the River Yare. The drainage at Rackheath is no less problematic because although it is further from the River Bure the watercourse is within 0.5km of the development. The introduction of water harvesting in Rackheath will most likely reduce flows and increase the concentration of pollutants. At the present time the sewerage works near the Springs are clearly overloaded and give rise to noxious fumes on a regular basis. No mention is made of this nor the likelihood of the water table declining

4. Eleventh Hour changes

In the past week we have been presented with a series of changes to the Strategy relating to the ECO town. Since this was all the main thrust of the changes if the summer consultation it seems quite ridiculous that a new set of proposals are brought forward now. What it suggests is that the establishment of an ECO town has an excessive and diversionary influence over the wider plans which are being considered in this process.

5. The lost opportunity

The redevelopment in Norwich at Riverside and Barrack Street as well as accompanying sites near the centre of Norwich would have provided an excellent location for the construction of an eco community similar to that at Hammarsby in Stockholm. Instead the planners chose to recommend multiple stores, a supermarket, cinemas, bars and prestige offices including one built for DEFRA. The question has to be asked is that since this is Norwich, the centre for Environmental Science, the site was all brownfield land and it was an extensive redevelopment; why was the opportunity foregone?

[8] Dakenham Barns Application.

B4 Is the Northern Distributor Road (NDR) justified and effective as the means of providing the 'necessary access to key strategic employment and growth locations' and releasing road capacity to achieve 'significant improvement to public transport, walking and cycling in Norwich', and particularly North Norwich (JCS para 5.44)?

The NDR would not be justified in any case but if its sole reason is to provide access to this development in the NE triangle then it should not go ahead. This description suggests that the road is being presented on a false prospectus. The infrastructure for housing development should be included as part of the cost for that element of the strategy and the cost is too high for the results it will achieve. If it were to open access in a meaningful way it should extend to the west, join the A47 west of the city and complete a new outer ring. In that case it would more nearly conform to the description given to it.
Not only that, the claims that it will open up strategic employment locations has not been made. As configured it merely opens up a huge area of the North and East of Norwich for development in a way that is not explicit in the present proposal. Having built up the pressure, further incursions into the countryside will become inevitable .

The claims that it will release road capacity and achieve significant improvements to public transport are only aspirational. The policies adopted in the Greater Norwich area to create shopping hubs and the nature of the way in which people access what the Councils have already created cannot be changed. The creation of the car based economy has only ensured that like almost every other road in the land, once it is built it will be full. Figures presented by the County Council which show that there will be only minor increases in traffic can not be true. A cursory glance at the new map showing the new incursion of the built environment into the surrounding countryside tells us that. The roads into and out of the city which include those to the outlying villages will have to be widened. This is claimed not to be necessary according to NATS.

Communities and Local Government

Eco-towns

Living a greener future

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April 2008

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Foreword

Britain has a proud tradition of pioneering housing developments which combine excellence in design with respect for the local environment. The garden cities of the early twentieth century and the new towns of the mid twentieth century played a major part in housing a rapidly growing population. But these projects were as much about quality of design as quantity of homes. And they sought to preserve our unique natural heritage by creating the greenbelts we still enjoy today. These principles have been adopted in towns around the world, from Germany to Australia.

Today, once again, we are facing a major housing shortage – but on a far larger scale. A growing ageing population, and far more people living alone, means that there is a major shortfall of housing. With so many first time buyers and young families struggling to find suitable homes, affordable housing is now right at the top of the political agenda.

Meanwhile, the threat of climate change means that we need to find new ways of designing and building our homes. Not only do we need to cut the carbon emissions from our housing, we also need to build homes which are resilient and adaptable to a changing climate.

Eco-towns will help solve both of these challenges. By radically rethinking how we design, plan and build our homes, we can create zero-carbon developments which combine affordable housing, environmental sensitivity, and outstanding quality. Eco-towns will exemplify genuinely sustainable living – in order that we can learn lessons for the rest of the country and beyond.

This prospectus outlines the fifteen proposals which have made it to the next stage of assessment. The enthusiasm for eco-towns was reflected in the number of bids we received. But the shortlist being published here represents only the very best proposals. Not only are these the most creative and imaginative ideas, they are also practical and realistic about what can be achieved. The emphasis is not only on affordable housing in the new community, but the benefits to nearby residents.

In particular, the right designs are critical to success. Eco-towns must be distinctive, well designed places that people take pride in. And they must be easy to get around – designed around the needs of public transport users, pedestrians and cyclists. With design so critical to success, I have set up a panel of experts to work with developers, refining and improving their plans so that each development achieves the highest possible standards.

Not all of the shortlisted bids will be successful. There will be no compromising our commitment to excellence and there are tough challenges ahead for each project to meet the standards set. We will now be testing every detail of the proposals with local authorities, stakeholders and local communities themselves.

Following this period of robust scrutiny and consultation, we will publish up to 10 successful projects later this year. We aim to see the first schemes beginning construction by 2010.

Eco-towns have the potential to transform the ways that we live for the better. Now is the time to get these bids absolutely right, in order to realise this potential.

Rt Hon Caroline Flint MP
Minister for Housing and Planning

Contents

1. Introduction and Summary

1. This consultation paper sets out how Government is taking forward the eco-towns programme including the shortlist of locations going forward for more detailed assessment.

2. It seeks your views on:

- **the way in which the eco-towns concept is being developed and the different potential benefits that an eco-town could offer;**
- **how particular features such as greenspace or innovative approaches to housing can best be developed in an eco-town;**
- **preliminary views on the 15 locations going forward for further assessment;**

3. We want anyone with an interest in climate change, more sustainable living and our housing shortage to give us their views, both on the programme as a whole and on the particular issues in individual locations, and on the approaches and technologies involved.

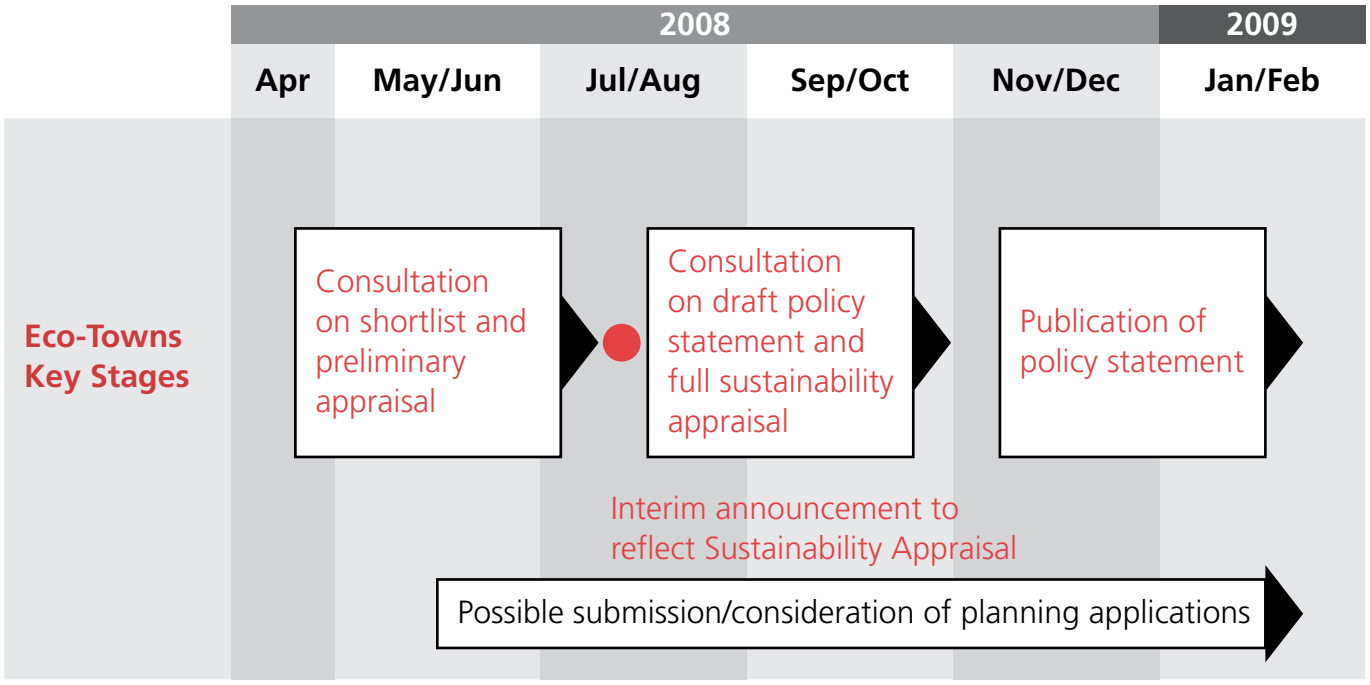
4. We are looking for responses by **30 June 2008** and these will feed into a more detailed consultation on the individual locations as part of the Sustainability Appraisal and Policy Statement which we will issue in July as explained below. Details on how to respond to this consultation are at Annex E.

5. Building on the principles set out in the eco-towns Prospectus, this paper also explains the planning process for eco-towns, indicates how the eco-town proposals from bidders will need to be further refined and developed, and points to the specific challenges which will need to be addressed in each location, if it is to be confirmed as a potential eco-town location. We received 57 bids covering a wide range of proposals and this paper summarises the 15 going forward for further assessment and how we will select up to 10 locations as suitable later this year. It also sets out how Government will support local authorities and other delivery bodies as the proposals are taken forward.

6. The **4 key stages in the process** are as follows:

- this **consultation paper** which asks for preliminary views on eco-town benefits and the 15 short-listed locations;
- there will then be **a more detailed assessment of the locations *(the Sustainability Appraisal)*** which will also be available for consultation, together with a draft planning policy statement on eco-towns. We expect to publish these in the summer;
- publication of the final list of locations with potential to be an eco-town in the ***final Policy Statement*** which we expect later in 2008;
- consideration of **planning applications** for individual schemes.

Timeline – April 2008-February 2009



Key: Announcement/publication Ongoing activity

2. What are eco-towns?

1. Eco-towns are intended to be a combined response to three challenges: climate change, the need for more sustainable living and the need to increase housing supply. They will be a set of national demonstrator projects intended to pilot:

- Zero carbon and more sustainable approaches to living – both now and in the future – by using the opportunities of new design at whole town scale;
- Exploring the potential of well designed new settlements as one element in increasing our housing supply, alongside growth in existing towns and cities;
- Using the opportunities of large scale new construction to improve the design and delivery of affordable housing. Eco-towns will include 30-50% of affordable housing and a good mix of tenures and sizes;

2. As set out in the **Eco-towns Prospectus** published in July 2007, alongside the Housing Green Paper, 'Eco-towns are a major opportunity for local authorities, house builders, developers and registered social landlords to come together to build small new towns. Eco-towns should be well designed, attractive places to live, with good services and facilities, and which connect well with the larger towns or cities close by. Uniquely, they offer an opportunity to design a whole town – business and services as well as homes – to achieve zero carbon development, and to use this experience to help guide other developments across the country'. If eco-towns are to fulfil their demonstrator role we need to get these projects underway quickly to help guide other types of development, with the first schemes underway by 2010.

3. Key criteria for eco-towns. The Prospectus set out the following key **criteria**:

(i) Eco-towns must be new settlements, separate and distinct from existing towns but well linked to them. They need to be additional to existing plans, with a minimum target of 5,000 homes;

CASE STUDY 1

Staiths Southbank, Gateshead

CABE Building for Life Silver Award Winner 2005

The scheme offers real choice at low cost and incorporates an innovative shared-surface design, making it the largest new-build Home Zone.

(ii) The development as a whole should reach zero carbon standards, and each town should be an exemplar in at least one other area of environmental sustainability;

(iii) Eco-town proposals should provide for a good range of facilities within the town – a secondary school, a medium scale retail centre, good quality business space and leisure facilities;

(iv) Affordable housing should make up between 30 and 50 per cent of the total through a wide range and distribution of tenures in mixed communities, with a particular emphasis on larger family homes;

(v) A management body which will help develop the town, provide support for people moving to the new community, for businesses and to co-ordinate delivery of services and manage facilities.

4. In the Prospectus we also set out a range of broad **outcomes** including:

- intensive application of **environmental technologies**, resource efficiency and environmental design, using the Code for Sustainable Homes as a guide on sustainability issues other than energy;
- high standards of **design** including a commitment to design competitions and a clear but adaptable masterplan;
- **travel** plans for each eco-town to show how the scheme would achieve an increased proportion of journeys on foot, by cycle and by public transport. Schemes would need to be based on high quality public transport links, including employment and leisure facilities and reduce the need to travel by co-locating services;
- **community empowerment** in both the development and the operation of the eco-town, encouraging active community participation and creating local trusts to manage community assets;
- an **economic strategy** relating business potential in the settlement to nearby towns, encouraging working from home and providing for local business support;
- promoting **healthy and sustainable environments** through 'Active Design' principles and healthy living choices;
- imaginative proposals to create additional **green infrastructure** and, where appropriate, making good use of brownfield and surplus public sector land.

3. How will eco-towns be different?

The outcome of the bidding process *We invited eco-town bids from both local authorities and the private sector. The full list of 57 responses is listed in Annex D. There was a wide range of ideas and proposals for new technologies and new approaches to more sustainable living. Some of these ideas could be applied generally; others are better suited to a particular location. Government is keen to encourage this type of new thinking and to see it develop further as the detailed proposals for individual projects are refined.*

Government is sponsoring an ***international design ideas competition*** *to parallel site selection to gather ideas on how to create sustainable and successful new towns.*

Among the ideas and examples of ***innovative approaches included by bidders*** *were:*

- *underground systems for waste recycling;*
- *free public transport for residents;*
- *real time public transport information in the home;*
- *variable charging for car use and remote parking to deter car use for short journeys;*
- *endowments to provide ongoing transport subsidy;*
- *green routes to school;*
- *planting and harvesting woodland around the eco-town to provide biomass fuelled energy;*
- *using waste heat from nearby power stations for homes and businesses;*

How will eco-towns be different?

1. Eco-towns are new settlements in locations, some of which have had no previous housing or large scale development. The challenge is to design a place where people want to live, that can function from the start, while also having the flexibility to evolve, and which will work well environmentally, socially and economically – both now and for the future. Their scale creates an opportunity, unparalleled since the third generation of the new towns, to radically rethink how we design, plan and create genuinely sustainable developments, not just in our physical surroundings and services, but in how we live and interact with those around us.

2. All eco-towns will need to demonstrate high standards, designed and built in a way that protects and enhances the natural environment and harnessing the benefits it can provide – clean air and water, natural flood management, wildlife habitat and improving people's well being through enhanced opportunities for recreation. For example, as a minimum an eco-town will need to do more than just mitigate its environmental impacts, but go further by creating net benefits in improving landscape and biodiversity for the area and creating other new green assets that are sustainable in a climate changed future. The eco-town masterplan should incorporate and enhance existing landscape features and create new networks of habitats taking advantage of the opportunity of whole-town design.

The Town and Country Planning Association (TCPA), with input from a wide range of experts and other organisations and with Government support, is compiling a series of Best Practice worksheets on different aspects of design, laying out and managing this type of development. The first three worksheets – on transport, water and community empowerment have now been published and others are in preparation.

http://www.tcpa.org.uk

3. Each eco-town location will need its own approach but each will need to demonstrate key features to fit with the eco-towns criteria. While the detailed design will vary according to each location, this section gives an indication of the benefits which an eco-town development should provide. **We would welcome your comments on the potential benefits listed below. We are particularly interested in innovative approaches and techniques which require the whole town scale to be piloted successfully.**

Are these potential benefits the most important which an eco-town could deliver. Do you have views on how they could be most effectively delivered?

In addition to these, are there other significant areas of potential benefit which you would wish to see added to this list?

Are there particular technologies or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

Zero Carbon[1]

4. At the scale of 5-20000 homes, eco-towns have the critical mass necessary to trial and develop new or existing technologies to achieve zero carbon across the whole development (zero carbon means that over a year, the net carbon emissions from all energy use within the buildings on the development are zero). The low and zero carbon energy sources are likely to be located within the development area.

5. This would mean:

- innovative design and use of materials to reduce the demands on energy in the home and other buildings;
- using a range of low and zero carbon energy sources, depending on the location and building on the natural resources available, such as combined heat and power plants, locally produced waste biomass, wind and photovoltaic (solar) energy.
- addressing the carbon emissions, not just of homes but all buildings.

1 The Government has set targets for ensuring all new homes achieve "zero carbon" standards from 2016. The policy statement *Building a Greener Future* (July 2007) which confirmed this timetable took the position that the low and zero carbon energy sources should be located on the site of the development or connected to it via a private wire. We committed in the policy statement to consulting fully on this position and this consultation will take place in the Summer, with the final position expected by the end of 2008.

What is your view on requiring the low and zero carbon energy sources to be located within the eco-town development area and what flexibility should be permitted to ensure that wider energy opportunities beyond the eco-town can be maximised?

In addition to these, are there other significant areas of potential which you would wish to see added to this list?

Are there particular technologies or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

CASE STUDY 2

Gun Wharf, Plymouth

CABE Building for Life Gold Award Winner 2006

The use of Home Zone, an innovative design and layout technique reducing the impact of vehicles on site and offering priority to pedestrians, is seen as an important aspect to this project.

Future Climate Change

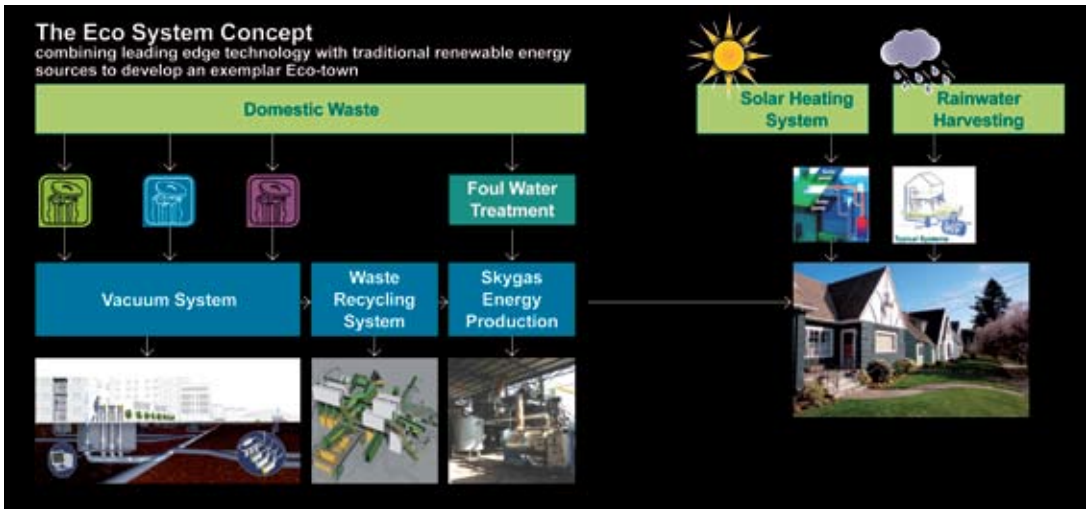
6. Eco-towns should show that they are sustainable under present climatic conditions but are also resilient to predicted future climate change for their area. This will mean taking account of predicted changes in rainfall and increased temperature in building design and construction. And also considering wider water management water efficiency and green spaces. All of these should be innovative and demonstrate resilience and adaptability to a changing climate.

Managing Water

Water Efficiency

7. Eco-towns should aspire to achieving water neutrality for the wider area around them (where total water use post-development is equal to or less than total water use prior to the development taking place), especially where the eco-town is in a water-stressed area, working together with neighbouring communities to maximise efficiencies wherever that is feasible.

8. As a minimum eco-towns should aim to achieve level 3/4 of the water element of the Code for Sustainable Homes before 2016 and level 5/6 after 2016. For non-household buildings, developers should demonstrate how they have considered water efficiency and conservation in the design and maintenance of buildings.



Flood risk and drainage

9. Eco-towns should plan effectively by completing a water cycle study for the eco-town and related areas, including an assessment of flood risk and surface water drainage and reflect this in their design.

10. Managing water, reusing it and planning for the water cycle by creating lakes and other water features so as to deal with surface flooding should be a key feature of the eco-town. The inhabitants and buildings of an eco-town must be safe from flooding for its projected lifetime – allowing for future climate change. Equally, the development must not increase the risk of flooding elsewhere (for example by displacing flood water or increasing surface water run-off that could lead to flooding in other areas). This would mean:

- sustainable urban drainage systems and new water treatment infrastructure resilient to climate change and providing biodiversity benefits through habitat enhancement;
- green roofs, permeable pavements, wetlands and ponds;
- household and rainwater harvesting, stormwater attenuation as well as developing other sustainable provision solutions for non potable water such as for watering gardens. As well as reducing the demands on waste water systems, this will support the wider objectives of increasing bio-diversity in the eco-towns;
- a strong expectation for eco-towns to have all of their built-up parts (including housing, other public buildings and critical infrastructure) fully within Flood Zone 1(the lowest risk);

11. No development in Flood Zone 3 (high risk) and Flood Zone 2 (medium risk) should, as far as possible, be used for open spaces and informal recreational areas that could serve as multi-functional spaces eg be used for flood storage;

A picturesque view of Milton Keynes balancing lakes

In addition to these, are there other significant areas of potential which you would wish to see added to this list?

Are there particular technologies or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

Air Quality

12. Eco-towns should at least meet the EU ambient air quality standards.

Waste

13. Eco-towns will need to be leaders on minimising and recycling and extracting value from waste. This would mean:

- state of the art on-site provision for storage, collection, sorting and recycling of waste from homes and businesses;
- waste strategies linked to energy provision, for example waste wood or food to fuel a combined heat and power plant;
- zero construction waste to landfill through the effective use of recycled materials;
- overall an eco-town should ensure that any waste sent off-site for treatment is balanced by the use of recycled materials in construction.

In addition to these, are there other significant areas of potential which you would wish to see added to this list?

Are there particular technologies or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

Green Space and Biodiversity

14. Eco-town developments can demonstrate the provision of high quality green infrastructure, maximising the benefits for the natural environment and communities, enhancing both quality of life and health.

15. This would mean:

- buffering protected conservation areas through the creation and restoration of native habitats;
- a good range of green spaces and tree cover including community forests, wetland areas, parks, play spaces, green roofs, as well as green town squares and streetscapes;

- setting aside sufficient land for use as allotments to cater for all potential holders and promoting local food production.
- a strong network of multifunctional green space, linked to the wider countryside – an acre of green space for every hundred homes. The total amount of green infrastructure will depend on the location but as a general rule it is proposed that 20% of the town area, excluding gardens should be dedicated in this way.
- developer funding to support maintenance of green space through endowment and local community and third sector management.

16. In addition, sustainable development of this kind will enhance the biodiversity value, providing a variety of important habitats and inter-connecting wildlife corridors, and reducing the heat island effect.

Do you have views on whether this is the right measure for the creation of greenspace and how it should be applied

In addition to these, are there other significant areas of potential which you would wish to see added to this list?

Are there particular technologies or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

Cambourne

Developing Wildlife Value

Although Cambourne, in Cambridgeshire, wasn't built on the scale of the proposed eco-towns, The Wildlife Trust says it is an example of good planning; designed around the natural environment. The housing was designed originally to incorporate natural features, such as three areas of existing woodland, six ponds and a number of old hedges and water-courses. Having identified the existing natural assets, these were linked together with footpaths and cycleways, and with larger areas of new meadows, woodlands and wetlands. Only when this 'green infrastructure' was in place did the masterplan allocate areas for housing and for a business park. Cambourne demonstrates how working with nature in this way can increase wildlife value. The village itself is now more rich in wildlife than the surrounding land.

More Sustainable Travel

17. Mobility and connectivity are essential to the success of any new development. A well designed eco-town will make it easy to travel more sustainably between homes, services and jobs within the settlement as well as nearby communities and large urban areas. The masterplan should embody the aim of achieving exemplar standards of public and sustainable transport usage and a significant reduction in car reliance[2] and an ethos of green travel from the outset, integrating sustainable transport choices into the planning and design process.

2 Sustainable travel towns, saw significant increases in public and sustainable transport simply from using smarter choices. Cycling increased by up to 79%, walking up to 29% and public transport up to 22% on existing figures. In new Eco towns, whose focus on public and sustainable travel should be at the heart of the design, DfT would expect to see these figures surpassed several times over.

18. This would mean:

- each eco-town reaching agreed levels of *modal shift from car to other forms of transport*, on a case by case basis, with DfT and the Local Authority. These would be looking to emulate the most ambitious European models, where half of households do not rely on a car.
- *location/co-location of major facilities and services* such as shops, services and community facilities located within a 10 minute walk of homes within eco-towns. Walking and cycling will be encouraged providing a direct and safe network of routes between key locations.
- *streets* designed primarily to accommodate the needs of pedestrians, cyclists and public transport, including areas designated for limited or no private car access.
- facilities to encourage *home working* and flexible local business space, such as shared conference facilities to help reduce the need to travel.
- *frequent, reliable and easily accessible public transport* for longer journeys, that residents are encouraged to use to ensure that they are well connected to key destinations within the eco-town and with nearby settlements and local supply networks. This may include such measures as bus priority schemes, car clubs and additional provision of community transport, as well as good access to information on transport options, including real time information in the home and personalised travel planning for every resident.
- *incentives* such as the provision of free public transport.
- endowments for public transport in and beyond their eco-town through revenue funding, in order to maintain high quality infrastructure and information provision (for example rail/bus subsidies, provision of travel planners);

In addition to these, are there other significant areas of potential which you would wish to see added to this list?

Are there particular technologies or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

Homes and Housing

19. Eco-towns offer a major opportunity to improve the quality and delivery of housing and to trial new approaches. This could include:

- affordable housing providers coming together to construct schemes which benefit from economies of scale and the opportunities for innovation and reduced cost (30-50% of housing will be affordable);
- innovative approaches in which sites are made available to community groups and others on the cooperative model used in schemes such as Freiburg (Vauban) and Tubingen – see Case Study 3;
- more flexible homes to meet the lifetime homes standard and the needs of an ageing society
- achieving Building for Life gold standard on new residential development and aspiring to meet Level 6 of the Code for Sustainable Homes (and Level 3 as a minimum)

Are there innovative approaches on affordable housing which you would like to see trialled in eco-towns? If so how would they vary from current approaches?

CASE STUDY 3

Vauban, Germany

Vauban is a new district on a former French barracks site in the south of Freiburg, Germany. The area is home to 500 residents and uses ecological measures and the **'car-free' and 'parking free' concepts of living**. Nearly 50% of Vauban's households are 'car free'. These households are encouraged by good public transport provision, a convenient car sharing system and a higher quality of living. Car-free households save the substantial cost of a parking space in the community car park, as do development companies who put up car-free apartments for rent. As a result most streets are areas of social interaction and children's play. Another key feature of this scheme and others such as Tubingen South is the **'Baugruppen' model** in which groups of families and individuals come together to **commission their own housing**, usually in a block of apartments, saving around 25% on conventional prices, taking decisions on design and sharing facilities and management.

Community Building and Empowerment

20. An eco-town can provide many more people and particularly families with an affordable home in a vibrant and sustainable community and one which is designed in an inclusive way to ensure that people of all ages and those with disabilities can be active within the community.

CASE STUDY 4

Hammarby

Stockholm

Gas from the sewage treatment works is used to power some of the buses in Stockholm. It is more lucrative than using it to generate electricity. This is a picture of the gas cleaning plant used to improve the purity of the gas. Some of the gas is also piped back to the development to use for cooking.

21. This would mean:

- ensuring that *public space* is designed to the highest possible standards, with a view to encouraging people to mix, and minimising crime and fear of crime to ensure accessibility and use by all sections of the community. This could include the use of good lighting, natural surveillance and defined routes for access, supported by community policing.
- the '*Town Square' approach* in which services and facilities are located together and designed including schools, shops and other key facilities including flexible community centres, sports and cultural facilities, public play spaces will help to create a new community.
- *potential residents and existing residents close by should be actively involved in the design* of the new eco-town through techniques such as Enquiry by Design and Planning for Real – developers should look at innovative approaches to facilitate active involvement in design and development of eco-towns. The objective is a place that is distinctive and cared for, including the promotion of local history, archaeology and the historic built environment.
- endowments from *development value to fund community workers* to help nurture and develop links across the town and with other local communities and to help guide residents on the environmental features of the development.
- creating a *community development trust* to enable residents to take a key role in determining how services are run and assets are managed.

Jobs

22. Eco towns can harness the employment potential of local areas and the opportunity for expansion of eco-town technology to enable the provision of high quality employment opportunities and lifelong learning. This would mean:

- a clear strategy to maximise employment opportunities, through supply of high quality business space with state of the art facilities for networking and business innovation;

- enabling links to existing clusters of employment within the sub-region for example by improving transport connections;
- addressing labour market constraints by provision of in demand housing e.g. family housing and better training and skills access;
- creating opportunities for lifelong learning arising from local environmental technologies e.g. through links to university research centres;
- capitalising on expansion of environmental technology sector as a result of scale of development

In addition to these, are there other significant areas of potential which you would wish to see added to the list?

Are there particular technologies, or approaches which you would wish to see piloted to help achieve the eco-town outcomes?

Innovation in Public Services

23. Eco-towns can pilot and test new ways of delivering public services as well as making them more sustainable and responsive to climate change.

Zero Carbon Schools

24. The Government wants all new school buildings to be zero carbon by 2016 and has appointed a Task Force to advise on how this ambition can be met. We want eco-towns to have first class services and first class schools.

We will work closely with the relevant local authorities and the promoters of eco-towns on how best to meet the needs of the community. We are particularly interested in developing new schools that are not only exemplars of sustainable design and operation but also have a curriculum that specialises in environmental issues.

25. We want schools to be sustainable socially as well as environmentally so new schools should provide extended services, for example for children and families as in the box below.

CASE STUDY 5

Scharnhauser Park

Ostfildern, Germany

The development consists of 3500 dwellings and is located on a former US military airbase. The project started in 1996 and is due to be completed in 2012.

The whole development is equipped with SUDS. Run-off from public land is directed to infiltration drainage swales located within the main public green spaces. Run-off from private land is required to be disposed of on plot, either by rainwater harvesting or through infiltration drainage swales. These arrangements reduced the costs of sewer provision and create a spectacular experience with overflow water running down the landscape stairs as the swales are flooded.

CASE STUDY 6

Great Bow Yard

CABE Building for Life Gold Award winner 2007

The scheme achieved an Eco Homes rating of 'Excellent' through elements such as passive-solar, thermally-massive design and lightweight timber frame construction, the use of a sustainable drainage system, the creation of a wildlife habitat, materials specified to create a low toxic environment and 'A' rated appliances

Co-location of Children's Services

An example of an opportunity to do things differently with public services is ***co-location of children's services alongside schools****, which eco-towns could help pilot in an extended school. Providing a single point of access for children, young people and families helps and encourages the use of services that they would not otherwise use and helps to create a focus for the community. Co-locating professionals in one site, for example through a Children's Centre, has already proved extremely beneficial in our drive to more integrated working. Potential efficiencies can also be secured – both in terms of consolidating front-line staff where skilled staff are in short supply, and through sharing services such as HR, finance and IT.*

Health Services

26. Eco-towns should be designed as healthy and sustainable environments, encouraging healthy living for all through 'Active Design' principles, community involvement and encouraging healthy behaviours.

27. As in other communities, residents of eco-towns should have access to well designed health and social care facilities. However, these towns offer a great opportunity to consider a range of models and to trial emerging best practice in the provision of these services. The new facilities should meet the needs of the local community providing convenience, accessibility and flexibility.

Community Sports Hubs

The Community Sports Hub (CSH) concept brings sport and physical activity directly into communities. The model seeks to increase participation and financial sustainability compared to more traditional models of sports facility delivery. This new approach focuses on the development of hubs that meet the needs of the community, combining private and public investment in multiple sports and activities and also has the potential to bring health, social welfare and educational services together on a site.

A comprehensive guide to developing a CSH is available to download at www.sportengland.org

New Health Centres

New health centres are being developed across the country to maximise the scope for co-locating GP-led services and community-based services such as diagnostic, pharmacy and social care services. They are locally determined in order to meet the needs of the community.

4. What happens next?

How the planning process will work – decisions on individual applications and the planning policy framework

1. More work is needed on which locations could be suitable for an eco-town as well as on particular schemes being put forward before decisions on a final list of locations can be taken. This *consultation paper* sets out a shortlist of locations where Government believes there is potential for an eco-town based on consideration of its benefits, its infrastructure fit and deliverability based on the information we have had from bidders and other sources. In the next stage that preliminary assessment will be followed up with more detailed work.

Planning

2. Any eco-town scheme will be the subject of a planning application and we would expect most to be determined by the local planning authority. It is important that eco-town schemes are taken through the planning process to ensure that all issues have been considered, all views gathered and the best solution achieved. It is important for local communities to have their say on individual schemes and community engagement is a vital part of the process for delivering eco-towns successfully. The Government also wants to set the right planning policy framework for eco-towns and to indicate those locations that have the potential to be an eco-town; we therefore propose to consult on and publish a *Planning Policy Statement on Eco-towns,* which will create a framework for consideration of eco-town planning applications. Further details of the planning issues are set out in Annex A.

Potential Locations – The Planning Framework

3. The shortlist of locations published today will be subject to a more detailed *Sustainability Appraisal* (SA) which will provide greater detail on environmental sustainability and other issues and test them against reasonable alternatives. We will publish the SA for consultation alongside a draft Planning Policy Statement on Eco-towns in July. This statement will set out the core principles and criteria for eco towns as well as a refined list of potential locations which could include sites or locations that are not currently shortlisted (as a result of consideration of alternatives in the SA). The final decision on the policy statement will take into account the SA and the views of consultees and be published as the Eco-towns Policy Statement in the Autumn. While an individual planning decision is decided on individual merits, this policy statement, and the evidence that underpins it, will act as a material consideration in those decisions.

Improving the Proposed Schemes

4. Alongside this consideration of principles and locations, developers, local authorities and others concerned with individual schemes will need to do more work to *refine and improve the detailed proposals they have made*, for example by agreeing and clarifying the infrastructure required, ensuring that it is robustly costed and evaluating novel environmental and other technologies needed to deliver the eco-towns vision for that location. There will need to be a costed plan for delivery of the project with input from public agencies on likely support and realistic assumptions about future public investment.

5. Refining and developing these specific eco town proposals will enable Government and local authorities to be assured that a project is viable for its location, can be effectively delivered, and matches the eco-towns ambition. There are three key areas of test in this further work:

- *Sustainability:* does the proposed approach achieve sufficiently high environmental standards, not only mitigating impacts but positively enhancing the site for example in terms of bio-diversity and accessible greenspace. In terms of transport does it generate a substantial shift away from car use and reduce the need to travel compared with a standard approach to development.
- *Deliverability:* is it clear how the project could be delivered over time in this location. Is there a clear statement on funding support for infrastructure by the promoters in the light of government and public sector assessments. Is there provision for delivery and long-term management arrangements, including secure funding for the latter.
- *Affordability:* is the total cost of delivering a scheme in this location affordable within the funding streams likely to be available from investors and from the public sector. Is there a basis for agreeing the respective contributions of each and is this based on reasonable expectations by relevant public infrastructure bodies and likely to be agreed between the parties.

6. To help bidders review and refine proposals Government will be establishing an assessment and review panel (**The Eco-towns Challenge Panel**) and it will also be offering Local Authorities additional support to help with developing costed plans for the delivery of schemes. Wherever possible government wishes to take a partnership approach with the LA on taking forward the eco-town and it will be offering **local authority Partnership Agreements** which can provide a basis for funding for necessary studies, additional capacity within the authority and expertise so that it is in a good position to contribute to this part of the process. Further details of the process for

refining schemes and government support is set out in Annex B. When the Homes and Communities Agency is established we would expect it to play a major role in supporting local authorities and working with bidders to review and refine proposals as set out in Annex B.

7. As stated above, all schemes will be subject to the necessary planning applications and this process of refining and developing the proposal, engaging with the local community and discussing issues with the local authority should lead to an improved planning application being made and a better chance of receiving planning permission. In addition if a scheme meets the Government's eco-town criteria then we will offer continued support to the local authority and the developer to take it forward as set out in Annex B. This is all without prejudice to any final planning decisions which will be taken on the individual merits of each scheme.

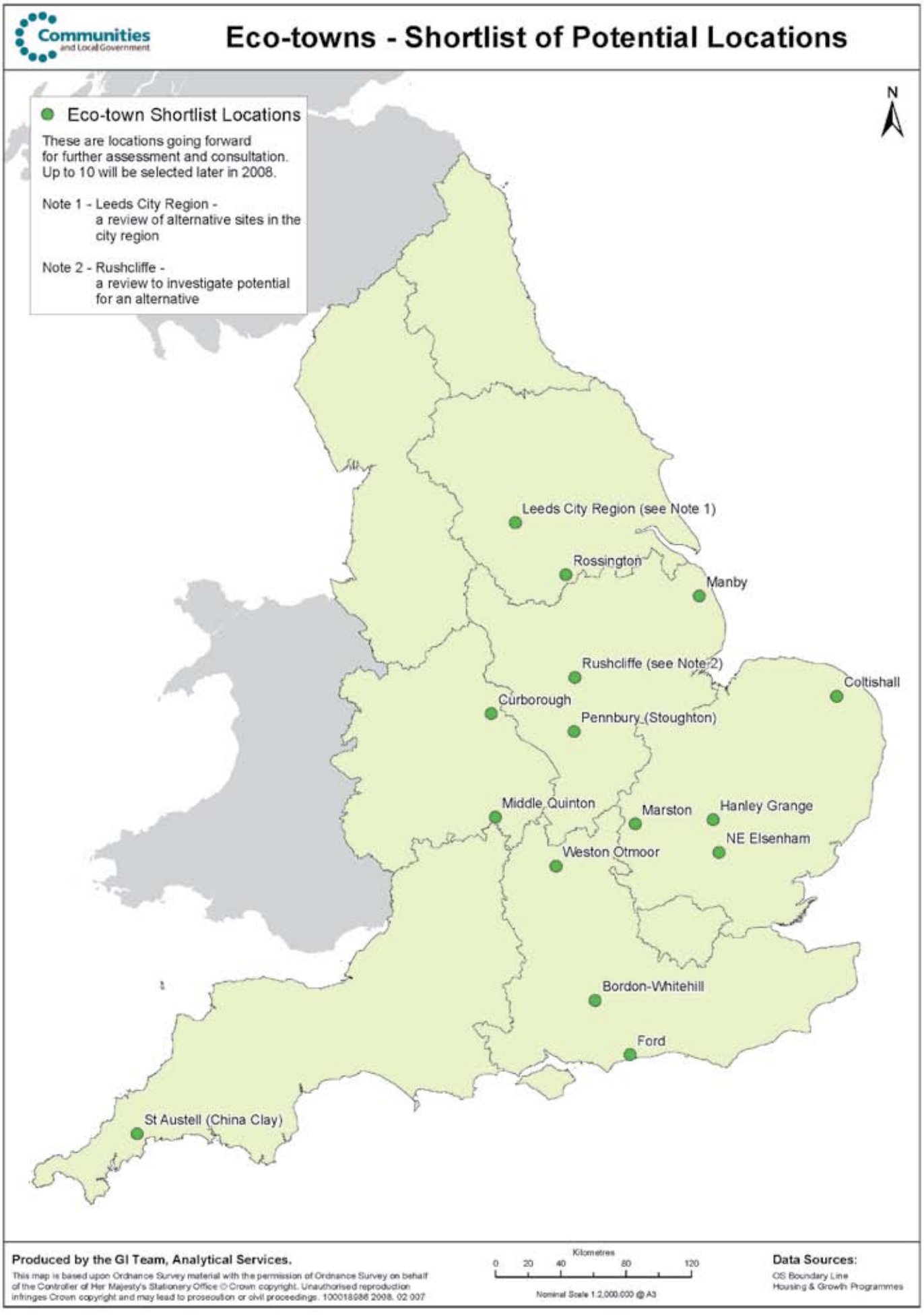
5. The 15 bids going forward for further assessment

1. These bids going forward performed the most strongly in an initial scrutiny across Government and its agencies in terms of transport and environment issues, affordability benefits and deliverability against eco-towns criteria. Each of these now needs to be assessed in more detail as set out in section 4.

2. What follows is an initial **summary of the issues** for each location with a broadly indicative map marking, which in some cases includes alternative options or sites. Also included is information on **housing affordability** and a housing affordability pressure indicator (ratio of lower quartile home prices to lower quartile earnings). This sets out some of the specific challenges and potential benefits in each location. **More detail is available from the individual scheme bidders** and a more detailed assessment of each location will become available in the Sustainability Appraisal alongside consideration of alternatives.

3. The Sustainability Appraisal will not be looking at the detail of particular proposals for these locations, but at the locations themselves. Government will offer support in developing the individual proposals (see Annex B) but they will be the subject of planning applications and will be assessed as part of that planning process.

Extreme affordability pressure	ratio of **10+**
Very high	ratio of **8.5-10**
High	ratio of **7.0-8.5**
Moderate	ratio of **5.5-7.0**
Low	ratio below **5.5**


Communities and Local Government
Eco-towns - Shortlist of Potential Locations
Eco-town Shortlist Locations
These are locations going forward for further assessment and consultation. Up to 10 will be selected later in 2008.
Note 1 - Leeds City Region - a review of alternative sites in the city region
Note 2 - Rushcliffe - a review to investigate potential for an alternative
N
Leeds City Region (see Note 1)
Rossington
Manby
Rushcliffe (see Note 2)
Coltishall
Curborough
Pennbury (Stoughton)
Middle Quinton
Marston
Hanley Grange
NE Elsenham
Weston Otmoor
Bordon-Whitehill
Ford
St Austell (China Clay)
Produced by the GI Team, Analytical Services.
This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100018986 2008. 02 007
Kilometres
0 20 40 80 120
Nominal Scale 1:2,000,000 @ A3
Data Sources:
OS Boundary Line
Housing & Growth Programmes

Shaded area indicates potential location for eco-towns proposals

East Midlands – PENNBURY (STOUGHTON)

Harborough and Oadby & Wigston Borough Councils, Leicestershire County Council, Leicester City Council

Description	The site would accommodate 12-15,000 homes based on a development of 750 ha within a 1,720ha of greenfield/brownfield/ part surplus public sector land site on the outskirts of Leicester (4 miles south east from the centre), surrounded by farmland.
Proposed benefits	The eco-town proposal would create a largely freestanding community, but linked to Leicester, on the basis of very ambitious environmental and sustainability standards and environmental innovation. Built on 40% of the available land, 15,000 homes with jobs, schools and healthcare would be designed to complement the surrounding settlements. The scheme pioneers innovative transport and energy solutions and new methods of community participation. *Housing Affordability Pressure – High.* The scheme would deliver 4,000 affordable housing units in comparison with current delivery of 210 annually in relevant LA areas. Current households on waiting list – 3,000 in Harborough, Oadby and Wigston Borough and 10,451 in Leicester.
Initial summary of challenges and constraints	*Environment* The scheme will need to address the impact on water issues in urban Leicester and since water resources in the area are in deficit, a sustainable approach to meeting demand would need to be identified. Adequate capacity of sewage treatment works in the area will have to be demonstrated. Surface water runoff must be carefully controlled. Land contamination from previous uses such as airfield and fuel depots must be remedied sustainably. Impacts on the local landscape and biodiversity especially fish populations would need to be considered. *Transport* The scheme will need to accommodate the development with an enhanced local public transport infrastructure, within constraints of existing housing and street layout on edge of urban area and severe road congestion into this part of Leicester along the A6. Rail services are distant from the site. *Employment* Further work will be needed on the economic and retail hierarchy aspects of a scheme in this location. It would need to complement work to regenerate Leicester, including initiatives on training and linking adult education to employment. *Conservation and historic constraints* Small parts of the site have green wedge status and eastern part of site attractive countryside. One scheduled ancient monument, and some other monuments of significant archaeological importance. Some of the surrounding villages are designated conservation areas.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

East Midlands – MANBY

East Lindsey District Council, Lincolnshire County Council

Description	Between the towns of Mablethorpe and Louth on the site of a disused airfield. A proposal for 5,000 homes as a strategic long term plan to deal with the phased re-location of communities on Lincolnshire coast due to flood risk. Development is proposed mainly at Manby (and some at Strubby) – both have large elements of brownfield land. Manby is a village of 733 people, and merges with the village of Grimolby (population 951). Part of site includes former RAF base. ELDC is shortly to publish its Core Strategy Issues & Options Paper and includes an option for a new settlement.
Proposed benefits	Predicted sea level rise could have a significant impact on East Lindsey's coastal communities. The 5,000 home eco-town would form part of a sustainable strategy to tackle the impacts of climate change by enabling long-term population relocation from the areas at greatest risk. It would also include new employment opportunities, community facilities and public transport links. *Housing Affordability Pressure – Very High.* The eco-town would provide approx 1,500 affordable homes over 10 years compared with current annual supply of 120 in the district. Current households on waiting list – 5,300.
Initial summary of challenges and constraints	*Environment* Both sites lie outside flood zones, but surface water drainage would need to be carefully managed. Aquifer resources in the area are fully committed so an alternative water supply will have to be guaranteed, and a new seage treatment works will need to be provided. *Transport* The new settlement would be distant from both trunk road network and 15 miles from a rail station. There is a need for bus links to be developed to provide significantly enhanced public transport. This may require complementary improvements at larger nearby settlements. *Employment* An eco-town scheme would create a new focus for inward investment, raising the profile of the area and attract much needed skills and a wider range of professional services and boost tourism. The public sector is supporting further employment growth at Manby through re-location. *Conservation and historic constraints* This area contains the Lincolnshire Grazing Marshes, and eco-town development will need to seek to maintain this habitat (identified as a priority under biodiversity Action Plan). The RAF site also has a number of listed buildings.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the sustainability appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

West Midlands – CURBOROUGH

Lichfield District Council,
Staffordshire County Council

Description	The eco-town proposal is for a 314ha site, 7 km NE of Lichfield, part of former Fradley airfield and is 15km from Burton and 35km from Birmingham. Two existing residential communities lie to north and east – Fradley Village and South Fradley. A brownfield site with hardstanding and old airfield buildings. The potential for major new development in this broad location was previously identified in the Staffordshire and Stoke on Trent Structure Plan 1996-2011 although the relevant policy was not saved.
Proposed benefits	A new community comprising 5,000 dwellings, secondary and primary schools, commercial, retail and community facilities; a new A38 junction, two new road links to Lichfield, a park and ride, and pedestrian/cycle provision; Eco-energy Park, and sports facilities. *Housing Affordability Pressure – Very High.* An eco-town scheme would supply around 2,000 affordable houses over 10 years in comparison with recent annual supply in Lichfield of 100 and a housing waiting list of 3,000 households.
Initial summary of challenges and constraints	*Environment* There are high existing environmental pressures in the area which transport infrastructure for the scheme would need to take into account. Some flooding issues (two watercourses run through the site). Issue with water quality. Lichfield waste water treatment infrastructure would need upgrading. *Transport* The scheme will need to develop proposals for sustainable and high quality public transport links to the eco-town, particularly taking account of existing congestion. The A38, in particular, would require a strategy to cope with additional traffic generated from the development. *Employment* 7,000 jobs will be achieved from development at Fradley Park employment area (one of the largest employment areas in West Midlands), with potential for further growth which could reduce travel to work problems. *Conservation and historic constraints* Airfield and listed buildings. Historic canal features bordering the site will need to be safeguarded.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

West Midlands – MIDDLE QUINTON

Stratford-upon-Avon,
Warwickshire

Description	The eco-town proposal comprises a 240ha brownfield site 6 miles to the SW of Stratford upon Avon between Long Marston and Lower Quinton. It is a former MoD Engineers depot with extensive warehousing, a rail system and a rail (freight use) connection to the main Worcester-Oxford-London line.
Proposed benefits	A scheme of at least 6,000 zero carbon homes on previously developed land, with substantial employment opportunities, affordable housing and community infrastructure, including up to four schools, health care and retail facilities and high quality public transport links to surrounding towns and villages, all supported by leading edge environmental technology. [*Housing Affordability Pressure – Very High.* The scheme would deliver 2,000 affordable housing units in comparison with current delivery of 170 annually and 3,000 households on waiting list. Stratford experiences very high levels of demand for rented accommodation in relation to its role as an international destination – an issue recognised in the Stratford World Class vision initiative.
Initial summary of challenges and constraints	*Environment* The scheme will need to be developed with design sensitivity to its setting close to Cotswolds AONB and suitable mitigation measures. Would look for an SFRA to make sure there is no flood risk on site. Capacity of existing sewage network unlikely to be able to cope. The scheme will need to include a contaminated land survey and to carry out remediation sustainably. *Transport* No major issues regarding the strategic transport network but the scheme would need to develop and support a substantial improvement to public transport links to surrounding centres and particularly Stratford upon Avon. *Employment* The site is already a significant employment centre with scope for expansion around proposed eco-town technologies including recycling and sustainable construction. *Conservation and historic constraints* Historic settlements, listed buildings and landscape issues would need to be safeguarded and enhanced as the scheme is developed.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

South East – BORDON-WHITEHILL

East Hants District Council,
Hampshire County Council

Description	This is a large brown-field site in East Hampshire, adjoining Whitehill-Bordon to the west, on land vacated by the MoD, which will complete its withdrawal in 2012, leaving a significant amount of ex MoD housing. The local authority has a longstanding commitment to regeneration and renewal of the area and particularly to improve existing facilities. A wide range of stakeholders are involved in the scheme which is led by the Local Authority, the Voluntary and community sector, and environmental bodies in partnership.
Proposed benefits	A modern sustainable community of 5,500 homes with new town centre, employment opportunities and improved public transport. *Housing Affordability Pressure – Very High.* The increase in housing supply in this location would provide around 2,000 additional affordable homes. Recent average completions of affordable housing in this LA have been 100 annually over the last 3 years and the number of households on the waiting list – 2,700.
Initial summary of challenges and constraints	The location will need an innovative approach to create a cost effective high quality public transport service given the lack of rail access and a diffuse local development pattern and highway constraints. The capacity of the location to attract additional employment will be an important consideration. Environmental constraints include the need to ensure additional water resources can be provided given that the Water Resource Zone may not have the necessary headroom and ensure that local sewage treatment capacity is adequate. Flood management issues must be addressed. Remediation of contaminated land must be carried out sustainably. Appropriate mitigation measures must be implemented to protect important lowland heathland SPA sites and Shoreheath Common SSSI which borders the location.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment of impacts will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

South East – WESTON OTMOOR

Cherwell DC, Oxfordshire County Council
(also relevant to Oxford City Council)

Description	The site adjoins the M40 Motorway and the Oxford-Bicester railway around 3 miles SW of Bicester and 7 miles from Oxford. The total area is over 800 hectares of which around 130 has are currently in use as a grass airstrip. The southern edge of the site fringes the Oxford Green belt.
Proposed benefits	The eco-town proposal is for a major scheme of 10-15,000 homes which would achieve exceptional standards of sustainability, particularly in relation to transport, while also relieving housing pressures in a sub-region with one of the most highly stressed housing markets in the south east and creating significant new business space. The proposal is based on a major package of investment in rail (including restoring services on the Oxford to Milton Keynes line) and other public transport, and would incorporate a major Park and ride facility adjoining the M40, combined with improvements to the A34/M40 junction and stringent controls on car access to/ from the site. *Housing Affordability Pressure – Extreme.* Scheme would deliver 3-5,000 affordable housing units in comparison with current new build of affordable housing of 100 and 230 annually in relevant LA areas. Current households on housing waiting lists are around 3,400 in Cherwell and 3,965 in Oxford.
Initial summary of challenges and constraints	*Environment* The scheme will need to ensure adequate protection for the WendlebyMeads and Mansmoor grassland SSSI on the southern boundary of the site, which is a nationally important unaltered lowland hay meadow and will need to be safeguarded against potential impacts for example, from increased use of the site for recreational purposes. Development must go ahead in a way that does not exacerbate flood risk. The main water issue is lack of local sewerage infrastructure – the scheme will need to provide for a major increase in current capacity. There is also a need to ensure that water resources can be provided sustainably given that the development is an area of "serious water stress". Possible need for remediation of former landfill sites within the site boundary. *Transport* The scheme will need to demonstrate a robust, deliverable and viable set of transport options for this site. The options of major investment in Oxford – Milton Keynes East—West Rail Link (and new station), park & ride, tram system and free transport for residents on site and to Oxford will require major investment commitments and ongoing subsidy as well as strong controls on car use in and around the site. *Employment* The site will generate significant new employment but it will be critical to ensure that the project directly benefits Bicester and the need for a stronger jobs-services – homes balance in the existing community. *Conservation and historic constraints* Is in an area with historic landscape (Otmoor) and historic settlements – potential impacts would need to be managed.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

South East – FORD

Arun District Council,
West Sussex County Council

Description	The 350 hectares site includes 108 hectares of brownfield and a former airfield site close to Ford open prison and is served by rail to London and the Sussex coast route.
Proposed benefits	There are two proposals for this site – a strategic development area delivering 5,000 homes (40%) affordable; a 30 hectare economic hub; a major contribution towards the provision of necessary local infrastructure; site specific energy solutions utilising local resources (including major recycling facility); and relocated railway station and improved services to assist the regeneration of the Sussex coast. *Housing Affordability Pressure – Very High.* Scheme would deliver around 1,500 affordable housing units in comparison with current delivery of 46 and 15 annually in 2005/06 and 2006/07 respectively in Arun. Current households on housing waiting list – 3,880.
Initial summary of challenges and constraints	*Environment* – The site includes areas in all 3 flood zones so built development will need to focus on Zone 1 and there will be a requirement for Flood Risk Assessment and application of the sequential test. The existing water abstraction point is currently 'over-licenced'. Development phasing would be important. Potential impacts on local watercourses would need to be considered. Land contamination and possible impacts on groundwater would need to be assessed. Associated road infrastructure could impact on BAP habitats. *Transport* The site would need to make good use of rail but the major issue is the relationship of the site to pressures on nearby trunk roads and particularly the A27. A robust programme of sustainable transport solutions will be required to minimise the impact of the development on both local and strategic road network. *Employment* The site could generate significant employment through a science and technology park alongside existing uses including Ford open prison. *Conservation and historic constraints* The site masterplan and approach to design will need to take account of major conservation features in the surrounding area including the river arun, the South Downs, listed buildings and historic settlements nearby.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

South West – ST AUSTELL (CHINA CLAY COMMUNITY)

Restormel Borough Council,
Cornwall County Council

Description	The site comprises a cluster of former china clay workings and related former industrial sites around St Austell in Cornwall providing 6 sites of around 750 hectares. China clay area – disused mining pits and flat industrialised processing sites, which has had some impact on the landscape. The Eden project is nearby.
Proposed benefits	The proposed eco-town (5,000) forms part of a major regeneration programme in this area which is being taken forward with extensive involvement between IMERYS and Restormel BC, Cornwall CC, and South West RDA. Creation of a national centre of innovation in sustainable living with employment led regeneration at the core of the strategy. Diversity of the 6 sites will provide housing, employment and education, green infrastructure, tourism and recreation. *Housing Affordability Pressure – Extreme.* Scheme would deliver 1,500-2,000 affordable housing units in comparison with current delivery of areas about 110 year in 2006 and 07 in Restormel Borough. Current households on waiting list – 5,119.
Initial summary of challenges and constraints	*Environment* Drainage and groundwater management is an area where careful monitoring would be needed. Opportunities to build on existing programmes to re-create heathland and wooden landscapes on clay waste tips, and on Eden Project experience of restoration. Need to ensure that the eco-town does not negatively impact on SSSI and SACs in the area or on the new heath and woodland that are being created locally. *Transport* Transport Impact Assessment will need to be undertaken. Issues include impact on the A30 routes to upgrade A391 link. A key issue for proposals is how the settlement would be served by enhanced public transport. Transport study commissioned in conjunction with Restormel Borough Council, will provide more information on likely transport scheme costs/funding options. *Employment* The eco-town would need to contribute significantly to the programme of training and improved access to employment which is part of the wider regeneration programme. *Conservation and historic constraints* Area china clay – disused mining pits and flat industrialised processing sites, has had some impact on the landscape.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

Yorks & Humberside – ROSSINGTON

Doncaster,
South Yorkshire

Description	The site, with long term scope for up to 15,000 homes, is around 300ha (mainly brownfield) adjoining the existing former colliery village of Rossington 3 miles south of Doncaster and would be based on strong strategic links to Doncaster. There is an existing large village with some regeneration needs that will be included in the package.
Proposed benefits	The Eco-town proposal would substantially enlarge and help to remodel and regenerate the existing settlement at Rossington, with 5 new 'walkable' neighbourhoods, each with core services and good public transport, and with 15,000 low energy homes. *Housing Affordability Pressure – Moderate.* A first phase of the scheme (of around 5,000 homes) would deliver c.1,500 affordable housing units in comparison with current delivery of 50 annually in Doncaster. Current households on waiting list – 23,900.
Initial summary of challenges and constraints	*Environment* The scheme would need to address highly significant water quality and water resource issues and possible hydrological impacts on SSSIs. Upgrades needed for sewage and drainage infrastructure as existing capacity is insufficient, there are potential impacts of increased discharges on water quality of local watercourses which will require assessment. The scheme would need to ensure protection of aquifer from pollution and unsustainable level of abstraction. Land contamination on the former colliery/ landfill site must be sustainably remediated. *Transport* The scheme would need to tackle the currently poor access to the strategic road network from Rossington and consider options for improving this, for example by a road scheme, such as FARRRS, the eco-town could cause significant congestion on the existing highway network. Improvements to the M18 may also be required to handle the extra traffic. Public transport could be improved by using the A638 Quality Bus Corridor that is currentlyunder construction and which runs close to Rossington. New bus routes could also utilise FARRRS should it be built. The funding and timing of this scheme is still uncertain and the potential for developer contributions from this project and others will need to be assessed. *Employment* The eco-town proposal includes proposals for a rail connected, inland port. Airport growth and the adjoining business park is also a source of employment growth which would benefit from reduced travel to work. *Conservation and historic constraints* The new development would need to enhance and safeguard the existing settlements of Old and New Rossington. Potential hydrological impacts on Potteric Carr SSSI will need to mitigated.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

East of England – COLTISHALL

North Norfolk Council, part in Broadlands District, Norfolk County Council

Description	The site of approximately 260ha is the former RAF airfield approximately 11KM North of Norwich and 2KM north of Coltishall village.
Proposed benefits	An exemplar eco-settlement with a zero carbon footprint, 5,000 eco homes with different sizes types and tenures. Business and technology park accommodating 3,000 jobs. Over 100 hectares of wetlands and open space, renewable energy sources, integrated transport system and additional facilities including schools, shops, community facilities, crafts centre, and heritage museum. The eco-town proposal would make use of the former airfield site to provide a zero carbon new settlement adapted to Norfolk needs and design character, with extensive proposals on green infrastructure including creation of a new Broad, SUDs and local renewables. *Housing Affordability Pressure – Very High.* The scheme would deliver around 2,000 affordable housing units in comparison with current delivery of 90 annually in LA areas. Current households on waiting list – 3,275.
Initial summary of challenges and constraints	*Environment* New waste water infrastructure will be needed and a critical issue to be tested will be discharge consents into River Bure and impacts downstream on the Broads SAC. Cumulative impacts of growth in Norwich, especially relating to the river and its impact on the Broads will need to be tested. *Transport* Scope for some improvements to rail service on route from Norwich to Cromer although this is likely to be limited and will need local link to the site; overall there is a need to develop deliverable high quality public transport links and will need a local link to the site. In addition challenges on road network improvements including B1150 to Norwich. Proposed western link road to Northern Norwich distributor road will need further assessment. *Employment* Proposed prison development will, if it proceeds, provide significant employment on site, and airfield buildings provide further scope through business and technology park. *Conservation and historic constraints* Scheme would need to respect proximity at Norfolk Broads National Park and historic settlements/ buildings including some airfield buildings. Blue Broads and Marshes SSSI is already in unfavourable condition due to water quality. The eco-town must be developed in a way that does not exacerbate this. *Related issues* Norfolk will face increasing pressure on its coastline through climate change and will need additional growth locations to take this into account. An eco-town in this location will also need to be considered alongside the proposals for major growth around Norwich. The Ministry of Justice consider the eco-town to be complementary and beneficial to the prison proposal.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

East of England – HANLEY GRANGE

South Cambridgeshire, District Council
Cambridgeshire County Council

Description	The site would accommodate 8,000 homes on 500ha land close to Cambridge high technology employment cluster, and nearby villages of Hinxton, Duxford.
Proposed benefits	An eco-town scheme in this location would respond to the severe homes/jobs imbalance in and around Cambridge and locate new development close to employment. Scope for good links with Science and engineering to drive environmental innovation and application to business. *Housing Affordability Pressure – Extreme.* The scheme would deliver 3,000 affordable housing units in comparison with current delivery of 240 and 150 annually in relevant LA areas. Current households on waiting list in S Cams – 4,661 and Cambridge City – 5,214.
Initial summary of challenges and constraints	*Environment* The scheme will need to address water issues around water supply, water quality impacts, drainage and infrastructure which is likely to need additional capacity; studies will be required. Scheme will need to safeguard several protected/notable species issues as site is adjacent to the River Cam, a county wildlife site and important chalk river for biodiversity, and the arable land supports diverse flora and fauna. Potential impacts on groundwater and spring flows to nearby wetland SSSI would need further investigation, as would surface run-off and pollution into the River Cam which could impact on water quality. *Transport* Scheme would need new bus network to link Hanley Grange internally and to stations/Cambridge. This site is adjacent to the A11, the A505 and A1301. Impact on these and adjoining routes will need to be fully assessed. There are two existing rail stations at Whittlesford and Great Chesterton on the Cambridge Liverpool Street route and increases in capacity on the route are planned. Assessment would be needed to see if rail patronage from the town could be accommodated. *Employment* This is a high growth location in employment terms – having housing nearby will make it more sustainable and improve its growth potential. It would be important to have a good prospect that the development could achieve homes/jobs balance rather than long distance commuting. *Conservation and historic constraints* Historic settlements and listed buildings would need to be safeguarded.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

East of England – MARSTON

Bedford Borough,
Mid Bedford, Bedfordshire County Council

Description	Two overlapping proposals of between 7,000 and 15,000 homes each based on developing a series of sites stretching from the existing development south of Bedford through Marston Vale, along the east-west rail line. It is possible that the two promoters may be prepared to produce a composite project. Not a compact new settlement but a linkage of several settlements with use made of facilities on adjacent sites. Area broadly identified in structure plan and RSS/emerging LDF for development. Marston Vale is identified as a priority for regeneration in the Sub-Regional Strategy. Current work on the Renaissance Bedford Long Term Growth Prospectus is pointing towards Marston Vale as the preferred direction for long term growth. This is acknowledged by the LA partners.
Proposed benefits	An eco-town proposal for this area would draw on existing delivery expertise and make good use of former industrial sites (brickworks etc). Substantial new green infrastructure would build on the excellent greenspace delivery in the area by the Marston Vale Trust. There is potential to deliver sections of the Bedford – Milton Keynes Waterway Park which is identified in the East of England Plan as a strategically significant Green Infrastructure Project. The potential for an Energy from Waste Plant has already been identified in this area. *Housing Affordability Pressure – High.* A scheme would deliver at least 2,000 affordable housing units in comparison with current delivery of 160 and 85 annually in relevant LA areas. Current households on waiting list – 2,598 in Bedford and 2,937 in mid Beds.

Initial summary of challenges and constraints	*Environment* Land is available for development in this location in line with PPS25 (Flooding). Requires a water cycle strategy and revisited SFRA. Surface water issues group has been set up to assess developments in the area. Water resources investigation needed and possible contamination issues from location's waste management history. There are a number of designated sites, and SSSIs. Protected species, risks associated with cumulative development, although not insurmountable with good management, and there is a good track record in this area. *Transport* The location benefits from good rail access, with Bedford-Bletchley local service and Midland Mainline, and committed investment in dualling the A421 and improving J13. The Bedford-Bletchley line is part of the East – West rail project but the scheme will need to consider how it could contribute to that. The Midland Mainline upgrade is part of the Thameslink 2000 project. Further work will be needed on local public transport including scope to upgrade the local rail service. Road network traffic generation and access issues will need to be assessed and the site would need to ensure from the outset a wide range of sustainable travel options for residents to reduce car dependency. *Employment* The site would exploit a strategic location to the east of the MI between Oxford and Cambridgeshire. Technology and new industries include MMC and Waste. The embryonic Nirah Project at Stewartby will provide a major employment opportunity and bring circa 1m visitors p.a. to the area. *Conservation and historic constraints* Listed buildings and industrial archaeology and strengthening the existing green infrastructure strategies – eg. The Forest of Marston Vale. Stewartby is a Model Village developed by the local brick industry. *Spatial constraints* With the proposed southeast expansion of Milton Keynes to the M1 at J13 consideration does need to be given to maintaining a significant strategic gap and perhaps limiting the westward extent of the eco-town. On this basis it should be Bedford centric rather Milton Keynes focused.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

East of England – NORTH EAST ELSENHAM

Uttlesford, Essex

Description	The 265 ha site is to the north east of the existing Elsenham village and railway station. A new settlement at this location is the preferred option in Uttlesford District Council's core strategy (for around 3,000 homes) and is supported by studies on transport, environment, settlement. The eco-town proposal is for a minimum of 5,000 homes and possibly more in the longer term .
Proposed benefits	An eco-town proposal in this location would make good use of existing transport infrastructure (rail – London to Cambridge) and road links to M11 and provide additional housing in one of the most stressed housing markets in the region. The scheme would build on existing local eco initiatives, and comprehensive low carbon and renewable energy plans. *Housing Affordability Pressure – Extreme.* The scheme would deliver 1,500 affordable housing units in comparison with current delivery of 90 annually in LA areas. Current households on waiting list – 1,208.
Initial summary of challenges and constraints	*Environment* Waste water issues, site is at the head of 2 catchments (Thames/ Anglian) small size of the watercourses means that there is a limited capacity to discharge additional waste water. Impacts of the River Cam and the designated salmonoid fishery will need to be avoided. The development is in an area of high water stress; sustainable approaches to meeting demand will need to be demonstrated. Potential impact on sites/species, subject to site study. In particular, increased recreation around Hatfield Forest and on the SSSI and National nature reserve is an issue that could be resolved through the adequate mitigation measures. *Transport* Link road capacity study carried out. The scheme makes use of Elsenham station, orbital bus route linking Stansted M and Stortford, Airport. With10 min frequency proposed. Enhancement of road for cycling/walking. Car club. Need to resolve Issue of access and capacity of local road network if up to 8,000 homes are proposed in this area particularly in relation to access to New Hall Road. Connections with the strategic network also need to be considered, as does the relationship with any decisions that might be made about the expansion of Stansted Airport. *Employment* The scheme will include a range of new business sites with the aim of achieving 50% employment within the development. Stansted Airport is already a major employer. *Conservation and historic constraints* Nearby settlements include a number of listed buildings and other historic features including Elsenham and its railway station.

See Annex D for further details of a proposal for this location.

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

RUSHCLIFFE

Description	An eco-town proposal was submitted for Kingston-on-Soar, to the south of Nottingham. In response to representations from Rushcliffe Borough Council, this site is not to be pursued. However, the Government is proposing to carry out a further review in partnership with RBC to consider whether there is a suitable alternative location with the potential to be viable within the Rushcliffe local authority area.
Summary of issues	An eco-town scheme in the Rushcliffe area could have a number of potential benefits. • in an area of high housing pressure it would significantly improve total supply and affordable housing (Rushcliffe has very high housing affordability pressures and recent affordable housing supply is around 60 annually with 1,535 households on the waiting list. • If adopted an eco-town scheme could provide a substantial boost to supply and concentrate the extra development needed rather than spreading additional pressures across a lot of smaller settlements. • if on a brownfield location it could have significant regeneration and land restoration benefits and it would be big enough to attract investment in jobs, services and better community facilities. Environmental technologies would be a lead feature of the economic investment potential. However a scheme would need to pass a number of viability tests in terms of securing the necessary infrastructure on road and rail upgrades, taking account of pressures on trunk routes in and around Nottingham, and the scheme would need to provide developer contributions to these and it would need to meet the demanding eco-towns criteria on sustainability and safeguard and increase environment assets **Subject to a formal dialogue with Rushcliffe Borough Council a further announcement will be made in due course. If a suitable site can be identified it will be included in the draft Sustainability Appraisal for consultation.**

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

LEEDS CITY REGION

Description	A number of eco-town proposals were submitted for locations within the area of Leeds City Region partnership of 11 authorities and principally between Leeds and Selby. The Leeds City Region Partnership has indicated support in principle for an eco-town within the sub-region. The Partnership has proposed a further study to compare the best alternative locations across the Leeds City Region partnership area. The Government has agreed to support this approach, on the basis that it will allow a further announcement to be made shortly of one or more sites for consultat
Summary of issues	An eco-town scheme in the Leeds City Region could have a number of potential benefits. • in an area of high housing pressure it would significantly improve total supply and affordable housing (Leeds City Region has High housing affordability pressures which reflect the strength and growth of its economy). The City Region is addressing the need for major increases in housing as part of the current RSS process but as recent reports from the National Housing and Planning Advice Unit indicate the number of households and housing need in the region is higher still) . • if adopted, an eco-town scheme could provide a substantial boost to supply and concentrate the extra development needed rather than spreading additional pressures across a lot of smaller settlements. • if on a brownfield location it could have significant regeneration and land restoration benefits and it would be big enough to attract investment in jobs, services and better community facilities. Environmental technologies would be a lead feature of the economic investment potential. However a scheme would need to pass a number of viability tests in terms of securing the necessary infrastructure on road and rail upgrades, taking account of pressures on trunk routes in and around the City Region, and the scheme would need to provide developer contributions to these and it would need to meet the demanding eco-towns criteria on sustainability and safeguard and increase environment assets **The further study by Leeds City Region with Government support will report shortly and a further announcement will be made. Following discussion with Leeds City Region one or more preferred sites will be included in the draft Sustainability Appraisal for consultation.**

Do you have views on the inclusion of this location in the programme?

A more detailed assessment will be included in the Sustainability Appraisal. Are there other potential benefits or challenges which you would wish to see addressed for this location?

Are there particular issues which you would like to see the proposals for this location address?

Annex A

Planning Applications

1. Like any other proposed development eco-towns will be subject to a planning application which we would generally expect to be decided by the Local Planning Authority. Such an application could be submitted at any time and each application must be decided on its merits and the local planning authority will need to take into account all the impacts of the proposals. In order for this to happen developers will need to provide full details of their Environmental Statement, community consultation and consideration of alternatives. The planning application will also address issues such as design, the impact of the proposed development on the landscape and neighbourhood, the transport system, public services, infrastructure and benefits to the community.

2. Any planning application must be determined in the context of the planning policy framework, including the development plan and any other material considerations. Government statements on planning policy are material considerations and this will include the eco-towns Planning Policy Statement. Occasionally, the Secretary of State may 'call in' a planning application for her determination[3]. The Secretary of State's policy is to use these powers very selectively and, in general, only where planning issues of more than local importance are involved – see policy statement by Richard Caborn in June 1999[4]. Any decision on a planning application which comes to the Secretary of State (whether on appeal or following call-in) will be decided by the Secretary of State or a planning minister other than the Minister for Housing and Planning.

Planning Policy Framework

3. We want to create the right framework for consideration of eco-town planning applications through the publication of the **Planning Policy Statement on Eco-Towns.** The Policy Statement on Eco Towns will be an important material consideration in the determination of any planning application for an eco town, particularly where the Development Plan is silent or out of date (the Development Plan includes the regional spatial strategy (RSS) together with any adopted local development plan documents (DPDs) and any "saved policies" still in effect).

4. We are commissioning more detailed **Sustainability Appraisal** work that will include evaluation of the locations being considered. This will provide greater detail on environmental sustainability and other issues and test them against reasonable alternatives. Where necessary Appropriate Assessment will also be carried out under the Habitats Regulations. We expect to publish the Sustainability Appraisal

3 Section 77 of the Town and Country Planning Act 1990 or Section 12 of the Planning (Listed Buildings and Conservation Areas Act 1990.

4 Hansard, Written Answer, 16 June 1999, col 138.

and any Appropriate Assessment results for consultation alongside the **draft Planning Policy Statement on Eco Towns** in July 2008. The final decision on locations will take into account the Sustainability Appraisal and the views of consultees. The consultation on the draft statement will conclude with a final Eco-towns Planning Policy Statement, including the final list of potential locations in the Autumn.

5. Local and Regional Plans The Statutory Development plan remains the starting point for considering all planning applications. In some places eco town proposals are in line with the existing local plan or plans that are at an advanced stage of preparation. In these cases we would expect the principle of development to have been established and an application to be in accordance with the plan through a Local Development Framework Core Strategy or Area Action Plan as appropriate. The Government is keen to ensure that such plans are in place and as part of the support for eco-towns, we will be offering assistance to local authorities to help bring Local Development Frameworks forward where appropriate. In some places the adoption of an up-to-date local planning documents is some way off. In these circumstances the evidence gathered and assessments undertaken in the preparation of the Planning Policy Statement on Eco-Towns will support the development of policy in local planning documents but will also be an important factor in the decision on any planning application. Similarly, at regional level, in some places the relevant RSS encourages the preparation of options for growth in the places being considered for eco-towns. In other places the RSS is silent and again the eco-town policy statement will be a useful addition to the policy framework. We expect the RSS reviews announced in the Housing Green paper (which depending on the region will be prepared between now and 2011) to test the longer term issues that arise from the eco-town proposals – such as the ultimate size of new settlements.

6. Additionality of housing numbers The Housing Green Paper made it clear that the housing numbers in existing and in some cases emerging plans were not high enough to address the pressing problem of long term housing need and affordability. We are therefore aiming to complete a further set of Regional Spatial Strategy partial reviews by 2011 that will include revised housing numbers for local planning authorities that are consistent with our national aim to deliver 240,000 homes per year by 2016. We expect eco towns to contribute significantly to help to meet those revised targets for additional housing and we want to assure local authorities which include an eco-town in their future housing plans that it will, of course, count towards those future housing targets, which in most places are likely to be more stretching.

Annex B

How Government will encourage further work on eco-town schemes, infrastructure and delivery arrangements

1. To provide an initial assessment of strategic infrastructure impacts and benefits Government has assessed eco-town bids with the main infrastructure agencies involving DfT, DEFRA, EA, NE and HA, focussing particularly on transport and environmental infrastructure. We have also taken an initial view of delivery issues and potential benefits of individual bids, including benefits to local housing affordability.

2. The eco-towns bidding process and initial consideration of schemes has indicated that in the right location eco-towns should have good potential to work effectively and to generate substantial benefits including:

- Developing local and regional expertise on large scale carbon saving technologies and other environmental innovation;
- Helping to meet local pressures on all types of housing including affordable housing, piloting new approaches on affordable housing and mixed communities – scale, design and procurement benefits;
- Attracting substantial private sector investment for the area and creating new facilities and infrastructure with wider benefits to surrounding communities;
- Improving local transport and environmental infrastructure;
- Strengthening communities by creating new shared facilities and helping to develop new approaches to community empowerment.

Further work on proposals – What bidders need to do

3. The specific eco-town proposals and concepts will need further development. Scheme promoters need to demonstrate a robust costs base, further **infrastructure assessment** work is needed on the environment, transport, and community elements of each project. The schemes submitted have included valuable preliminary statements on these issues, but with considerable variation in depth and supporting evidence. This further work needs to cover a number of areas such as clarification of the environmental 'vision' that underlies the proposal as well as testing of the practicality of proposals, for example in terms of **environmental technology** and its acceptability to relevant regulators such as the Environment agency. A satisfactory **transport** assessment will be needed for each

scheme appropriate to the scale of the development and its impacts demonstrating how it can be linked into surrounding networks and how modal shift and reductions in travel can be achieved. More work will be needed on the **Housing Market** role of the scheme – its contribution to meeting housing pressures in the sub-regional area including Housing Market Assessment. The proposals will need to address the questions in para 5 on page 22 on *Sustainability, Deliverability and Affordability*. As part of this there should be a draft outline business plan for the whole development, with cash flow, and clearly identified possible sources of interim finance, to the extent shown to be required in the business plan.

What Government will do to support further assessment of bids and proposals for delivery

4. An eco-town is a substantial new development which is likely to impact on and need linking into transport networks, as well as water and other utilities, and a wide range of local services. Addressing these issues will need the input and investment of a large number of agencies and businesses – public, private, national, regional, and local. This is a substantial delivery challenge for which the scheme bids provide a starting base. The schemes submitted vary considerably – some smaller schemes are straightforward in concept, well prepared, and could be taken forward effectively by investors with local partners with relatively little input from Government and the infrastructure agencies. By contrast the largest proposals are of a scale comparable with some of the schemes in the post war new towns programme and will require a major delivery capacity.

5. As with the new towns there is scope for land values to contribute more to the cost of infrastructure than on a similar size urban site because existing land values are low and scheme bidders have recognised this. However there are also significant costs, even if the eco-town achieves a high level of self-containment in terms of transport and energy. The majority of bidders have prepared infrastructure and cost assessments, based on their experience of items that need to be funded from s106. What is now needed is to bring the major infrastructure providers – public and private – and local authorities into a process which can agree a robust set of costings and likely contributions for the location. Drawing up and agreeing such a framework will be a key test of viability.

6. This is a critical part of the process and Government will want to work closely with local authorities and other key partners to ensure that by the time potential schemes are finally identified later this year a clear delivery context for each location has been tested which has been robustly costed and assessed. We expect the Homes and Communities Agency also to play a key role in supporting local authorities and working with bidders to review and refine proposals. To help deliver this Government will:

- provide additional delivery capacity and **support to local authorities**, comparable to the delivery support and capacity provided in growth areas and growth points, to help in the assessment of schemes and the drawing up of a model/ heads of terms s106 agreement for the scheme (and in relation to CIL, subject to legislation). Part of this will include an expanded and dedicated capacity assessment team operating as part of the *Eco-towns Challenge panel* and on similar lines to ATLAS and including members of the ATLAS team; (Advisory Team for Large Applications exists to help local authorities process large applications and is funded by CLG, hosted in EP, soon to become HCA).
- provide **advice to bidders** to help with raising the level of environmental ambition in schemes by establishing the *Eco-towns Challenge Panel* of experts to assess, challenge and advise schemes on their environmental proposals and their effectiveness;
- Government and its agencies will ensure a swift response on key **assessments** eg on highways etc whose outcome will need to be included in the final s106 outline/ heads of terms agreement;

7. Later in the process and in the light of further assessments of costs, government will consider applications for limited growth area type funding from local authorities or other public bodies engaged in helping to deliver the eco-town locations. This will be limited in scope, subject to rigorous value for money requirements and would also need to take account of public sector funding for mainstream services, developer contributions to those, and the costs of the programme as a whole.

8. Delivery Mechanisms The need for special local delivery mechanisms will vary according to the scheme. In all cases the Government will want to consult local authorities on the best approach to delivery with the aim of reaching a partnership agreement on the best way forward. Identifying the right delivery mechanism will flow from the further work set out above, but in the great majority of cases the Government would not expect to use statutory mechanisms.

9. Some Local Authority led schemes and those where the site owner is financing the scheme may need relatively little additional support (for example small scale LA revenue support similar to that available to new growth points).

10. We also expect that the **Homes and Communities Agency** will be able to take a leadership role in helping to deliver an eco-town, with public and private partners, as **English Partnerships** is doing at Northstowe, an early prototype eco-town in Cambridgeshire. The HCA will build on English Partnership's extensive experience of delivering large scale new sustainable communities. By placing housing supply delivery and regeneration into the Homes and Communities Agency, the Government expects the agency to improve delivery through bringing together the main players, from business and the private sector in a 'single conversation' at the right spatial level. The Homes and Communities Agency will be able to exercise real and effective leverage by brokering deals on housing delivery with local authorities. We expect the HCA to be the best delivery partner for local authorities and the expert delivery adviser to Government.

11. As the Eco-towns prospectus stated

A new town development corporation, established under the New Towns Act, 1981, could be an appropriate delivery option in circumstances where:

- the task of infrastructure provision and related investment was of a scale where a statutory body would have significant advantages;
- there was a major risk of land assembly and the need for special powers was evident; and
- the ability of a statutory body to bring forward development more quickly was a significant factor.

Annex C

Glossary

Area of Outstanding Natural Beauty (AONB) – An area with statutory national landscape designation, the landscape of which is has a distinctive character and natural beauty, so outstanding that it is in the nation's interest to safeguard them. Created by the legislation of the National Parks and Access to the Countryside Act of 1949.

Affordable Housing – includes social rented, low cost home ownership and intermediate rented housing, provided to specified eligible households whose needs are not met by the market.

Biodiversity – encompasses the whole variety of life on Earth. It includes all species of plants and animals, their genetic variation and the complex ecosystems of which they are part.

Brownfield Land – previously developed land which is or was occupied by a permanent structure (excluding agricultural or forestry buildings), including curtailage of the developed land and any associated fixed surface infrastructure.

Code for Sustainable Homes is the national standard for sustainable design and construction of new homes. From 1 May 2008 it is a requirement that all new homes have a rating against the Code; if a home has been assessed against the Code that will be in the form of a Code certificate showing the star rating it has achieved or if it hasn't had an assessment then a nil rated certificate will be required.

Community development trusts – are organisations owned and led by the community that work to develop assets and improve the community in which they live.

Development Plan Documents – Prepared by local planning authorities they outline the key development goals of the Local Development Framework. All DPDs must be subject to rigorous procedures of community involvement, consultation and independent examination, and adopted after receipt of the inspector's binding report. Once adopted, development control decisions must be made in accordance with them unless material considerations indicate otherwise.

Environmental Infrastructure – are the pipes, drains, plant, machinery, land, buildings and structures needed for water supply and treatment, liquid (including wastewater) and solid waste collection, treatment and disposal and to manage flood risks.

Flood Zones – Zone 1 is land assessed as having a less than 1 in 1000 (0.1%) annual probability of river or sea flooding in any year; zone 2 is land assessed as having between a 1 in 100 and 1 in 1000 (1% – 0.1%) annual probability of river flooding or between 1 in 200 and 1 in 1000 (0.5% – 0.1%)) for sea flooding; zone 3a is land assessed as having a 1 in 100 (1%) or greater annual probability of river flooding or 1 in 200 for sea flooding (0.5%); zone 3b is functional flood plain - land where water has to flow or be stored in times of flood.

Green infrastructure – is a network of multi-functional green space, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities.

Green field land – is land that has not previously been developed, which is either currently used for agriculture or just left to nature.

Green Belt (not to be confused with the term 'green field land') – is a designation for land around certain cities and large built-up areas, which aims to keep this land permanently open or largely undeveloped. The purposes of Green Belt are to:

– check the unrestricted sprawl of large built up areas;
– prevent neighbouring towns from merging;
– safeguard the countryside from encroachment;
– preserve the setting and special character of historic towns; and
– assist urban regeneration by encouraging the recycling of derelict and other urban land.

Lifetime Homes standards – are a set of sixteen criteria which together make a dwelling easier to use and adapt as a family's needs change over time.

Masterplan – is a type of planning brief outlining the preferred use of land and buildings, as a framework for planning applications.

Planning Obligations and Agreements – are legal agreements between a local planning authority and a developer, or offered unilaterally by a developer, ensuring that certain extra works related to a development are undertaken. For example, the provision of highways. Sometimes called a 'section 106' agreement.

Regional spatial strategy – A strategy formerly known as regional planning guidance, for how a region should look in 15 - 20 years time and possibly longer. It identifies the scale and distribution of new housing in the region, indicates areas for regeneration, expansion or sub-regional planning and specifies priorities for the environment, transport, infrastructure, economic development, agriculture, minerals and waste treatment and disposal.

Sites of Special Scientific Interest (SSSI) – are the best examples of our natural heritage of wildlife habitats, geological features and landforms. An SSSI is an area that has been notified as being of special interest under the Wildlife and Countryside Act 1981.

Sustainability Appraisal – is a process which examines the social, environmental and economic effects of the strategies and policies in a document to ensure that the decisions that are made accord with sustainable development.

Sustainable Communities – are places where people want to live and work, now and in the future.

Sustainable development – See Code for Sustainable Homes.

Sustainable urban drainage systems (SUDS) – whereas conventional piped systems are characterised by a limited capacity, fast conveyance and no reduction in volume, SUDS mimic natural drainage processes with the characteristics of storage, slow conveyance and some volume reduction. There are a number of techniques that encompass the essential elements of SUDS such as green roofs, porous paving, swales and ponds.

Strategic Flood Risk Assessment (SFRA) – an assessment that considers flood risk, both fluvial and tidal and examines the likelihood of flooding in a particular area so that development needs and mitigation measures can be carefully considered.

Waste biomass – is organic matter available on a renewable basis. Biomass includes forest and mill residues, agricultural crops and wastes, wood and wood wastes, animal wastes, livestock operation residues, aquatic plants, fast-growing trees and plants, and the biomass component of municipal and industrial wastes.

Water Cycle Study – is a study that uses an integrated approach to examine the potential constraints on and impacts of development on three main aspects of the water cycle; water resources; water quality and flood risk.

Zero carbon development – over a year, the net carbon emissions from all energy use from buildings in the development are zero.

Annex D

Full List of Bids Received

Region	Scheme name	Scheme Promoter	E-mail Contact
East Midlands	*Pennbury (Stoughton)*	*Co-operative Estates, part of the Co-operative Group and English Partnerships*	ecotown@co-operative.coop
East Midlands	*Kingston*	*Banks Developments*	philip.baker@banksdevelopments.com
East Midlands	*Rushcliffe***		
East Midlands	*Grovewood*	*Banks Developments & Peel*	philip.baker@banksdevelopments.com
East Midlands	*Burtoft*	*Anthony Carter*	paulb@lowcarbonbritain.co.uk
East Midlands	*Manby*	*East Lindsey District Council*	anne.shorland@e-lindsey.gov.uk
East	*Land North of Harlow*	*Ropemaker Plc and Places for People*	ecotown@placesforpeople.co.uk
East	*Easton Park*	*LS-Easton Park Investments Ltd*	enquiries@eastonpark.co.uk
East	*The Cambridge Light Railway and Cambridge Heath, a sustainable country town.*	*Six Mile Bottom Estate and Others*	jaqltd.cambridge@btinternet.com
East	*North Weald*	*Lend Lease*	Adrian_Smith@lendlease.co.uk
East	*Boxted Wood Eco Town*	*Galliard Homes Limited*	feedback@boxtedwood.com
East	*NE Elsenham*	*The Fairfield Partnership*	psavage@camarguepr.com
East	*Alconbury Airfield*	*Alconbury Developments Limited*	hanburyh@rpsgroup.com
East	*Marks Tey*	*Marks Tey Consortium*	andy@asplanning.co.uk
East	*Marston: New Marston*	*Gallagher Estates*	Greg.mitchell@gallagheruk.com/ Steve.Crawhurst@tymconsult.com
East	*Marston: Marston Vale*	*O & H Properties Ltd*	dwr@ohproperties.co.uk
East	*Peterborough EcoTown*	*Wharf Land Investments Ltd*	william@wharflandinvs.com
East	*Hanley Grange*	*Jarrow Investments Ltd*	Ben.Mascall@fdtamesis.com or Sebastian.Hanley@fdtamesis.com
East	*Thorpe Wood**		
East	*Tilbury*	*Thurrock Council and Thurrock Thames Gateway Development Corporation*	jlynch@thurrock.gov.uk
East	*Mereham New Community*	*Stannifer Developments Ltd.*	Susanna.sanlon@bartonwillmore.co.uk
East	*Sculthorpe Airfield*	*Cognitus Consulting Ltd*	dtuttle@btinternet.com

Region	Scheme name	Scheme Promoter	E-mail Contact
East	*Waterbeach (Denny St. Francis)*	*RLW Estates.*	kevin.howlett@ppsgroup.co.uk
East	*Thurleigh North*	*St Modwen*	Mark.Sitch@Bartonwillmore.co.uk/ Grant.Stevenson@ Bartonwillmore.co.uk
East	*Thamesgate*	*Thamesgate Regeneration Limited, Part of Colonnade Land LLP*	alastair.watson@ colonnade-group.co.uk
East	*Coltishall*	*Coltishall Group Plc*	edward.hanson@ bartonwillmore.co.uk
North East	*Causey Park*	*Harworth Estates (the property division of UK Coal)*	barneyc@b-h-p.com
North East	*Stockton Eco Town*	*Sven Investments/Urban Splash Ltd*	sven.investments@emolior.com
North East	*Cambois*	*Banks Development Ltd*	philip.baker@ banksdevelopments.com
North West	*Wardle**		
North West	*Eco-Town Carrington*	*Trafford MBC*	Suzanne.hilton@trafford.gov.uk
North West	*Derwent Forest*	*Lakeland Guild Construction Company Ltd.*	cratcliffe-springall@zen.co.uk
South East	*Airtrack Rail*	*DP9 Planning Consultants*	ARL@dp9.co.uk
South East	*Redhill Aerodrome*	*Clifford W & RC Shrimplin*	roger@shrimplin.com
South East	*Dunsfold Park*	*Dunsfold Park Ltd*	mcdonald@spa-ltd.co.uk/ Jim.McAllister@rutland.co.uk/ Gerry.Forristal@rutland.co.uk
South East	*Bordon-Whitehill*	*East Hampshire District Council*	daphne.gardner@ easthants.gov.uk
South East	*Sittingbourne*	*Spenhill Developments/ St James Investments*	peter.sutcliffe@scottwilson.com
South East	*Ford: Ford Airfield.*	*Ford Airfield Vision Group (comprising Ford Farming Group, Redrow Homes Southern Limited and Wates Developments Limited).*	gpleasants@quatro-pr.co.uk
South East	*Ford: Ford Enterprise Hub*	*Tony Dixon, John Penfold & Harold Hall – co-authors of the Ford Enterprise Hub concept*	afdixon@btinternet.com/ haroldaubreyhall@aol.com / john_penfold@btinternet.com
South East	*Greenway*	*Greenway Land LLP*	design@rogerevans.com

Region	Scheme name	Scheme Promoter	E-mail Contact
South East	*Micheldever Station Market Town (MSMT)*	*Eagle Star Estates Limited*	info@msmt-ecotown.co.uk
South East	*Shipton Eco-town*	*Kilbride Properties Limited*	info@kilbridegroup.com
South East	*Weston Otmoor*	*Parkridge*	info@parkridgeholdings.com
South East	*The Surrey/London borders EcoTown*	*Whitecote Ltd*	william@wharflandinvs.com
South East	*Westcott*	*Rockspring Hanover Property Unit Trust*	batesonan@rpsgroup.com/ Rod.Mordey@rockspringpim.com
South West	*St Austell (China Clay)*	*Imerys Minerals Limited*	ivor.bowditch@imerys.com
West Midlands	*Curborough*	*Curborough Consortium*	paul.hill@rpsgroup.com
West Midlands	*The Throckmorton Airfield Sustainable Community*	*The Throckmorton Consortium*	rcwaterman@QinetiQ.com
West Midlands	*Middle Quinton*	*St Modwen and The Bird Group of Companies*	Mark.Sitch@Bartonwillmore.co.uk/ Grant.Stevenson@ Bartonwillmore.co.uk
Yorkshire & Humberside	*Clifton Gate*	*Commercial Estates Group / Hallam Land Management*	beverley.smith@gvagrimley.co.uk
Yorkshire & Humberside	*Rossington*	*Rossington Ecotown Partnership (UK COAL, Persimmon, HelioSlough and Rossington Forward)*	neill.evans@spawforths.co.uk
Yorkshire & Humberside	*The Stainforth & Hatfield Eco Town Initiative*	*Helioslough Ltd*	hobsonj@signetplanning.com
Yorkshire & Humberside	*Thorp Arch*	*Rockspring Hanover Property Unit Trust*	troupa@rpsgroup.com
Yorkshire & Humberside	*Willow Green*	*GMI Property Company Limited*	willowgreen@gmigroup.co.uk
Yorkshire & Humberside	*Micklefield**		
Yorkshire & Humberside	*The Greens*	*GMI Property Company Limited; Oulton Hall (IOM) Ltd*	thegreens@gmigroup.co.uk
Yorkshire & Humberside	*Darringfield*	*Tangent Properties (North) Limited*	email@njchambers.fsnet.co.uk
Yorkshire & Humberside	*Leeds City Region***		

*Promoter subsequently withdrew bid
**Further review-see main document

Annex E

Consultation Process

How to respond to the consultation

Please send your response no later than 30 June 2008 to:

Eco-towns Team
Housing and Growth Programmes
Department for Communities and Local Government
2/H9 Eland House
Bressenden Place
London
SW1E 5DU

Or by email to:
ecotowns@communities.gsi.gov.uk

If you have any queries regarding the consultation please email the above address.

Representative groups are asked to include a summary of the people and organisations they represent in their reply.

Information provided in response to this consultation, including personal information, may be published or disclosed in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Regulations 2004).

If you want the information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

The Consultation Criteria

The Government has adopted a code of practice on consultations. The criteria below apply to all UK national public consultations on the basis of a document in electronic or printed form. They will often be relevant to other sorts of consultation.

Though they have no legal force, and cannot prevail over statutory or other mandatory external requirements (e.g. under European Community Law), they should otherwise generally be regarded as binding on UK departments and their agencies, unless Ministers conclude that exceptional circumstances require a departure.

1. **Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy**
2. **Be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses**
3. **Ensure that your consultation is clear, concise and widely accessible**
4. **Give feedback regarding the responses received and how the consultation process influenced the policy**
5. **Monitor your department's effectiveness at consultation, including through the use of a designated consultation co-ordinator**
6. **Ensure your consultation follows better regulation best practice, including carrying out an Impact Assessment if appropriate**

The full consultation code may be viewed at

www.cabinet-office.gov.uk/regulation/Consultation/Introduction.htm

Are you satisfied that this consultation has followed these criteria? If not, or you have any other observations about ways of improving the consultation process please contact:

Albert Joyce
CLG Consultation Co-ordinator
Zone 6/H10
Eland House
London
SW1E 5 DU

or by e-mail to:
Albert.Joyce@communities.gsi.gov.uk

Image/Map Credits

Image 1 – Staiths Southbank, Gateshead. CABE/David Millington Photography Ltd.

Image 2 – Gun Wharf, Plymouth. CABE/University of Portsmouth/Lorraine Farrelly.

Image 3 – The eco-system concept. Image courtesy of Barton Willmore.

Image 4 – Balancing Lakes, Milton Keynes. Photograph courtesy of The Parks Trust: www.theparkstrust.com.

Image 5 – Cambourne, Cambridgeshire. Photograph courtesy of Cambourne consortium: www.cambourne-uk.com.

Image 6 – Vauban, Germany. CABE/Paul Lavelle.

Image 7 – Biogas Plant, Hammarby, Stockholm. Photograph courtesy of Jim Kersey/Entec UK Ltd.

Image 8 – Scharnhauser Park, Ostfildern, Germany. CABE/Paul Lavelle.

Image 9 – Great Bow Yard, Langport, Somerset. CABE/Design for homes/ Richard Mullane.

SNUB9

Report from Planning Daily 1 August 2008
By Kate Daubney

The government looks set to abandon proposals for an eco-town at Norfolk RAF base Coltishall in favour of a site in Rackheath on the fringes of Norwich.

Coltishall has been replaced by Greater Norwich on the shortlist in the latest report by the eco-town challenge panel, out yesterday. A partnership of councils across Norfolk is calling on the government to rethink plans for an eco-town at Coltishall and consider an alternative development at Rackheath to the north east of Norwich. Speaking for the Greater Norwich Development Partnership (GNDP) Norwich City Council Leader Steve Morphew said: "Rackheath is a much better option than Coltishall for meeting the governments eco-town objectives. "It is better prepared to shoulder new infrastructure and the local landowners are ready for development. Most importantly, the plans are already going through a comprehensive, rigorous and democratic planning process, so local people will be fully involved along the way." The move comes as the Ministry of Justice's plans for a category C prison at Coltishall were approved, giving a further blow to plans for an eco town there. Coltishall developer Richard Davies told PlanningResource that he was taking stock of the situation but he has told the DCLG that he would pull out of the programme if the prison goes ahead. He has expressed interest developing 5,000 homes at the Rackheath site instead but would need to buy it from the owners, who also may pursue their own scheme. A DCLG spokesman denied that the inclusion of Greater Norwich meant Coltishall had been rejected and insisted talks were ongoing. Housing minister Caroline Flint welcomed the Greater Norwich proposal. She said: "We think it has a lot of potential and it will now be rigorously assessed alongside the other bids to ensure only those with the highest standards make it through to the final short list." Thirteen sites remain on the list despite Curborough, New Marston and Manby pulling out. Greater Norwich, Rushcliffe in Nottinghamshire, and Leeds City Region have been added but were not assessed by the challenge panel as the final sites in these areas have not yet been decided.

Communities
and Local Government

Notes and recommendations from session 2 of the eco-town challenge

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Communities and Local Government

Notes and recommendations from session 2 of the eco-town challenge

July 2008
Department for Communities and Local Government

The findings in this report are those of the authors and do not necessarily represent those of the Department for Communities and Local Government

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Contents

Preface

The Eco-town Challenge was established to challenge and encourage promoters of eco-towns to develop and improve their proposals and to inject new thinking and expertise.

The Panel's observations and recommendations are an independent view. They are based on the Panel's interpretation of the Government's vision for eco-towns and panel members' own views on how the proposed schemes could deliver this.

The Panel's recommendations are not binding and promoters are free to decide how they respond. However, any subsequent improvement in promoters' development proposals would be viewed positively in the assessment process.

The Challenge Panel has no responsibility for assessing proposals or judging the relative merits of proposals. This will be for Government and ministers will make the final decision on locations and schemes with potential to go forward by the beginning of 2009.

The focus of the Eco-town Challenge Panel is to help raise the standard of every proposal, in order to maximise the potential for eco-town development in every location. This supports the Government's ambition for eco-towns to demonstrate exemplary standards.

Introduction

The Eco-town Challenge Panel is an independent group of people with expertise in various aspects of sustainability and urban development. The Panel exists to encourage bidders to improve and develop their proposals to the point where they can be regarded as truly exemplary projects, which fit well within their surroundings, demonstrate innovative approaches to sustainable development and represent a step change beyond what would currently be regarded as best practice.

The attached comments describe what the Panel has said to each set of proposers, following a second series of meetings which took place between 7-15 July. Some of the more general comments regarding progress are recorded at the beginning of the notes.

The Panel met for a second time to hear how the proposals were progressing, recognising that given the short period since the initial meetings it would be hearing about work in progress rather than final plans. Many of the proposals have shown significant and encouraging progress during those few weeks. In all cases the Panel made suggestions about where it believes further progress is most needed, and has encouraged the direction in which much of the work is going.

As in the previous round, it is now for the proposers to consider whether and how to respond to these comments through the further development of their ideas.

The Panel has not been asked to select schemes or to recommend which schemes should or should not go forward.

John Walker
Chairman
Eco-town Challenge Panel

Marston Vale

"The scheme presents interesting thoughts and ideas and has moved forward a great deal since the previous session."

"The proposal demonstrates enormous progress, dealing with a substantial range of issues extremely well."

"This is an impressive presentation, which gives a sense that the bidder might deliver an eco-vision."

"Charming vision."

"The proposal raises the game and begins to come up with some interesting ideas."

"This is a very well thought-out proposal which is getting better. It shows great promise of achieving eco-town status."

The proposal's walkable neighbourhood structure is promising. Developing coherent yet distinct neighbourhoods will make the town more appealing to a wide range of potential residents. The heterogeneous nature of the development could be the unique selling point of the scheme.

Transport makes up 23 per cent of an average UK citizen's carbon emissions. The proposal aims to provide jobs and services within the town to meet the needs of residents however, some residents will want or need to travel to jobs and services located in Milton Keynes and Bedford therefore the carbon emitted by transport will be crucial to the strategy for Marston Vale. If the proposal is to encourage electric cars, examine the use of electric buses and/or fuel cell technology to produce a consistent low carbon emission strategy for transportation.

The scheme remains unclear as to the precise proposals for Bus Rapid Transit. The promoters state that they are considering powering the vehicles using biogas, produced from the anaerobic digestion of biodegradable materials, and that their system will be segregated but not guided. However, the technology they presented to the Panel, the Caen TWISTO, uses overhead electric power on reserved tracks which provide physical guidance, but can shift to unguided diesel operation. Clarify the intention regarding the technology, firstly for Marston Vale, and secondly for the connections to Bedford and Milton Keynes Central. It will be important to demonstrate carbon savings throughout the proposed Bus Rapid Transit system, including the sections outside the eco-town.

The scheme proposes a resident's carbon footprint will be three tonnes per annum. Break both the proposed carbon and ecological footprints in their component parts and explore how much of these emissions are within the town's control. This will help to identify the key areas of the scheme that require further thought. Show how each resident's total carbon and ecological footprints add up to truly sustainable levels.

Set targets for the use of resources during construction. Detail how residents will be encouraged to achieve the high recycling targets set by the scheme while establishing a balance with the waste from the town allocated to the Energy from Waste plant.

The transition process from development to established town will be difficult although some convincing ideas on governance are emerging and the use of trusts to hold community-related assets for the long term is attractive. Continue to develop these ideas for the governance of Marston Vale; how will continuity of ownership be achieved? 'Pioneer' residents and businesses will be attracted to the development as it presents a desirable and distinctive way of life in the area. Detail how the proposal will continue to influence the behaviour of new residents moving to Marston Vale during the town's lifetime.

For further information on the scheme proposal see:
http://www.marstonvale.com/

Hanley Grange

"The scheme has moved on which is encouraging to see. The masterplan has been re-designed and densities increased which will help to achieve the sustainability targets. But more work is needed on the transport strategy."

"The proposal deals brilliantly with behaviour change. More detail is needed but the development is beginning to get to something which will shift behaviour change. The big idea for the Community Trust is good."

"The community trust idea is impressive, work up this idea for the next meetings with Communities and Local Government."

"The transport proposals still raise doubts: in particular, the failure to respond to the Panel's proposal for a dedicated southern busway and bicycle links, and the emphasis on Whittlesford Parkway station, which could raise the danger of Hanley Grange becoming a dormitory town for London commuters."

The masterplan has improved since the first session by moving the location of the settlements around transport hubs and increasing the densities to give walkable neighbourhoods. However, the proposal does not yet deliver a sense of place. The scheme lacks clarity regarding the potential extent of employment in the area and whether the housing the scheme will provide is needed in this location. Work with the local authority to establish projections for growth in order to progress the development. The bid states that 30 per cent of jobs will be on site, detail the types of employment proposed and use this information to improve the place-making aspects of the proposal.

The proposed transport strategy is confusing and currently does not meet the targets for an eco-town. The proposal in its present form does not describe a system that is so good that residents will choose to use public transport over a private car. The proposed new bus services in conjunction with improvements to existing bus services will not be sufficient to initiate a step change able to achieve the proposed modal shift of 40 per cent of journey being made by car. The bid does not propose extending the Cambridge Southern Busway because of the need for the transport system to be functioning from day one. However, this seems to be at the expense of the long-term, broader aspirations for the system. Try to develop a strategy that will deliver the busway in stages as the town grows, first from Addenbrookes to the north end of the Sawston Bypass, then through to the eco-town. Also specify a high-quality bikeway option connecting to Cambridge and linking with the recent provision north of Great Shelford.

Provide references and figures for the carbon footprint per capita rather than per household so comparisons can be made more easily to the national average. In order to lower a resident's carbon footprint, look at working with low carbon farmers, food waste distribution systems, and promoting a healthier diet, as this can reduce the impact of food on a resident's carbon footprint by 15 per cent. Progress the approach to Combined Heat and Power, detail the role of anaerobic digestion in the scheme and set standards for the use of resources during construction.

The community trust is an interesting and potentially innovative idea. The Trust will own assets in the town with a Community Land Trust being attached to the Development Trust. The Trust will also be resident-led and create a charter for quality issues from the outset of the development. This should help provide a continued focus for the vision of the town preventing the degradation of standards. The innovative tenures looking at a seamless gradation from renting to ownership are also promising. Develop these ideas into the proposal's business plan.

For further information on the scheme proposal see:
http://www.hanleygrange.co.uk/

Rossington

"Congratulations on the enormous amount of new work which relates to design ideas."

"Congratulations on a terrific presentation with both energy and passion."

"The bid shows a vision for what a truly sustainable way of life will be like in the future."

"Very impressed with the changes and the progress."

"The proposal has made major progress. The reduction in scale, coupled with the new emphasis on an eco-borough, has strengthened the proposal."

It is encouraging that that the bid is now in line with the local authority's strategy for the area and the high level support for the proposal at UK Coal is welcomed. The scheme also responds very well to the Panel's previous comments about ensuring there will be a role for teenagers in the town.

The proposal is beginning to capitalise on Doncaster's engineering past by potentially providing a construction skills centre. Examine the viability of manufacturing sustainable building components on the site as this could provide an interesting long-term economic base for the community and become a unique selling point for the development. Examine the link between the new and old parts of the town. What more can be done to enhance the existing town? How will this fit into Doncaster's new eco-borough strategy?

The location of employment centres close to Rossington provides a good opportunity to establish sustainable transport links for many residents. Interrogate the proposal's current transport offer to determine whether it will provide a sufficiently attractive alternative to the car, given the short distances of many trips and the availability of parking in Doncaster. How will behaviour be dealt with immediately and over time? The wider area is car dominated so promoting public transport could be a challenge. There will need to be a step change in bus provision, both in frequency and perceived quality, in order to improve the image of public transport. Consider developing a new and innovative kind of service and examine how this will be managed long term.

The proposed walkable, one hectare neighbourhoods with 400m and 800m centres should provide a solid structure for the town. Develop this model to give a sense of the type of place an inhabitant could expect to enjoy in these neighbourhoods. How will the proposal generate differences?

The proposal engages with the right issues but now needs to work out the numbers. Set hard targets for a resident's carbon footprint; it will need to reduce to two tonnes per person per year from the national average of 12 tonnes. Identify what can be achieved through the eco-town, using these targets to influence the design of the masterplan. Examine in detail how to reduce the impact of the embodied energy of materials, as construction makes up 8 per cent of carbon and eco-footprints on average across the UK. Develop further the proposal's strategy for minimising the carbon impact of the energy that will be used by the town. This should include an in-depth analysis of the proposed heat loop system and renewable energy sources, including wind.

Establish targets for recycling and waste management. Examine how to reduce waste first then assess the role of the Energy from Waste plant.

Give careful thought to the governance of the town, in terms of linking Doncaster Council and UK Coal with the Community Trust. Develop the possibility of the existing town also being part of the same governance structure. Examine how the proposal will preserve the initial ethic of pioneering residents as the town matures.

For further information on the scheme proposal see:
http://www.rossingtonecotown.co.uk/

Ford

"The proposal has been brought forward an impressive amount since the first session."

"The amount of thinking and work that has gone into the project is appreciated."

"Good progress, but issues still to be addressed in the areas of transport and land use."

The proposal should now assess the impact of the eco-town on the surrounding area as the development needs to impact positively on a wider regeneration strategy for Littlehampton and Bognor Regis in line with the local authority's vision. Provide a clear employment strategy for Ford, as jobs will be key in attracting people to the town and reducing residents' need to commute.

Develop the proposal's travel plan, considering where the demand for travel will arise for both jobs and leisure. Estimate how many residents will be commuting long distances by car, as this will have a significant impact on the town's carbon emissions. Examine how to influence behaviour change to encourage these journeys to be made via the relocated station, providing easy links to London, Brighton and Portsmouth. Note that if the Arundel bypass goes ahead independently of this scheme it will change the proportion of Ford's residents likely to commute by car and undermine any attempt to make this development zero carbon.

Set targets and benchmarks based on international best practice for the transport strategy against which to measure the proposal. The aim for 70 per cent of trips to be internal to the site is commended. However the proposal should provide evidence that this is achievable within the economic strategy for the town and clarify that 'internal' travel includes links to Littlehampton and Bognor Regis. Many internal journeys should be walkable, particularly in the early stages of the development, but it is recognised that there will be a growing need for high-quality bus/Personal Rapid Transit provision for access to the station for out-commuters, given the peripheral position of the new station. The development of a comprehensive set of cycle routes is promising and will help connect the development to existing villages; it needs to link to Littlehampton and Bognor Regis via segregated provision on the A259.

The proposal suggests that the first homes will be on site in 2012. This is a demanding time frame for the project. Develop further the phasing of the masterplan to demonstrate how the proposed growth of the community is linked to transport and education provision during construction. Consider who will extend the residents' homes if they require more space. Create a masterplan which allows for adaptation as the community matures.

Reduce each resident's carbon footprint from a national average of 12 tonnes to two tonnes per person per year. Working back from this figure will highlight the areas in which more work is needed. Develop the proposal's approach to delivering both residential and commercial low carbon buildings. Look at the Passivhaus standard for guidance and explore how the necessary skills will be developed to achieve this.

High-quality agricultural land will be lost by the creation of an eco-town on this site. Develop the proposal's approach to allotments and smallholdings to help address this loss and provide a strategy for linking with local food production, distribution systems and a strategy for organic waste. Assess the implications of the biogas facility on the wider road network if waste is to be imported to the energy centre.

Examine the possibility of the Community Trust providing services beyond the boundary of the development. The proposal begins to define an ambitious role for the Community Trust; progress the idea of involving Arun Youth Council as part of the Trust to give teenagers a voice in the development. Give further detail on how the vision will be maintained and examine the outline business plans for gifting assets to the Trust.

For further information on the scheme proposal see:
http://www.fordairfieldecotown.co.uk/

Weston Otmoor

"There is no doubt that the transport strategy is transformational, but there is little about the governance of the town. The transport strategy should be just part of a wider vision."

"The transport strategy is very innovative and interesting, given the fact that this will inevitably be to some degree a satellite town for Oxford. But it appears to be related to plans for a new long-distance commuter rail service that could compromise sustainability."

The proposal needs to put forward a clear vision for what it will be like to live in Weston Otmoor. Although the masterplan has progressed well since the first session and it is important to develop a close working relationship with the local authority regarding housing need, the scheme lacks a sense of place. What will attract residents to the town? And what impact will the town have on the surrounding area? Explore how the linear high street may change over time as the market segregates and the social profile of neighbourhoods evolves. In the first session the masterplan was undermined by the proposed education strategy failing to fit with that of the local authority. Examine alternative models of education provision potentially through a Community Trust as one way in which conflict between desired layout and county educational policy might be resolved.

The proposed transport system is innovative. However, a town with free public transport is not an eco-town. Transport must contribute to an overall strategy of reducing a resident's carbon footprint to fewer than two tonnes. This can only be achieved if a holistic approach to the proposal is taken which includes work on energy, water and waste. The new tram-train service represents a sustainable approach to the challenge of out-commuting to Oxford, which may be inevitable given the constraint that the Oxford green belt places on further growth of the city. But it will achieve its full potential only if extended on-street to Central Oxford and via the existing, freight-only line, to Cowley together with fast bus linkages to the Radcliffe Hospital. Although Oxford City Council has said a city-wide tram system is unaffordable, the present proposal could make a city centre extension viable.

Undertaking work around energy, water and waste forms an integral part of an eco-town's objectives, however no detail was given during the presentation.

While low carbon transport is difficult to achieve, significant headway has been made by the proposal. However, the development now needs to look at carbon emissions across the development. Buildings make up 50 per cent of current emissions, according to the method for reporting emissions set out in the Kyoto agreement. Therefore a proposal for an eco-town needs to tackle this issue to reduce a resident's carbon footprint. Examine the energy performance of a range of buildings both residential and commercial. Look at the Passivhaus standard for guidance.

The lack of information on the governance on the town is disappointing. Focus on developing a model for a Community Trust to uphold standards in the town.

For further information on the scheme proposal see:
http://www.westonotmoor.co.uk/inovem/consult.ti/haveyoursay/consultationHome

Bordon Whitehill

"Clearly the proposal has made significant progress since the last session."

"It is exciting to see a presentation from a community and local authority base."

"This is the right way to go about building an eco-town."

"Enjoyable presentation. Congratulations on beginning to establish a brand as this will be important to the identity of an eco-town."

"It's fantastic to see a community grass-roots proposal."

"Very refreshing presentation, in part because the scheme is local authority-led."

"The proposal is very encouraging; go further with your metrics."

It is promising that both the Regional Spatial Strategy and the Local Development Framework support the proposal for an eco-town at Bordon Whitehill. Examine the scale and potential growth of the town in the context of the surrounding area. The development of the site relies on the withdrawal of the Ministry of Defence. Undertake a risk assessment to help prepare for any potential delays to the project. Ensure organisations concerned about the proximity of the Special Protection Areas have the correct information and work with them to help mitigate the affect of the construction.

The existing settlement structure provides an extraordinary opportunity in terms of urban design. Encourage the team of consultants, when appointed, to develop the relationship between the existing dense urban areas and the attractive green space. The description of a day in the life of a resident communicated the aims of the proposal well. This emphasis should be retained throughout the masterplanning process by focusing on place-making.

Develop the travel plan and the strategy to internalise trips in the town. Expand the work begun on current commuting distances, as even a small percentage of residents undertaking a long commute can have a large impact on the carbon emissions for a town. Examine connecting to the Alton rail line by Bus Rapid Transit or tram to serve the estimated 50% of residents commuting to the north and east of Bordon Whitehill. The preserved right of way of the former Bentley-Bordon Light Railway and Lightmoor Military Railway offer an unusual opportunity to develop a high-quality link, bypassing the congested A325.

This is one of the only proposals that has attempted to reduce a resident's carbon footprint to two tonnes per year as suggested by the Panel in the first session. However, look at ways to achieve this more quickly. Once occupied, eco-towns need to demonstrate how it is

possible to reduce carbon emissions by 80 per cent from current levels, in order for the rest of the UK to follow their lead and achieve this by 2050.

The proposed three-year system for trialling new homes is very sensible and may help with the selection of the developer for the site, as they will need to be willing to monitor and evaluate their progress. A key question to ask the developers will be how much energy in kWh/m2/yr will the building use? The retrofitting work already begun on existing properties is commended. Obtain the energy bills for existing buildings in order to estimate more accurately the existing carbon footprint of the town. It is promising that the proposal's focus has been on reducing energy demand. Develop the approach to supplying green energy to the town; assess the potential of the local unmanaged forest to supply biomass to the scheme.

Develop the Community Trust's asset structure and management. Look at establishing community ownership rather than just representation on the management body of the town.

For further information on the scheme proposal see:
http://www.easthants.gov.uk/ehdc/quicklinks.nsf/webpages/Whitehill+Bordon

Pennbury

"The proposal has moved on a long way."

"The scheme is interesting and it is encouraging that the link with Leicester is more developed."

"Congratulations on looking wider than the boundary of the site in terms of energy."

"The proposal represents an encouraging progression on lots of fronts."

"This is the only scheme that represents effectively an urban extension, or satellite, to an existing city, and therefore offers unusual possibilities if it can be further developed."

An eco-town at Pennbury presents an opportunity to enhance the city of Leicester, while creating a new community and employment in the area. The proposal needs to do more in terms of infrastructure projects to link with inner city Leicester. Examine the impact of the proposal on the regeneration of Leicester and work harder with English Partnerships/ Homes and Communities Agencies to support this strategy.

Many of the employment destinations are not in the centre of Leicester so it is difficult to generate a transport strategy to serve these areas. Examine how to create more jobs centrally in order to reduce the need for residents to travel. Explore further attracting companies involved in the manufacture of high specification building components and businesses associated with green technologies or agriculture to the area.

The targets for modal shift are encouraging, as are the scheme's network of cycling routes. However, the public transport strategy does not yet propose a convincing way of achieving these aims; nor does it have a clear commitment to carbon reduction. The transport infrastructure needs to be fully connected with Leicester. Ensure the proposed Bus Rapid Transit or light rail is in place from day one to aid behaviour change. The proposals for new tram and bus links are encouraging, but still need to be developed in detail as to their viability, given that they involve using road space into Leicester city centre. Develop comparative business and travel plans for the different masterplans in terms of transport, including targets for the number of trips on site.

The 'Great Park' concept of a multi-functional working landscape farmed for both energy and food is interesting and unique. Examine the possibility of a Community Trust taking ownership of the park in the long term. Assess the park's role in the town's ability to adapt to climate change, as it is likely to become an important resource, potentially reducing the urban heat island affect for example.

The extent of the countryside and working landscape that will be retained by the scheme is a strength of the proposal and would benefit from assurances about its governance. Communicate this with the local community to help them understand the aims of the eco-town.

Develop the carbon and ecological footprinting further. The eco-town needs to be based around one planet living, that is, a two-thirds reduction in ecological footprint and a carbon footprint reduction from 12 tonnes to two tonnes. Reduce the proposal's target for space heating in line with the Passivhaus standard of 15 kWh/m2/yr. Assess the scheme's approach to Combined Heat and Power, aiming not to waste the heat created. Also develop the approach to recycling and energy from waste.

While the co-op is in a good position to deliver commitment to the project, the responsibility for the long-term governance of the town is still unclear. Develop the idea of a body which will ensure some housing stock is permanently affordable as part of a Community Trust. Explore further the possibilities for creating innovative types of tenure and the potential for land to be released for self-build plots.

For further information on the scheme proposal see:
http://www.ecotownforleicestershire.coop/default.html

Middle Quinton

"The proposal presents an attractive vision. It sounds like Middle Quinton would be a great place to live."

The team's commitment and enthusiasm to create an eco-town at Middle Quinton is impressive. The proposal has developed in the short time between the two panel sessions; however there are still some potential inconsistencies in the bid's transport and waste strategies.

The proposal should consider who will live in Middle Quinton and develop a place-making approach and a strategy for creating employment. This will be important in reducing the environmental impact of transport and creating a viable community, which the team acknowledges is important. Pursue a frequent rail connection to Stratford and examine a network rather than corridor approach to transport that allows an eco-town at Middle Quinton to transform its wider area. The rail/guided bus station may need to be located more centrally to the development, for a comparator example look at the Australian Ped Shed approach. There still seems to be a presumption that households will own cars, and that the revenue generated will contribute to the long-term funding of public transport. Use risk analysis to expose the potential conflicts of relying on car revenue for this long-term funding.

The modern interpretation of a Cotswold market town, with building heights of two or three storeys, at most four, while maintaining average densities of 48 homes per hectare is welcome. Such densities are necessary if the project is to achieve an eco-town's sustainability objectives. The design of the car-free areas within the masterplan will be key to increasing their desirability to a broader social group than only to those who cannot afford a car, and will help to prevent social polarisation. The proposal to include land to be released for self-build options to promote distinctiveness and diversity is welcomed.

Analyse the risk of a potential conflict between the proposed SkyGas facility and recycling initiatives. Set targets for the ambitious recycling strategy and determine how these will be achieved without undermining the commercial viability of the gas facility. If the SkyGas plant is dependent on importing waste from the wider area show how this is sustainable.

Consider an eco-town resident's total carbon emissions using a bottom up approach. Assume residents will need to reduce their carbon footprint from the national average of 12 tonnes to two tonnes per person per year and consider what that will mean for the proposal. Develop and explain the detail of the zero carbon strategy for the buildings including energy supply. What percentage of CO_2 will be allocated to buildings? What will this mean in terms of square metres per person of living space? Develop the use of the SPeAR diagram as a quantitative as well as qualitative tool.

The creation of the Community Interest Company with a design panel and representation of teenagers is encouraging. Develop this further to include the ownership of the vision for the town. It is promising that the bidder has begun community engagement, however, there is a need to address the concerns of the existing community. How can the proposal allay their fears?

For further information on the scheme proposal see:
http://www.middlequintonecotown.co.uk/

North East Elsenham

"Congratulations on your progress."

"Very interesting proposal which showed good progress from the first session, with the bid heading towards what we are looking for."

The target of 50 per cent of the economically active population to be employed on site is welcomed. The ways of working described in the 'day in the life' represent a culture shift away from current patterns. The proposal should address how the eco-town will attract the type of person described, in addition to the existing community. Develop the scheme's ideas to make the necessary changes in lifestyle attractive to both groups.

The proximity of the M11 may mean becoming zero carbon will be difficult for the town. Even if longer commutes make up only 10 per cent of journeys out of the town they can significantly increase carbon emissions, therefore economic development, road management and restrictions will be important elements of the scheme. Develop a network rather than a corridor approach to transport and examine the duration and frequency of the biofuel powered bus service, especially the impact of the proposed reductions of service after 8pm.

Show the data for carbon emissions per capita alongside the ecological footprint and explain how these are allocated across different energy uses in the town. Develop the parameters for the site-specific approach to public buildings. Expand the work begun on the impact of development on the site, setting targets for the amount of embodied energy used in the construction of the development.

Detail how the 47 hectares of land for food production included in the masterplan will contribute to the sustainable aims of an eco-town through connecting to local food distribution systems. Explain how the bid will encourage high levels of recycling and explore opportunities for the generation of energy from waste.

Developing both the roles of the Community Co-operative and the town masterplanners/ architects gives the potential for an exemplary model. Integrate rather than segregate the ownership of the vision among these two groups.

For further information on the scheme proposal see:
http://www.elsenham-info.co.uk/

St. Austell (China Clay)

"Great potential to be transformational but need a travel plan for the whole community."

"Great on re-cycled materials but need clear targets for waste and recycling and say how you will reach them."

"Love your energy vision."

"The participation of the Eden Project is very welcome but the development of firm proposals is now behind the game in terms of clarity, particularly regarding the transport strategy."

The proposal provides an opportunity to develop sustainable tourism in Cornwall, which will have an impact on those living in the eco-town, St. Austell and the wider area. Look to the work undertaken on sustainable tourism in the Alps for an example.

A sustainable transport strategy will be difficult in this location but this is part of the challenge in Cornwall; begin by developing a travel plan for the whole community. Explore the bus and rail options afforded by the private routes in Imerys control and test the assumption that 'dial-a-bus' and electric cars will meet the mainstream demand for the development. It will be difficult to reduce the community's reliance on cars if there is a wide availability of parking space in the town centres.

Although at an early stage of development, the vision for the renewable energy supply locally is impressive. The idea of generating surplus energy to power vehicles and to use electric vehicles for the mass storage of power is an interesting approach, provided it does not become a substitute for enabling walkable communities with local facilities. Assess whether the string of smaller settlements will have the critical mass to allow the residents access to sufficient services, as this arrangement potentially places even more importance on a sustainable transport strategy.

Commit to carbon targets and state what elements will be included in those targets. Consider how to balance a resident's carbon footprint assuming that each resident's CO_2 emissions per year need to be reduced from the UK average of 12 tonnes to two tonnes. The proposed masterplan may mean the composition of their carbon footprint may differ from the national average as transport could make up a larger percentage than buildings.

The Panel welcomes the new partnership with the Eden Project and the vision presented but would encourage the team to set down clearer standards and markers for the proposal. Give further thought to the suggestion that the development might include a sustainable construction training facility, drawing on the experience and expertise of

Imerys outside the UK. Focus on the demand side of the energy equation, examining how demand will be managed. Set targets for building performance and detail how this will be monitored during and post construction.

How will the development reduce the environmental impact of construction? Consider how to encourage residents to achieve high rates of recycling. Developing roof tiles from clay waste is interesting, use this strategy as a means to consider what Imerys can do regarding sustainability more widely.

The model proposed for engaging the community suggests they are informed and engaged but do not have a leading role in the development. Develop an innovative model, which makes more of the existing community support.

For further information on the scheme proposal see:
http://www.claycountryvision.imerys.com/

Annex A

List of Panel Members who attended the Challenge Panel

John Walker (Chair) – Former Chief Executive, British Urban Regeneration Association. Expert in delivery of large mixed use development (attended session 1 on 19/20 May and 3 June; and session 2 on 7/11/15 June)

Dr Liz Goodwin – Chief Executive, Waste and Resource Action Programme (WRAP). Expert in use of natural resources and recycling (attended session 1 on 19 May; and session 2 on7/11 June)

Stephen Hale – Director, Green Alliance. Environment expert (attended session 1 on 20 May; and session 2 on 15 June)

Sir Peter Hall – President, Town and Country Planning Association. Expert in urban issues, housing and planning (attended session 1 on 19/20 May; and session 2 on 11/15 June)

Wayne Hemingway – Founder, Red or Dead. Expert in design and social issues (attended session 1 on 19 May and 3 June)

Stephen Joseph – Executive Director, Campaign for Better Transport. Transport expert (attended session 1 on 19/20 May and 3 June; and session 2 on 7/15 June)

Nick Mabey – Chief Executive, E3G. Expert in energy issues and economic development (attended session 1 on 19 May)

Kris Murrin – TV presenter, expert in sustainable transport and children's issues (Attended session 1 on 19 May and 3 June; and session 2 on 11 June)

Sunand Prasad – Royal Institute of British Architects President. Expert in design and architecture (attended session 1 on 20 May; and session 2 on 11 June)

Liz Reason – Director, Reasons to Be Cheerful consultancy. Expert in innovative approaches to energy issues and climate change (attended session 1 on 19/20 May and 3 June; and session 2 on 7/15 June)

Sue Riddlestone – Director and co-founder, BioRegional Development Group. Expert in sustainability and sustainable development (attended session 1 on 19/20 May and 3 June; and session 2 on 7/11/15 June)

Joanna Yarrow – TV presenter, green-lifestyle specialist and founder of sustainability company Beyond Green (attended session 1 on 19/20 May; unable to attend session 2 due to illness)

Richard Simmons – Expert in architecture and the built environment (attended session 1 on 20 May; and session 2 on 15 June)

Lynda Addison – Managing Director of Addison & Associates. Transport and planning expert (attended session 1 on 3 June; and session 2 on 7/11 June)

Barry Munday – Architect with experience of new town development and regeneration. An advocate of best practice, good housing design and new methods of construction (attended session 1 on 3 June; and session 2 on 7/15 June)

Communities and Local Government and the Panel would like to thank **Claire McKeown** of CABE for helping with the preparation the Panel's notes and recommendations and **Daniel Smith** of the Department for providing administrative support.

Annex B

Promoters' submissions to the Panel

For session 2, the Panel asked every promoter to respond to the following, as published in the Panel's 'general comments' from session 1. See "Notes and recommendations from session 1 of eco-town Challenge".

- **Describe a 'day or week in the life' of a household living in the eco-town in 2020**. Consider who will live there and what the town will provide for different ages and interests, including those of teenagers. In doing this show how commercial and domestic residents and other users of the eco-towns will be able to reduce their carbon and ecological footprints. Illustrate the indicative carbon and ecological footprint of a resident of the town and principal components of their carbon emissions and ecological footprint.
- **Confirm who will own the vision for the eco-town throughout its design and development and the mechanisms available to control development, monitor, maintain and improve standards**. How would you ensure that the procurement of development in the eco-town encourages high design quality, from the production of the brief right through the development process? How would you protect quality over the long-term from degradation through expediency, changes in ownership and 'value engineering' and ensure that the whole-life value of the development is recognised and achieved? How will community involvement be secured and how will the community be empowered in the processes described above?

Promoters were also asked to submit a two-page summary covering their responses to these issues. The submissions are set out below.

1. Martson Vale

A Day in the Life of the Marston Vale eco-town

It's 2021 and the Marston Vale eco-town is nearing completion. This radical experiment in sustainable development has helped to change the face of new development in the UK, creating beautiful, successful, thriving new communities. Working in partnership with local stakeholders, O & H Properties, an extensive landowner in the Marston Vale, has created an inclusive and self-sustaining new community between Brogborough Hill and the southern outskirts of Bedford.

The settlement embraces an ethos of sustainable living to help address some of the most significant environmental, social and economic challenges facing us today. Water, energy and waste were selected as the three original exemplars of the scheme and today living in the Marston Vale presents the opportunity for a new lifestyle approach achieving the highest possible standards of sustainability through the built form of the new development, landscape, energy supply and usage, and in its social fabric and infrastructure.

The completed development provides around 15,400 dwellings, a town centre, long term employment opportunities, schools, healthcare and community facilities.

A typical visitor, on a tour around the Marston Vale, might expect to see the following:

- A rich tapestry of wooded hillsides and a network of waterways that meander across the valley floor; beautiful lakes and large areas of woodland that create a series of blue and green spaces; a patchwork of productive land uses including agriculture, biomass and local food production, commercial forestry and small orchards
- A bustling town centre created around a series of canals, a car-free environment with cars parked on the edge and good access to the train station nearby; civic and community uses in the main square, busy streets that feel safe, buildings and trees that provide shade on the long, hot sunny days that have come with climate change
- Local shops selling locally produced goods, markets selling locally grown fruit and vegetables, 'slow food' restaurants and cafes; facilities to cater for most day-to-day needs and a bit more
- New homes, built at a variety of densities, of different types and mix, with performance standards that far exceed those applied at the start of the development; excellent cycle paths and footpath networks; children free to play outside, good sports and recreation facilities; places to live that reflect the character of the area in which they are located
- The Marston Vale as a centre for innovation in the construction and automotive industries, utilising the natural resources of the Vale and building on existing centres of excellence; manufacturing building components using Modern Methods of Construction and pioneering new technologies for personal transport
- The Energy Park that grew up around the Energy from Waste plant but now has a state-of-the art business park showcasing the latest environmental technologies; power that is used to heat and cool some of the local homes and businesses; a demonstration centre to explain how everything works from the wind turbines on the ridge to the water saving devices used in new buildings
- A new transportation hub based around the new station, with good access to pedestrian, canal and cycle networks, and to the Bus Rapid Transit; workspaces in a variety of formats to encourage local entrepreneurship and home working

- New schools at the heart of the community, providing facilities for lifelong learning, youth and adult education; academic and vocational training; buildings open all year round; mixed media library and a gallery supporting culture and the arts; cultivating excellent relationships with local educational institutes
- Excellent opportunities for sport and recreation, nature conservation and green space; sports facilities shared with community groups and local teams.

Delivering the Vision

The vision for the eco-town will be 'owned' by the Marston Vale Development Company (MVDC), a free-standing property development company established by O & H Properties as part of the O & H Group. The company will be run by a Board of Directors, the composition of which will be established at the outset of the development. The delivery of the Vision and the resulting planning permission will be the responsibility of the Board.

MVDC will perform the role of 'town developer' putting in place a dedicated team whose purpose is to deliver the agreed master plan. MVDC will provide essential infrastructure in accordance with the section 106 agreement, and will create the civic and other public spaces. Serviced parcels of land will be sold to specialist contractors (housebuilders, office/retail/mixed use developers, etc.) in accordance with development agreements. The quality of the development will be controlled through the use of development briefs, design guides, design codes, etc. all of which will be agreed in accordance with the local planning authority. There will be a particular emphasis on the quality of the public realm. MVDC will create an advisory panel comprising both experts and local people to comment upon compliance with the original concept; the panel will report to the Board of MVDC.

As the development proceeds there will be transfer of assets from MVDC to a variety of stakeholders (eg individual purchasers, investors, community trusts, etc) and a transfer of responsibilities for management and maintenance. The intention is that at the end of the development 100 per cent of the assets will be privately or community owned and appropriate arrangements will be put in place for local Trusts, service suppliers, etc to assume control.

2. Hanley Grange

The Vision

Hanley Grange is designed to rethink the way we live. While an eco-town will contain a range of transport and other technical initiatives, it will fail unless the future residents change their behaviour patterns. It is the Town Trust which has a pivotal role in leading, facilitating and educating to achieve these changes.

Since Hanley Grange will be a unique place in the Cambridge sub region, it will widen market choice and will be a most attractive development on which to live. Hanley Grange will facilitate low carbon living for all.

The Town Trust

This will be an independent body elected by residents. It is effectively the 'glue' which holds the eco-town ideals and binds the community together. It will be endowed with both a dowry by the developers and land assets. As such, it will be self funding and its profits can be re-invested in the community. The Town Trust or a subsidiary will be Hanley Grange RSL controlling a proportion of the on site affordable housing. RSL status will allow the Trust to control the nominations policies and institute innovative tenures. The nominations policy would give priority to on site employees, employees in the surrounding high tech cluster and residents from local villages. New forms of tenure could include the ability to progress from rented accommodation to shared equity within the same house.

The Town Trust will also act as travel coordinator, run a 'reward card' system to encourage behavioural change, manage open space and allotments, run the nursery and may also be part owner of the Hanley Grange ESCO.

Employment

Over the last 15 years the high technology cluster around Hanley Grange (Genome Centre, Babraham Hall, Granta Park and Chesterford Park) has grown significantly with little commensurate increase in local housing. The cluster also has significant unimplemented employment commitments.

If these are taken up with no additional local housing, the international success story of the South Cambridge high-tech cluster will become increasingly unsustainable. Hanley Grange is designed to intervene in this process and provide high quality low carbon homes close to the cluster for both existing workers and workers coming to jobs in the cluster. It is assumed that 20 per cent of all workers at Hanley Grange will be employed in the local cluster.

Hanley Grange will also provide three types of on site employment. These are: jobs in services (retail, window cleaners, postmen etc.), B1 office type jobs in the centre and B1 jobs in the 12.5h employment zone. In view of the cachet of being based on an eco-town, this area will be attractive to the growing number of companies involved in 'eco business'. In total, these jobs will provide on site employment for around 30 per cent of the workers in Hanley Grange.

Approximately 25 per cent of workers will work in the Cambridge urban area with quick public transport links via buses and trains. It is also likely that between 5 per cent and 10 per cent of workers would work in London. However, with the excellent bus links to the station most of these trips will not be by car. The remainder of the workers will inevitably have a more dispersed pattern of employment, however persons proposing to use the car are unlikely to be attracted to the eco-town ethos of Hanley Grange.

Transport

Since it is neither practical nor realistic to expect everyone to live and work at Hanley Grange, it is necessary to have excellent public transport in place on day one so that the bus or train is the logical mode of choice for the majority of residents. For those wishing to use the train, a segregated fast bus route can be provided to Whittlesford Station. Journey times to Cambridge Station are then a maximum of 9 minutes. Investment is already proposed by Network Rail to lengthening trains to 12 coaches. A separate road running bus rapid transport service with limited stops would run via Great Shelford (with bus priority measures) to connect with the Cambridge Guided Bus termini at Trumpington and Addenbrookes. This would use the same vehicles as the guided bus so it would be possible to travel from Hanley Grange to Huntingdon without changing buses. A range of other measures (design, charging and incentives) will be put in place to limit car based internal trips to 10 per cent of the total and external peak hour car trips to 40 per cent of the total. The Town Trust will again have a key role in encouraging modal shift as part of the Hanley Grange life style choice.

Energy/Carbon

All homes will achieve at least level 6 of the Code for Sustainable Homes. In addition, the low carbon ethos will permeate to all aspects of Hanley Grange including waste recycling and treatment, local food production, water treatment, transport and the use of renewable energy sources.

Water

The promoters of Hanley Grange accept the challenge of developing an eco-town in one of the driest parts of the UK. Cambridge Water has confirmed that it can adequately serve the development but the design focuses on limiting the use of this potable supply through low-consumption building design standards and extensive recycling, treating all effluent on site to very high standards. Consequently, the town has the potential to use less water than the rainfall it receives in an average year and by using treated water to recharge the acquifer, can contribute to achieving water neutrality in the region. The use of waste from the treatment plant to create energy via anaerobic digestion further enhances the recycling credentials of the site.

Conclusion

Hanley Grange is not a town of 'eco warriors', it will be a place with an ethos which is attractive to the growing number of people who wish to live a more environmentally responsible lifestyle.

3. Rossington

Outline of Revised Proposals

Following extensive discussions with DCLG and DMBC, along with stakeholder, community and eco-town Challenge Panel feedback, the Rossington eco-town proposals have been revised to take account of the areas of greatest concern. The following key points form a summary of the revised eco-town Proposals and are intended to inform the activities of the eco-town team and more detailed community engagement going forwards over the next few months.

Key Characteristics of New Proposals

- The Rossington eco-town will now be set in the context of a Doncaster Eco-borough that will include multiple environmental initiatives and communities developed around a strong, borough-wide sustainability and environmental agenda
- The Rossington eco-town is being designed to deliver a target of 5000 new homes in a range of sizes and tenures with a significant emphasis placed on meeting the affordable housing needs and providing greater choice for the community
- No homes will be built in the greenbelt or Flood Zone 3
- All new homes, shops and commercial development will be constructed on the former colliery and/or previously developed land
- The majority of the land is in the ownership of UK COAL with the residual forming part of the Bankwood Estate. 4.9ha (12 acres) of the existing employment area within Bankwood Estate will be retained and in addition the total employment opportunities in Rossington will be increased through the eco-town proposals
- A range of sports, recreation and leisure opportunities and activities targeted at children and young people.

Development Mix: Homes and Employment

The Rossington eco-town will be a genuinely mixed use development and has been designed to include:

- A target of 5000 homes on previously developed land including a regenerated Bankwood Estate (an underutilised brown field site of low density employment to the north of Rossington that borders onto the former colliery site)
- Two new neighbourhood centres each with local shops, medical centre, primary school and community facilities within walking distance of every new home

- A net increase of up to 2,300 new jobs within new, dedicated employment floor space.
- Additional employment opportunities within the proposed new schools, retail units, medical centres and services infrastructure, plus a diverse range of new construction related jobs.

Skills and Training Opportunities

It is recognised that the new and emerging construction standards required to deliver an Ecotown will create an opportunity to re-skill parts of the existing, local workforce. This re-skilling will facilitate the delivery of the required standard of new housing, designed and built to the higher levels of the Code for Sustainable Homes, as well as commercial development built to the latest BREEAM standards. Dialogue has begun with organisations and agencies that can help deliver both the necessary training as well as assist in the establishment of new, on site manufacturing facilities utilising Modern Methods of Construction (MMC).

A Regeneration Strategy

A regeneration strategy for Rossington is being prepared that will develop a partnership approach with public sector agencies to deliver the following benefits:

- Act as a regeneration catalyst to raise the level of ambition and aspiration within the existing community
- Facilitate the diversification and strengthening of the local economic base
- Create social, health and community enhancements including a revitalised town centre and market
- Create enhanced local education provision including opportunities for new, extended and upgraded facilities
- Increase local housing choice, mix and tenure
- Remove an existing blight – ie the former colliery
- Create enhanced linkage and connectivity within and beyond the existing settlement
- Deliver environmental and green space improvements including increased availability, access and quality
- Provide sporting and wellbeing enhancements.

A New Public Park

The land to the south of the tip that is owned by UK COAL will be remodelled using some of the existing colliery spoil to form a new public park that integrates and is continuous with the Holmescarr Wood. This public park would include water features, sports facilities and recreation areas including cycle, bridle and walking connections to the west and to the St Leger Horse Park to the east. It also provides one of a number of potential locations for renewable energy generation subject to the outcome of more detailed, ongoing technical investigations.

Transport Strategy

A transport strategy is currently being prepared that includes:

- A new northern gateway to the site in the form of a quality bus corridor with frequent direct bus service from the Rossington via White Rose Way
- The quality bus corridor will provide access to junction 3 of the M18 Motorway and White Rose Way (which leads directly into Doncaster Town Centre) with peak time restriction of access to the strategic road network for private car users
- Investigations into the opportunities and implications of opening a new rail station with direct and frequent services into Doncaster (the timescale and feasibility of delivery will be subject to support from Network Rail, network capacity issues, rail operators and third party landowners)
- A general vehicle design speed within the Ecotown of around 10mph with every home no more than 400m from a bus stop and local services
- All houses adjacent to a cycle route and pedestrian oriented environment with accessible cycle storage.

An Energy Strategy

An energy strategy is being prepared that includes:

- A mix of sustainable on-site power generation sources
- The majority of buildings and houses oriented to maximise passive gain
- The vast majority of domestic gardens to be south or south-west facing
- Houses capable of accommodating existing, new and emerging renewable energy technologies.

An Environmental Strategy

A wider environmental strategy is being prepared and integrated with the wider masterplan that includes:

- A network of green spaces with ecologically connected green corridors and linkages to the Holmescarr Wood SSI, Potteric Carr SSSI, River Torne and the proposed new country park to the south
- A network and hierarchy of water corridors, designed to work alongside the green corridors and including a range of features to manage surface water run-off, act as focal points for community activity, create opportunities for new wildlife habitats and minimise the risk of flooding within the development, existing communities and in the wider borough.

4. Ford

Government Challenge Panel

This note summarises the second presentation made by the Ford Airfield Vision Group (FAVG) to the Eco-town Challenge Panel. At its first presentation, FAVG outlined its vision for the Ford Airfield site and indicated the nature of the work that was underway to prepare the various strategies for transport, energy, waste, the water cycle, and design. For this second appearance, the Challenge Panel requested that the presentation focus on the ownership of the vision, securing the quality of the design, and a typical day in the life of a resident family.

Vision

The proposals of FAVG for an eco-town at Ford, present a unique opportunity to deliver an exemplar development in the fields of energy, waste and water. The proposals are for a new settlement of 5,000 dwellings, of which 40 per cent will be affordable homes, together with around 4,000 new jobs, community infrastructure (including shops, a health centre, primary schools, and a multi-use education campus at the heart of the community, incorporating secondary, sixth form and adult education and community sports and arts facilities). The vision is currently owned by the FAVG, a consortium of concerned landowners, Wates Developments, and Redrow Homes, supported by a strong consultant team centred on Barton Willmore, Planners, Architects, Urban Designers and Landscape Architects, and WSP, consulting engineers. The aim is to transfer this vision through the course of the development from FAVG to the Ford Airfield Community Development Trust (see below), so that the vision becomes one held by the community itself both in the middle and later stages of the development and its future management.

FAVG is working in partnership with the Ford Enterprise Hub, co-promoters of the eco-town at Ford Airfield, with FEH effectively providing FAVG with its own 'challenge panel' of interested and concerned local people.

Consultation

In the time since the first appearance at the Challenge Panel, FAVG has invested significant energy in consultation and engagement with the local community. FAVG took an active part in the Arun District Council Select Committee process, informing the Council and communities of the vision; hosted a web-site which had attracted over 300,000 'hits'; met with many Town and Parish Councils in the area; and held an exhibition of the proposals in Bognor Regis, Littlehampton and on the site itself. Over 500 people visited the exhibition in three days. Of those who responded to the questionnaire or by email, 48 per cent indicated considered the eco-town to be a good idea (albeit a number had concerns to be addressed) and 38 per cent felt it was a bad idea. The majority felt more new homes and particularly affordable homes, were needed in Arun District.

Community Development Trust

A Community Development Trust will be sponsored by FAVG, with seats on the Trust for the District and County Councils and local parish councils. FAVG would initially sit on the Trust but progressively concede its seats to representatives of the town's residents as the population grows, with the residents having the majority of the seats and therefore control.

The Trust would be vested with all communal assets, including the open spaces, community buildings, employment buildings, land for affordable and self-build housing, and the infrastructure of the shuttle bus service. Income would be derived from rents and ground rents of the employment space, sale of land for affordable housing (with the discount returning to the community for on-going investment in the town), service charges on homes, and a share of the energy-generation network, providing long-term security of income. The Trust would be charged with sharing and extending investment and infrastructure into the neighbouring villages as resources permitted.

Securing quality

The presentation described the intended process of turning the vision into reality through a combination of regulation/control and management/engagement. A diagrammatic path was shown, passing the vision from FAVG to the Community Development Trust. Regulation encompasses planning measures of the production of the Design and Access Statement and a related statement of the environmental vision setting out the objectives (in the form of measurable outcomes), leading to overall strategic and area master plans, in turn required and secured by planning conditions and Planning Obligation Agreements. The 'management/engagement' process would influence design quality through active engagement of the Trust from the early stages (and of the existing communities throughout the design evolution); through design conferences; through involvement of bodies such as the South East Design Panel; and through the involvement of Ford Enterprise Hub. Key buildings and spaces will be the subject of individual design briefs with design competitions for focal buildings.

Day in the Life

A typical day was presented through the eyes of the teenage son of an extended family, all of whom had moved to the eco-town. The son was seen from breakfast time, through his journey to school, lunchtime social activities, after-school activities with grandparents and friends, and evening activities of sport, attending a concert at the arts 'hub' on the education campus, and walking his girlfriend back to her home in nearby Yapton.

Key activities and messages included:

i. recycling the breakfast cereal carton in the in-kitchen sorting facility; observing the low energy costs of this 'Code 6' home; and programming the Smart Meter to set sun-shading for the predicted weather conditions, while noting times of bus services on the meter;

ii. walking to school along safe routes, while observing school pupils and workers at the railway station arriving to walk or cycle or catch the shuttle bus at the transport inter-change;

iii. observing his father cycling home for lunch from his business premises close to the heart of the town, with the business engaged in recycling materials;

iv. meeting friends over lunch at a skate-park, a facility requested and designed by the first teenagers to move into the town. Whilst there, the son remembers to book the car from the car club for the weekend and does so over his mobile phone, accessing the information system that also serves the Smart Meter in the home;

v. meeting his grandfather after school to visit the multi-purpose market that has developed from Ford Airfield's existing Sunday market and then taking his wheel-chair bound grandmother from her nursing home along the level paths to see food production on one of the central allotment gardens, part of the network of greenspaces in the town;

vi. arriving home to see the communal spaces in his neighbourhood used for an outdoor, community meeting (to discuss design proposals for the next phase of the town), while the 'green street' space is used by his young sister for outdoor play in a car-free zone. On the way, the quality of the public realm is seen alongside the reintroduced canal and waterways that make up the sustainable drainage system;

vii. meeting his girlfriend in the sports facility in the education centre, going on to a local concert in the arts hub (which in addition to exhibition and performance space, provides rehearsal and studio facilities for local musicians and artists); and

viii. walking his girlfriend to her home along safe streets in the well-designed town, following the level ground and relatively short distance to Yapton.

Sustainable Infrastructure

Meanwhile, the infrastructure of the town delivers:

- reliable, secure energy supply through the reuse of the waste stream that cannot be recycled, anaerobic digestion of sewage sludge, and biomass units within the business and community buildings
- 'closed loop' waste treatment through the recycling of all household and business waste, diverting non-recyclable waste to the energy stream, and reducing to the absolute minimum that proportion of the waste stream that requires disposal by landfill
- centralised water supply recycling for domestic purposes but also for irrigation of the green spaces and for maintenance of the open-water drainage system, which contributes to the quality of the public realm and to urban cooling within the town

- safe, level and attractive paths and cycle routes throughout the town and into the neighbouring villages (and as far as Littlehampton)
- public transport services within the town and with connections by bus and rail to the surrounding communities and further afield, providing smarter transport choices which utilise the Smart Meter information portal at home and work.

5. Weston Otmoor

Eco-towns are the Government's response to three specific challenges; climate change, the need for more sustainable living and the need to increase housing supply. Eco-towns should be well designed, self-supporting, attractive places to live, with good services and facilities which connect well with larger towns or cities close by.

There are three absolutely fundamental issues:

Location – eco-towns have to be places where people want to live and where employers want to locate and where both "need" and "demand" for homes and jobs can be accommodated.

Transportation – the largest component of carbon generation which is able to be influenced is transport; be it for goods or people; so getting the transport right is essential.

Sustainable Development – the development needs to meet the highest possible standards in environmental, economic and social design and set new standards in delivering an integrated approach to sustainable development.

Why does Weston Otmoor fit these criteria?

Weston Otmoor is in the right place because:

1. It is an area where people want to live and where affordable homes are desperately needed. There is a very high demand for market housing and over 7,500 people on the waiting lists for affordable housing in Oxford City and Cherwell District Councils.
2. It is on the Oxford to Bicester railway line which is the only operational part of the much desired East West Rail Line planned to link Oxford to Milton Keynes. This will deliver sustainable connectivity.
3. It is large enough to accommodate sufficient employment land to provide up to 12,000 jobs meaning that most of the eco-towns residents will have the opportunity to live and work in the same town in the same way that many residents of most towns do throughout the country. The eco-town's location in the south east, close to Oxford, Bicester and the M40 also means it is in the right place to attract occupiers for the employment space.
4. It is located in an area already identified for growth within SEEDA's Central Oxfordshire Diamond for Investment and Growth and within the Oxford to Cambridge arc – a nationally recognised area for growth of knowledge based industries.
5. The team is committed to delivering an exemplary sustainable environmental design that integrates sustainable solutions for low energy; carbon management, biodiversity and ecology; landscape; site wide water and waste water management; sustainable materials and waste recycling.

How will these things be made to work?

The development of Weston Otmoor will deliver:

1. The East West Rail Line between Oxford and Milton Keynes.
2. A new railway station at Weston Otmoor.
3. A new railway station at the Pear Tree Park & Ride facility in north Oxford to allow an interchange with existing and new bus routes to destinations in east Oxford.
4. A chord line to link the East West Line to the Chiltern Line and facilitate direct services from Oxford and Weston Otmoor to London Marylebone.
5. A rebuilt junction 9 of the M40 will increase capacity to solve existing problems and provide sufficient space for the Weston Otmoor traffic.
6. A Fast, Free & Frequent tram system serving the entire eco-town with no home or place of work being more than about 300m walk from a tram stop.
7. A rail based Park & Ride facility to take traffic off the already congested A34 and to encourage people (who live outside the eco-town but travel through junction 9 into the city or employment areas of Oxford) to make a quicker journey by train.

This balanced mix of housing and employment land uses and combination of transport investment (provided from the outset) will deliver a viable and very sustainable alternative to private car-borne journeys. This will enable residents to change their transportation habits from the day they move in.

What will Weston Otmoor provide?

Weston Otmoor will be a sustainable community comprising:

1. Up to 15,000 homes.
2. Up to 12,000 jobs in the employment space.
3. Additional jobs in other buildings such as schools, shops etc.
4. 25 per cent green infrastructure including formal and informal parks, allotments, woodland and other habitats.
5. An appropriate provision of retail, leisure, business, health and other community facilities to provide for day-to-day needs without requiring people to travel into or out of the eco-town.
6. A long-term management regime which is designed for the eco-town's future needs where inspiration will be taken and lessons learned from the industrial philanthropists who created Bourneville, Port Sunlight, Saltaire and New Lanark and the early twentieth century new towns.

7. Innovative and state of the art energy, water and waste management solutions. Specifically Weston Otmoor will:

    - Deliver an integrated carbon and energy management strategy by adopting a hierarchical approach to management; demand reduction through energy efficient design, construction, management and encouraging and enabling sustainable behaviours; on-site energy production generating as much remaining energy demand from on or near site renewable sources.
    - Community MUSCO or ESCO which may include wind generation and CHP-linked to anaerobic digestion from sewage and controlled waste.
    - A community education and awareness programme.
    - An on-site carbon emissions reduction and trading scheme that will deliver zero carbon through construction and a carbon fund and carbon transfer credit scheme to be used to incentivise the community.
    - An integrated water management strategy in which water will be treated as a precious commodity with dual water supplies, on site sewage treatment, tertiary foul water management and SUD's storm water disposal that will recognise and encourage bio-diversity and ecology not only on site but also in conjunction and in harmonisation with the surrounding land.

8. An identifiable "place" with recognisable features and elements, routes and destinations. Iconic buildings will reflect their importance through design; including, the railway station and the Secondary Schools. A distinctive character will emerge through a pattern of development emanating from walking, cycling and tram journeys. The town will be admired and respected from without; it will be enjoyed and loved by those within.

6. Whitehill Bordon

The eco-town at Whitehill Bordon will become the largest town in East Hampshire District Council's area with a total population of about 30,000 by 2026. We plan to construct between 5,000 and 5,500 new homes. We also plan a mixed economy of up to 7,000 varied jobs as employers are attracted to the Eco-town status and ethos. We propose a new infrastructure, the best quality public transport and a new town centre.

Eco-vision

In 2005 a unanimous district council vote endorsed the Green Town Vision for Whitehill Bordon. This community-led vision for Whitehill Bordon will put the outstanding natural environment and landscape surrounding the town at the centre of the masterplan. The Green Town Vision means that new infrastructure, housing, employment, education and leisure opportunities will be developed to complement this unique area and develop a model sustainable community that is recognised locally, nationally and internationally.

Delivery structure

The mission the council has chosen to accept is to lead a project, working with a number of partners, to build a community that meets the needs of residents, businesses and visitors. The project is currently managed by a partnership between East Hampshire District Council, the MoD and Hampshire County Council, who are all contributing expertise and resources to the scheme. There is an executive group consisting of the three partners and augmented by SEEDA, English Partnerships, Natural England and the town council. Serving this executive are four policy advisory groups, covering community, business, town centre, environment, housing, leisure, infrastructure and the challenges of transition.

It is recognised that in procuring development we will need to transform the partnership into a development delivery vehicle. In order to function well the executive panel will require support and skill development so it can fulfil a strong briefing and supervisory role. In addition we have or plan to have:

- A visionary masterplan (We have appointed an excellent team)
- Make use of national and regional resources
- Ensure that the project is open to a range of developers, including innovative, local, self build and smaller organisations as well as the national and muti-national teams.
- Develop a strong Planning Framework. The town is recognised in the emerging RSS and has recently been recommended for designation as a Strategic Development Area. The project is also embedded in our LDF process.

We also want to benefit from the ECO brand that designation will provide.

Delivering quality – empowering the community

Quality in the project will be protected through political leadership and via the scrutiny of our community, local professional and advisory networks.

Communities are collections of individuals with a common bond but individual aspirations. We will develop a town where individuals are important and development is designed with people and nature in mind. Above all, as the politically accountable body, we are committed to being responsive to community needs and listening. Whitehill Bordon will be a 21st century eco-town – recognised as a model sustainable community built by the community for the community.

Eco-futures

A day in a life in 2020

An imagined letter from the future written by Cllr Ian Dowdle

Dear Mum,

This Eco-town is now a modern flagship town with heart, community and identity. Jobs created in the town have produced a closer-knit community, a vibrant business scene and a live/work society with a café culture that feels almost continental. We have created an outdoor feel by preserving a sustainable biodiversity, building a new leisure centre and now when you're in the town centre you have the feeling that you could step straight into the woodland.

There is now a local fresh food market, supplied by nearby farms (fewer food miles) which provides an even closer link with our immediate countryside and affordable, healthy food options. This countryside connection combined with our "Green Town Vision" delivered through an eco-town has changed the landscape. Now you can see allotments and vegetable gardens back in schools. Schools are doing farm trips again.

Schools are performing well. The children now have new opportunities and career paths since a successful skills centre and a new college were built. A trained/re-trained/up-skilled workforce is now supplying the demands from local employers in meaningful jobs.

The new "green energy technologies" have been a huge success. This is like the Industrial Revolution No. 2, with production, research and distribution established in the town which have brought increased local employment. (I am thankful these items are made in this country and not the Far East). The new business park is doing well as are the smaller business outlets in the town. We have good national stores, but a good selection of specialist shops and businesses too.

Everyone is out walking and cycling in the town. There is a slower pace of life, everyone stops to chat and there is more interaction between neighbours. The public transport system is clean, reliable and effective, and the new rapid rail link to the main line station has produced comments such as, "Why was this not done before?" It is a huge success. Cars are still here, but people only use them when they need to. Oil prices have gone up again; thank goodness we made the right decision.

Teenagers still get their adrenalin fix at the skate park but "hang-out" in a more sociable way. The café culture is more inclusive than the old pub culture. Today's kids are "cool", there is no binge drinking! There are no real problems of antisocial behaviour. Kids have a clear career direction and the new social groupings seem less about age and more about shared interests.

My friend Seb is doing well. He was 25 when this all started. At that time he commuted two hours in a car each day to work. That was 10 hours a week or three months spent in a car getting to work a year. I can remember we worked out that it was costing him £5,500 to get to work in 2008! Now his new job is here; he always wanted to work locally. His son David has come on leaps and bounds; he was having trouble at first. Seb, who is now 37, puts it down to the extra time he and his wife were able to spend with their son when they stopped commuting. David is 14 now and he will do well in his GCSEs and will go to college. That would not have happened before.

Would I like to be a 16-year-old again? Well, I would have said 20 years ago that I wouldn't, but now maybe! Never mind. Every time I get on my bike I feel 16 again.

Your loving son
Ian

7. Pennbury

A new way of living

The eco-town for Leicestershire will be more than just a place to live – it will offer a way of living that is radically different from the way that many people live today – modern and environmentally sustainable. The technical solutions and expertise are already available – The Co-operative Group's role is to bring them together to create an exciting and resilient vision.

The governance structures that we put in place will be flexible to the changing needs of the community. Our approach will be based on co-operative values and principles and will guarantee everyone's right to be informed, consulted and heard on decisions that affect their lives.

All residents will be automatically entitled to join the eco-town Community Company which will evolve out of the initial Design and Development Advisory Panel (DDAP) as the town's population increases.

The governance structures for the eco-town will account for the range of needs and differing levels of engagement desired by those living in the community. Bodies such as the DDAP will enable those who wish to be actively involved in the development of the town and community to do so, whereas if people choose not to participate on a regular basis they will still be able to easily access information to keep them up to date and included.

Ease of interaction and provision of information is therefore key to enabling the community governance model to work effectively and to encourage more of the community to participate actively. Flexibility is also critical to ensure that changing needs are captured that residents can interact more or less depending on their current circumstances.

We have developed the concept of a 'Community Window' to provide the principle method for people to engage in community life. Using high-speed broadband – a screen in every home will be connected to the community governance portal. This will promote the use of opinion surveys, voting and interest forums. The portal will also provide real time data, information and advice in on such things as energy use and the availability of public transport. We expect this technology to evolve over time to provide the capability for in-home services such as health assessment and monitoring.

We are also exploring options for a variable service charge in the community to encourage sustainable transport behaviour and to incentivise people to deliver community activities and services such as local food production or running local interest groups.

Our 'Community Window' is a practical and innovative way of enabling communities of interest to come together, information to be provided and participation in decision making to be encouraged.

Protecting the vision

We are working with all the Leicestershire local authorities to develop a methodology to ensure that our vision for the town is protected and to safeguard a high quality of design throughout – from the production of the brief through to development.

As master developer, the Co-operative will jointly own the vision for the community with the DDAP and we will be responsible for delivering the vision and driving the standards. We will set out the parameters for delivery in agreement with the DDAP and will bring each phase forward in line with the overall master development plans.

Membership of the DDAP will comprise The Co-operative Group, the town management body, recognised experts, local authority representatives and residents of the town. The DDAP will be responsible for developing technical specifications, detailed briefs and tender documents for each element of the master-plan. The DDAP will adapt specifications to meet the changing needs of the community and also to reflect feedback from each completed phase of the development. The DDAP will also be responsible for measuring performance against agreed indicators to assess how well the town functions in the areas of ecology, transport, housing and community, environment, health and well being, education and skills, employment and vitality and climate change.

To imagine how this will work in practice, consider the lives of the Jones family in 2030 – Mike (50); his wife Helen (48) and their children Anthony (19) and Laura (15).

A day in the life of the Jones family

Mike was one of the first residents and got involved in the Design and Development Advisory Panel at the outset. He played an important role in the design of the town and the development of the community. Mike was also one of many entrepreneurs attracted to the town and he received start up support from the town partnership and the Co-operative Group to set up a consultancy specialising in community empowerment initiatives.

Helen works in Leicester and moved to the area from London before meeting Mike and having children. A self-confessed shopaholic and avid theatregoer, Helen loves how easy it is to travel to Leicester City on public transport.

Before they moved to the town, Mike and Helen had two cars. Living in the eco-town, they need only one car and can foresee the day when they will rely solely on the car share club.

Instead of the sixth form Anthony undertook an apprenticeship as part of the academy programme linking the town businesses with the school. Anthony is now a trainee at Stretton Homes where he is learning to design high thermal insulation modular houses. These are delivered around the UK using the rail freight link at Great Glen. Stretton Homes was one of the first companies to take advantage of the business incentive scheme, which stimulated economic growth and job creation in the early days.

Laura sits on the Town Youth Panel and, since voting on community issues is open to all ages, has been active in local politics from the age of 10. She is also on the Welcoming Committee and meets teenagers from families new to the community to help them settle in. Laura loves keep fit and horse riding and spends much of her time in the Great Park. The 'Community Window' helps the Jones family organise and co-ordinate their busy lives. They have set their own 'favourites' page to display bus times and car share availability and to receive news downloads and updates from the community diary to find out what is going on in the town. They also use it to find out what local seasonal produce is available from the Town Farm.

Farming is a key element of this eco town and an increasing amount of the food consumed by the Jones family comes either from the community farm, the Co-operative's commercial farm or the other farm businesses on the land.

Mike and Helen love living in the eco-town. They feel an important part of the community and are proud to have played a part in helping to create it.

Delivering the vision

All eco-towns should achieve excellence in sustainable construction, environmental strategies, energy efficiency and generation and transport solutions. Here are just a few of the elements of our proposals that set us apart:

- Our experience in delivering engaged communities.
- The opportunity to support the wider regeneration of the Leicester city region.
- Our ability to deliver community farming and local food production.
- Our proposal to deliver a Great Park for Leicestershire as an integral part of our proposal.
- Our commitment to the land – we have owned and farmed here for almost 100 years and we are committed to retaining an ongoing role in the site's future.

8. Middle Quinton

Describe a day or week in the life of a household living in the eco-town in 2020.
It is envisaged that the eco-town will be accessible to all. There may be some groups who have a greater preference for living in an eco-town, these may include: people who have an 'environmental conscience' who are keen to live more sustainably, families who will benefit from having resources on their doorstep, and people that wish to influence how their community is managed. Middle Quinton residents will reduce their ecological and carbon footprints, and the demographics and interests of the potential residents will provide a firm foundation for enabling more sustainable living across the town. Footprints are currently being estimated for Middle Quinton based on the proposals. The design and operation of the master plan will help to reduce the ecological and carbon footprints of residents within the site. However, this influence is predominantly limited to: energy; transport; food and services.

A behaviour change framework that complements the master plan can potentially reduce the ecological footprint of residents further. This should help to catalyse residents to make more sustainable lifestyle choices by enabling, engaging, and encouraging the community and providing strong examples. This can influence the 8 key components of a carbon and ecological footprint:

- Housing (eg reducing energy demand; zero carbon energy supply options; A rated energy appliances)
- Transport (eg reducing the need to travel and discouraging private fossil fuel vehicles)
- Holidays (eg holidays within the UK and recreation features onsite)
- Food (eg locally sourced organic food; farmers markets and allotments)
- Consumables
- Durables
- Services
- Energy (eg renewable and low carbon sources; energy monitoring)

The 'Day in the Life of' scenarios enable lifestyle choices to be considered within the context of the master plan. Here are two examples that we are using in relation to potential residents:

For the following scenario walking is 'encouraged' by the layout of the master plan over the use of fossil fuel transport, and residents are 'enabled' to purchase locally produced food:

> **'It's 7.30am and Richard starts his day with a quick stroll to the corner shop to pick up his daily newspaper. It's a nice walk down pedestrian friendly streets over wet ditches and under trees. At the shop, the owner Samuel has already put on display his colourful array of locally produced fruit, Richard picks up two apples for his daughter.'**

In the next scenario, the building design is energy efficient, the local microclimate influences internal building temperatures and renewable energy is used. Water consumption is reduced by rainwater harvesting. The technology is exemplified to the children.

> **'Elsa thinks her new school is cool because it's a funny shape. Apparently that's because it's easier for the sun to keep it warm and the walls are well insulated too. There's also grass on the roof and trees shading the lower classrooms to help keep them cool in summer. Solar panels on the roof help to make electricity. Sometimes they learn about energy in science lessons, and they go and explore the technology around the school. Elsa's favourite is the rainwater harvesting tank above ground in the playground as she likes to follow the pipes down to the school allotment. Apparently their school is state-of-the-art, and uses little energy compared to many other schools. Lots of other schools want to be just like them.'**

The combination of a well designed and operated master plan and a behaviour change framework will provide a strong basis for moving towards the desired ecological and carbon footprint. However, there will be elements of the ecological footprint that are beyond the direct influence and control of the residents, for instance the carbon emissions associated with services at the national scale such as the UK's military forces.

Confirm who will own for the vision for the eco-town throughout its design an development and the mechanisms available to control development, monitor, maintain and improvement standards.

Middle Quinton will be developed around a Shared Vision, with a number of organisations and individuals sharing the 'ownership' of the Vision:

At the pre-application stage/iteration and improvement of the proposals the Vision will be shared by:

- Communities and Local Government
- St Modwen and The Bird Group
- Local Planning Authorities / Regional Development Agency
- Schools (Head Teachers) and Further Education providers
- Local interest groups and the voluntary sector
- Existing communities

During the first phases of construction and occupation the Vision will be shared by:

- St Modwen/The Bird Group
- Statutory and Non Statutory Consultees
- New residents/employers
- Schools (Head Teachers) and Further Education providers
- Local Planning Authorities/Regional Development Agency
- Local interest groups and the voluntary sector
- Existing communities
- The Community Interest Company

Going forward post construction, the Vision continues to be shared by:

- St Modwen/The Bird Group (in the early years)
- New residents/employers
- Schools (Head Teachers) and Further Education providers
- Local Planning Authorities/Regional Development Agency
- Local interest groups and the voluntary sector
- Existing communities
- The Community Interest Company.

The Community Interest Company will be at the heart of the shared vision. This will comprise representatives from residents and community groups, as well as local businesses, the Local Planning Authorities and the master developers. The Company will be funded through contributions from residents in the form of a local tax, and an elected management body will be responsible for decision making in such areas as development of the green infrastructure and public realm; community transport; energy and waste recycling (including potential links to an ESCo) and design.

The Community Interest Company, working with Local Planning Authorities and Statutory and Non Statutory Consultees will ensure design quality is maintained throughout the development process. Community engagement in the design process in the form of comments in respect of positive local characteristics and the site's assets, will feed into a side wide masterplan and design strategy. This in turn will lead to and guide the development of area based masterplans and design codes which will also be informed by a design panel linked to the Community Interest Company. All of this process will be underpinned by the SPeAR® Assessment in respect of sustainability.

9. North East Elsenham

A Day in the Life

The Smith family moved to Elsenham in 2016 to be near their grandmother who has lived in the village since she was a girl. They have a family house within the Eco-town which is full of discrete low energy and low impact thinking. Mum and Dad work within the town, the eldest child attends Elsenham Academy, the middle child the local primary school and the youngest is at one of the pre-school nurseries.

Mr Smith works close to the station and has the option of walking, cycling or taking the bus to the office. Since moving to Elsenham they have been able to sell one of their two cars as they can reach all of their day-to-day activities without using the car. They are thinking of selling the other car as they have realised that they can save around 50 per cent by joining the car club operated by Elsenham Co-operative Ltd (ECL). Mr Smith sometimes uses the train to attend meetings in London and Cambridge.

Mrs Smith's employer is a service supplier to businesses based at Stansted Airport. It relocated from the edge of London in 2014 to new premises in Elsenham to be closer to its customers and to benefit from the local labour market. It is small at present but needed flexible premises and an attractive rental deal to enable it to grow in scale. ECL offered the business space in its new business unit scheme in the town centre.

This enables Mrs Smith to drop the youngest child at the nursery on her way to work. On the way back she will use the local shops and services to buy something for tea, which might include locally grown vegetables from ECL's retail unit. Grandmother is meeting a friend for coffee this morning in the town centre and will pick the youngest child up later and take her for a 'mini-beast' hunt in the Elsenham Green Ring which provides an attractive and extensive open space resource for the town.

The Smiths are members of ECL and Mrs Smith has just been elected on to its Board as one of the first members elected by residents. They buy all their low carbon utilities and 'triple play' telephony services from ECL; as energy prices have continued to rise over the last few years they reckon they are saving more than £200 a year compared to their previous house taking advantage of the community energy networks operated by ECL. Although their new house is very energy efficient, they are careful not to waste energy. Because their consumption falls within a lower band, they benefit from the lower monthly energy tariff which encourages them to use less. They can easily track their consumption patterns online so there are no surprises on their monthly bill. They can they compare their household carbon and ecological footprint with averages for their household type.

After school the elder children take part in sports clubs operating from the sports centre associated with the Elsenham Academy. After this they cycle home via the town park, catching up with friends on the way at the café in the discovery centre. Their bikes were

bought from the ECL on a special offer when they moved in to their new house. This was a good idea to encourage them and their friends to use the bikes to get around and the schools, town centre and station all have plenty of secure places to leave them along with convenient cycle parking at the front of the house.

The bus service is very reliable and frequent. The buses and stops are well-lit, clean and welcoming. Because the service is operated by ECL, ticket prices are kept low and the timetable is often reviewed in the light of customer feedback. The special late night and weekend services and real time information on stops, the community website and also on hand held devices that ECL runs mean they can go out to the neighbouring towns without worrying about missing the last bus.

The family has a small allotment operated by ECL which is hard work but fun. They consume most of their own seasonal produce but on occasions sell on surplus stock to ECL's food retail business, which sells produce in the farmers market in the town centre, and also runs a vegetable box scheme as a joint venture with other farmers in the region.

The total ecological footprint of the Smiths has reduced from 6.2 global hectares per person in their old house to 2.1 global hectares. This could reduce further to the One Planet Living target of 1.8 global hectares if they chose not to fly to their summer holiday in Spain. Their Carbon footprint has also been reduced to reflect the careful use of resources and the services provided in Elsenham eco-town, from approximately 12.6 tonnes of CO_2 per person per year to approximately two tonnes of CO_2 per person.

Who will own the vision for the eco-town?

The development of the vision for Elsenham will be led by the Fairfield Partnership and its consultant team. The Fairfield Partnership is not a housebuilder and is under an obligation to landowners to deliver value and quality across the life of the development. The Fairfield Partnership's consultant team will form the basis of an exemplary master developer design, management and delivery team (the Master Developer Team or MDT) led by a 'town architect' to draft the original design vision and establish it through the planning process.

The MDT will ensure the delivery of the vision through the direct design of proposals for new infrastructure and also through the oversight of all detailed proposals brought forward by other developers/housebuilders prior to their submission to the Council as planning applications. This pre-application review process may be written into land sales contracts.

At all stages of its activities the MDT will engage with relevant stakeholders and the local community including the Elsenham Co-operative Ltd, Essex Design Initiative, Inspire East, CABE East, Parish and District Councils etc through the vehicle of a Design and Delivery Panel convened by the MDT. This will include an annual review of progress with the Design and Delivery Panel.

A key element of our proposals is the Elsenham Co-operative Ltd (ECL). ECL will be known as the UK's leading consumer owned sustainable community enterprise, delivering a range of high quality services for all the local community. The ECL mission will be to build its business in line with the Elsenham Eco-town master plan vision, ensuring that essential infrastructure and services are available on time to meet the expectations of the community.

The core values of ECL match strong community and environmental ethics with an entrepreneurial spirit and sound business management that seeks to provide benefits to all citizens that use its services and especially its members. These values will be enshrined in ECL's Charter, which will set out how its performance will be measured across the multiple bottom line: financial, environmental and social. The ECL is envisaged to have responsibility for a portfolio of services under the following broad headings:

- Bundled utility services – including district heat and energy systems, water, ICT and waste management networks;
- Transport and travel planning – including bus services, community transport services, car and cycle sharing schemes, goods collection and delivery, car clubs, car parking managements, travel information and monitoring, travel promotions and personalised travel planning;
- Health and Children – including primary care services (GP etc), day nurseries, after school clubs, holiday schemes, crèches, play centres and community facilities;
- Enterprise – including business start-up incubator centre, start-up and Move-on work spaces, inward investment services, business support network, low cost retail outlets, self-build housing and a credit union; and
- Open Space (the Elsenham Green Ring) – including allotments, orchards, market garden/community farm, sustainable urban drainage systems, recreation facilities including community sports hub and other open space management.

In terms of delivery Elsenham Co-operative Ltd. will have a role in the procurement and ongoing maintenance of new infrastructure and services and in the oversight of new proposals as part of the Design and Delivery Panel. The control of the Co-operative will initially be largely with the Fairfield Partnership, but will progressively pass to new residents as the scheme is built out. This will ensure that the design vision endures across the lifetime of the development and thereafter.

10. St Austell (China Clay)

Clay Country Vision – a world class eco-town development

At a time when global communities, economies and the environment are under increasing pressure and facing immense challenges from climate change, the China Clay eco-Town is a vision for a trailblazing development for low-impact living in the twenty-first century that will meet these challenges.

Based on the re-development of six former china clay industrial sites the eco-town will be an inspiring place where locally distinctive communities and new economies will lead to a step-change in the way 'living places' function and interact with their environment by reducing their carbon and ecological footprint – but still being a really fun and stimulating place to be. The potential benefits will go beyond the six eco-town sites by raising the sustainability of the existing communities through a range of positive impacts such as access to green energy and community facilities.

What will it be like to live in the eco-town?

So – what will it be like to live in the eco-town? Well, we've described how we think it will look in 'A Day In the Life…' of a typical Clay eco-town family in 2020. You can see this on our website www.claycountryvision.imerys.com and keep up to date with how the project is progressing – in any case there's a limit to how much we can cram in to these two pages!

There are some key messages in 'A Day in the Life…' Perhaps the most important is that the eco-town is about joined-up thinking. On their own, you may think that the eco-town concepts aren't particularly new or radical, however, what is new and really radical is bringing them all together in one place for the benefit of a rural community.

So here are some key points for how we think the eco-town will work. Firstly, we think its not just about creating an eco-town, it's more about creating an **'Eco-Zone'** that includes the existing communities in the clay area – and using the six Eco-Town developments to raise the sustainability of the whole area. The starting point is the restored landscape – its biodiversity and land-use – this will form the canvas against which all new developments will take place. Here we start from a strong basis with 1500 hectares of restored landscape from Imerys' Heathland and Woodland projects, something that went well beyond mere compliance.

You'll not have missed how the cost of energy has gone up! One of the cornerstones of the eco-town will be **Climate Change and Energy Management** – aiming to control carbon dioxide emissions to two tonnes per annum per person and replacing fossil fuels with affordable and sustainable renewable energy. To do this we'll radically cut the amount of energy used in materials to construct the eco-town, and ensure we supply significant levels of renewable green energy. This will come from a 'decentralised integrated generation system' – in plain language complementary sources of green energy. We've already

got advanced plans for the provision of 20-25MW of wind power and, through other technologies, such as Hydro and inter-seasonal heat storage, we believe there is potential to supply at least another 20MW. That's enough for up to 10,000 homes.

Of course 5,000 new homes means more traffic, but we're working with partners to develop an innovative **transport** solution. Let's face it the transport network in the clay area could be improved, so we're working hard to find cost effective solutions through new infrastructure, using Imerys' haul roads and surplus land, and what's called 'modal shift' – a change to different forms of transport including increased use of buses and rail.

Our plans include new modes of public transport as well as walk and bike-friendly solutions. But we also think that public transport is only part of the solution – in a rural location like the Clay Area we're realistic enough to know that people will also want ready access to more personal transport – so we're looking at the potential to facilitate a shift to electric and hybrid cars.

Creating new **Employment opportunities** will be critical, not only to help address recent losses in the china clay mining industry but also to cater for those attracted by the Eco-Town. We plan for these jobs to be close to residential areas so travel can be minimised as far as possible. One area where we see real opportunity is through **E-Technologies** – new environmental technologies – the creation of new jobs through new industries such as low-carbon building materials from clay waste and, energy generation and management. We see Cornwall and the Mid Cornwall China Clay Area becoming a leader in this field.

Leisure is already a major part of Cornwall's economy – but we see significant opportunities for the eco-town and the Clay Area to develop quality leisure jobs and facilities, working in partnership with the Eden Project. We're planning an inclusive approach to leisure with 60% of the sites designated as open space – from extreme sports through to the use of the restored landscape for quiet enjoyment, allotments, and play through to green tourism – something for the whole community.

We see the **Living Places** – the houses and communities that will be built, as being key to the success of the eco-town – from their design and layout through to the sense of community and affordability – we want to build on the existing strong sense of place and local distinctiveness and powerful sense of community and belonging to enhance existing communities and places and build a truly robust eco-town and wider community.

One of the key benefits of a dispersed six-site approach over a single development is that our proposal can be used to achieve 'critical mass' among the existing settlements and help raise overall sustainability. We'll do this by developing accessible **Facilities and Live-Work** capacity – such as schools, shops, surgeries, and workspace. We'll also look at water management with the aim of 80 litre water consumption rates through partnership with a leading water utility company.

All of this will be something to be truly proud of that can be used to promote the eco-town and low-impact living – by telling others about it we'll create the supply of goods and services – and boost the new economies. To achieve this we're planning, with partners, to develop a **'Centre for Sustainable Living'**.

How can we maintain and deliver the vision?

Delivering something as complex and ground-breaking as an eco-town is going to be a real challenge. We'll need to maintain quality of design, and remain true to the vision. Reassuringly Imerys, the promoter and landowner, has strongly signalled a commitment to this process – an enlightened approach and a real break with the past where rapid land sale would normally follow cessation of mining activity.

To set our sights high and maintain standards we've devised, with our partners, a set of **Sustainability Measures** across eight key Sustainability Themes. Using this we've set standards and targets for performance against which we can be measured – so success or failure will be there for all to see. Where national targets exist we've incorporated these, but where they don't we're developing our own – see our website for more on this important topic.

To deliver the eco-town **formal structures and agreements with key partners and stakeholders** will ensure that key delivery processes ands structures exist to agree and drive the delivery of standards and outputs. Allied to this strategic **partnerships** with key stakeholders and delivery partners, such as Cornwall County Council, Restormel Borough Council, the South West RDA and Eden Project, will ensure that the Vision is maintained through appraisal, input and the advice of 'critical friends.'

Learning from others will be vital and here our partners can help with bringing best practice to bear from elsewhere. Similarly **Community Involvement** and **Community Empowerment** will be fundamental to gaining support and ensuring that the voice of local communities is heard and listened to. This process is already underway and formal and informal structures are currently being developed to ensure this is achieved. Eden Project and key community animators are in the forefront of this process and are drawing together good practice models from their global partners and peers.

Building and delivering an eco-town will be potentially very costly. It will be essential to maintain **financial viability** through the development of novel and appropriate structures and business models, with value being developed in different ways rather than purely at development, as is the current model. These models are now under development and their financial viability is being tested. You can see a fuller explanation and a diagram of this on our website.

www.claycountryvision.imerys.com

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Greater Norwich

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Prepared by Scott Wilson for Communities and Local Government

Greater Norwich

November 2008

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Contents

List of Tables

List of Figures

The structure of the eco-towns SA/HRA publications

The Sustainability Appraisal (SA) and Habitats Regulations Assessment (HRA) of the draft Eco-towns Planning Policy Statement and Programme have been prepared by Scott Wilson Ltd for Communities and Local Government.

As the SA and HRA has been undertaken at a strategic level, it is necessarily broad in its assessment, conclusions, and recommendations. It takes a 'snapshot' of locations and proposals in September 2008, recognising that the proposals are continuing to be developed, and constitutes the first of a series of successive assessments that will be required as eco-town proposals are taken forward. Planning applications for eco-towns will also need to include a detailed Environmental Impact Assessment (EIA) and possibly HRA which may, in turn, also identify mitigation measures.

The SA and HRA should be read in four parts and an Annex:

I) The SA of the draft Eco-towns PPS

II) The SA/HRA of the Programme – Introduction

III) The SA/HRA of the Programme – Locational chapters

- Pennbury
- Middle Quinton
- Whitehill-Bordon
- Weston Otmoor and Cherwell
- Ford
- St Austell (China Clay Community)
- Rossington
- Hanley Grange and Cambridgeshire
- Marston
- North East Elsenham
- Rushcliffe
- Greater Norwich
- Curborough
- Manby
- Leeds City Region

IV) The SA/HRA of the Programme – Conclusions

Annex: Profile of European Sites

The sections above are accompanied by a Non-Technical Summary which summarises the findings of the SA and HRA of the draft Eco-towns PPS and Programme.

All documents are available on the Communities and Local Government website at www.communities.gov.uk/ecotowns

If you have comments on issues raised in the SA or HRA please respond as part of the consultation on the PPS, details of which are set out at www.communities.gov.uk/ecotowns. If you would like further information on any of the above please contact the Eco-Towns Team at Zone 2/G9, Eland House, London, SW1E 5DU or by email to: ecotowns@communities.gsi.gov.uk

1 Introduction

1.1 This chapter

1.1.1 This chapter sets out the draft Sustainability Appraisal and Habitats Regulations Assessment of the shortlisted eco-town location and associated development proposal at **Coltishall** and the alternative location at **Rackheath** near Norwich. The Coltishall scheme has been withdrawn from the current eco-towns process, so this appraisal relates solely to the location and to Rackheath.

1.1.2 As this Sustainability Appraisal has been undertaken at a strategic level, it is therefore necessarily broad in its assessment, conclusions, and recommendations. It takes a 'snapshot' of locations and proposals in September 2008 recognising that the proposals are continuing to be developed, and constitutes the first of a series of successive assessments that will be required as eco-town proposals are taken forward. Planning applications for eco-towns will also need to include a detailed Environmental Impact Assessment (EIA) which will, in turn, also suggest detailed mitigation measures.

1.2 Eco-towns Planning Policy Statement

1.2.1 Communities and Local Government has published for consultation a Draft **Eco-towns Planning Policy Statement** (PPS), accompanied by a Sustainability Appraisal and Habitats Regulations Assessment. According to the Draft PPS, eco-towns are new settlements which *"will have sustainability standards significantly above equivalent levels of development in existing towns and cities"*[1]. The eco-towns concept is designed to assist in meeting the twin challenges of providing additional housing and mitigating and adapting to climate change. The aim of the Draft PPS is to promote the development of *"exemplar projects that encourage and enable residents to live within environmental limits"* and *"provide a showcase for sustainable living and allow government, business and communities to work together to develop greener, low carbon living thus providing inspiration for future development"*. With this in mind, the Draft PPS sets out a range of minimum standards which will be used to define an 'eco-town'. These cover a wide range of sustainability issues including biodiversity; climate change adaptation; employment; flood risk management; green infrastructure; homes; local services; transport; waste; water; and zero carbon.

[1] Communities and Local Government (2008). Planning Policy Statement: Eco-Towns – Consultation

1.3 Eco-towns Programme

1.3.1 The **Eco-towns Programme** has been developed with the aim of getting exemplar eco-towns off the ground quickly to bring forward up to 10 schemes with development underway by 2016. The Government has short listed a series of potential eco-town locations[2] – of which **Greater Norwich** is one – following an initial call for proposals. Each location has been subject to a Sustainability Appraisal and Habitats Regulations Assessment to assess its suitability for an eco-town. The findings of the appraisal for Coltishall – and alternative at Rackheath – are documented in this report. In a parallel exercise, the Government is deciding which of the schemes related to the short listed locations will get backing or financial support from government through funding of associated infrastructure or partner public bodies.

1.4 SA and HRA

1.4.1 **Sustainability Appraisal (SA)** is generally not undertaken at the national level. In developing the Eco-towns PPS and the Eco-towns Programme, Communities and Local Government has decided to undertake SA, incorporating the requirements of the European Strategic Environmental Assessment Directive[3], at a level proportionate to the PPS and the Programme. Scott Wilson was commissioned to undertake the SA as well as a **Habitats Regulations Assessment (HRA)** of the Draft Eco-towns PPS and the Eco-towns Programme. SA seeks to identify and evaluate the impacts of a proposal on the economy, the community and the environment – the three dimensions of sustainable development – and suggest measures for improving the proposal's sustainability performance. HRA tests the impacts of a proposal on nature conservation sites of European importance – Special Areas of Conservation and Special Protection Areas, and, as a matter of Government policy, Ramsar sites – and is also a requirement under EU legislation[4]. An accompanying report sets out the SA and HRA of the Draft Eco-towns PPS.

1.5 SA methodology

1.5.1 Part I of this report describes the SA methodology in full. The SA for each of the shortlisted locations and any reasonable alternatives is based on a series of questions:

- What's the objective of the proposal?

[2] Communities and Local Government (2008). Eco-towns: Living a greener future [online] available at: www.communities.gov.uk/publications/housing/ecotownsgreenerfuture (accessed 4 July 2008)

[3] Directive 2001/42/EC on the assessment of the effects of certain plans and Programmes on the environment (the 'SEA Directive') implemented through The Environmental Assessment of Plans and Programmes Regulations 2004

[4] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') implemented through The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007

- What's the policy context?
- What are the key sustainability objectives we need to consider?
- What's the situation now? (including any existing problems)
- What will be the situation *without* the eco-town? (the 'business-as-usual' option)
- What will be the situation *with* the eco-town?
- How can we mitigate/enhance effects? (Scott Wilson's recommendations)
- How should we monitor sustainability impacts?

1.5.2 These questions correspond to the key requirements of the SEA Directive, as set out in Annex I to the Directive – see Table 1.

1.5.3 In undertaking the appraisal for each location, we drew on a wide range of information including the Scoping Report; the developer's proposal; discussions with the developer; discussions with the relevant local planning authority and, in some cases, the Government Office; the comments of the statutory consultees (the Environment Agency, Natural England etc.); and discussions with Communities and Local Government. We also visited each of the shortlisted locations.

Table 1: Meeting the requirements of the SEA Directive

Questions for each shortlisted location and associated development proposal	Key requirement of the SEA Directive (the 'environmental report' must include…)
What's the objective of the proposal?	*"**an outline of the contents, main objectives of the plan or Programme** and relationship with other relevant plans and Programmes"* (Annex I(a))
What's the policy context?	*"an outline of the contents, main objectives of the plan or Programme and **relationship with other relevant plans and Programmes**"* (Annex I(a))
What are the key sustainability objectives we need to consider?	*"**the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or Programme** and the way those objectives and any environmental considerations have been taken into account during its preparation"* (Annex I(e))[5]

[5] Note that *"the way those objectives and any environmental considerations have been taken into account during its preparation"* is addressed in Section 3 for the Draft PPS and in each locational chapter

Table 1: Meeting the requirements of the SEA Directive

Questions for each shortlisted location and associated development proposal	Key requirement of the SEA Directive (the 'environmental report' must include…)
What's the situation now? (including any existing problems)	*"**the relevant aspects of the current state of the environment** and the likely evolution thereof without implementation of the plan or Programme"* (Annex 1(b)) ***"the environmental characteristics of areas likely to be significantly affected"*** (Annex I(c)) *"**any existing environmental problems which are relevant to the plan or Programme** including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC"* [NB problems relating to European sites are addressed through the HRA] (Annex I(d))
What will be the situation ***without*** the eco-town? (the 'business-as-usual' option)	*"the relevant aspects of the current state of the environment and **the likely evolution thereof without implementation of the plan or Programme**"* (Annex I(b))
What will be the situation ***with*** the eco-town?	***"the likely significant effects (1) on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors*** [our emphasis] ***(1) These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects"*** (Annex I(f))
How can we mitigate/ enhance effects? (Scott Wilson's recommendations)	***"the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or Programme"*** (Annex I(g))
How should we monitor sustainability impacts?	***"a description of the measures envisaged concerning monitoring…"*** (Annex I(i))

1.5.4 It should be noted that the SA focused primarily on the merits of the proposed *location* as a suitable place to situate an eco-town since the location is fixed (notwithstanding the need to ultimately settle on a precise boundary for the development). However, we have also referred to the actual *development* proposed for that location (recognising that the current proposals for development at the various locations can obviously be modified and doubtless will be as time goes on). Reference to the development itself was considered important in gauging sustainability impacts particularly since the development could potentially mitigate impacts associated with the location and also make the most of any locational opportunities.

1.5.5 The aim of this SA was not to determine whether an eco-town location and proposal was either acceptable – ie 'sustainable'- or unacceptable – ie 'unsustainable'- and determine which locations progressed on this basis. The purpose of this SA was, rather, to explore the benefits and disadvantages associated with each of the locations and development proposals as an input to the Eco-towns Programme, and suggest ways in which their impact could be rendered more sustainable.

1.6 HRA methodology

1.6.1 Part II describes the HRA methodology in full. The requirement to undertake HRA arises from the Habitats Directive[6] which requires that plans and projects are subject to 'Appropriate Assessment' (AA) where they might have a significant effect on a European wildlife site. European sites include Special Areas of Conservation, Special Protection Areas and, as a matter of Government policy, Ramsar Sites. In order to establish whether or not an AA is necessary, plans and projects with potential effects must be 'screened' to determine the likelihood of their giving rise to significant effects – a so called HRA. All the proposed eco-town locations were screened and determined to have potential impacts on European sites. A full AA was therefore undertaken for each location and the assessment for Coltishall and the alternative site at Rackheath is documented in Section 3. The assessment involved identifying the European sites which could conceivably be impacted upon by development at the proposed location; establishing the environmental conditions needed to maintain the integrity of these sites (eg minimum air pollution or minimal recreational pressure); and assessing whether or not development at the location would adversely impact on these environmental conditions and therefore site integrity. Details of the ecological features of the European sites covered within the assessment, the reasons for their designation, their condition and the environmental conditions necessary to maintain their integrity are set out in the Annex, *Profile of European Sites*.

1.6.2 It should be noted that the objective of the HRA of the Eco-towns Programme was not to devise detailed site-specific measures for each of the current proposed eco-towns, but rather to use an appraisal of the current proposed eco-towns as a tool to determine whether the policies and standards in the Draft PPS provide sufficient direction (in terms of both scope and detail) to enable eco-towns to deliver the detailed site-specific measures necessary to avoid or mitigate an adverse effect.

1.6.3 In practice, the gaps in the data regarding most European sites means that precise differences in distance cannot easily be detected by the assessment tools currently available particularly with regard to recreational pressure. For example, distinguishing between the scale of recreational impact resulting

[6] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora implemented in England through The Conservation (Natural Habitats &c. Regulations) 1994 (as amended)

from development situated 5km away from a given Natura 2000 site and one situated 7km away would require very detailed site-specific visitor data for the Natura 2000 site which we have not been able to source. For this reason, and because both Coltishall and Rackheath are a considerable distance from the European sites scoped into this assessment, it has proved difficult to discriminate between the recreational impacts of the two locations on European sites such that the assessment of the two alternative locations is very similar

Box 1. The steps involved in the Appropriate Assessment

1. Determine possible impact pathways from the eco-town to European sites.
2. Explore the reasons for the designation of these European sites and the environmental conditions required to maintain integrity.
3. Consider the eco-town within the context of the environmental processes – could the eco-town lead to an impact on any identified process?
4. Identify other plans and projects that might affect these European sites in combination with the eco-town.
5. Decide if it is possible to determine that the eco-town will not have an adverse effect on European sites, even in combination with other projects/plans;
6. If it is not possible to determine with confidence that the eco-town will not have an adverse effect, measures should be developed to avoid the effect entirely or to mitigate the impact sufficiently that its effect on the European site is rendered effectively inconsequential

2 Sustainability Appraisal

2.1 Introduction

2.1.1 This section sets out the draft Sustainability Appraisal (SA) of the shortlisted eco-town location and associated development proposal at **Coltishall** and alternative location at Rackheath near Norwich.

2.2 What's the nature of the proposal?

2.2.1 The Coltishall Group is proposing the development of an eco-town on a 260 hectare site, the former Royal Air Force Station located near Coltishall village, North Norfolk. The site straddles District Council boundaries with the southern third of airfield in Broadland District Council and northern two thirds of airfield in North Norfolk District Council. The Leaders of Broadland District Council, Norwich City, South Norfolk and Norfolk County Councils and the Chairman of the Broads Authority wrote to the Minister of Housing on 1 August 2008 opposing the project. North Norfolk District Council had previously objected to the Coltishall proposal through the Communities and Local Government consultation process which ended on 30th June 2008.

2.2.2 The current proposal that is the subject of this appraisal is for a town comprising 5,000 dwellings, rising to 10,000 dwellings with related employment facilities and community infrastructure. The proposed location is situated approximately 20 kilometres to the north east of the city of Norwich, 5 kilometres immediately to the north of Coltishall village, 9 kilometres south west of the town of North Walsham and 25 kilometres south of the town of Cromer. The main connecting route between Coltishall and Norwich is the B1150.

2.2.3 The proposal is to create a new community set around a new Norfolk Broad in the heart of Norfolk. The development is also intended to use cutting edge technology to conserve resources and manage the environment to create a balanced and sustainable community providing jobs, homes and education.

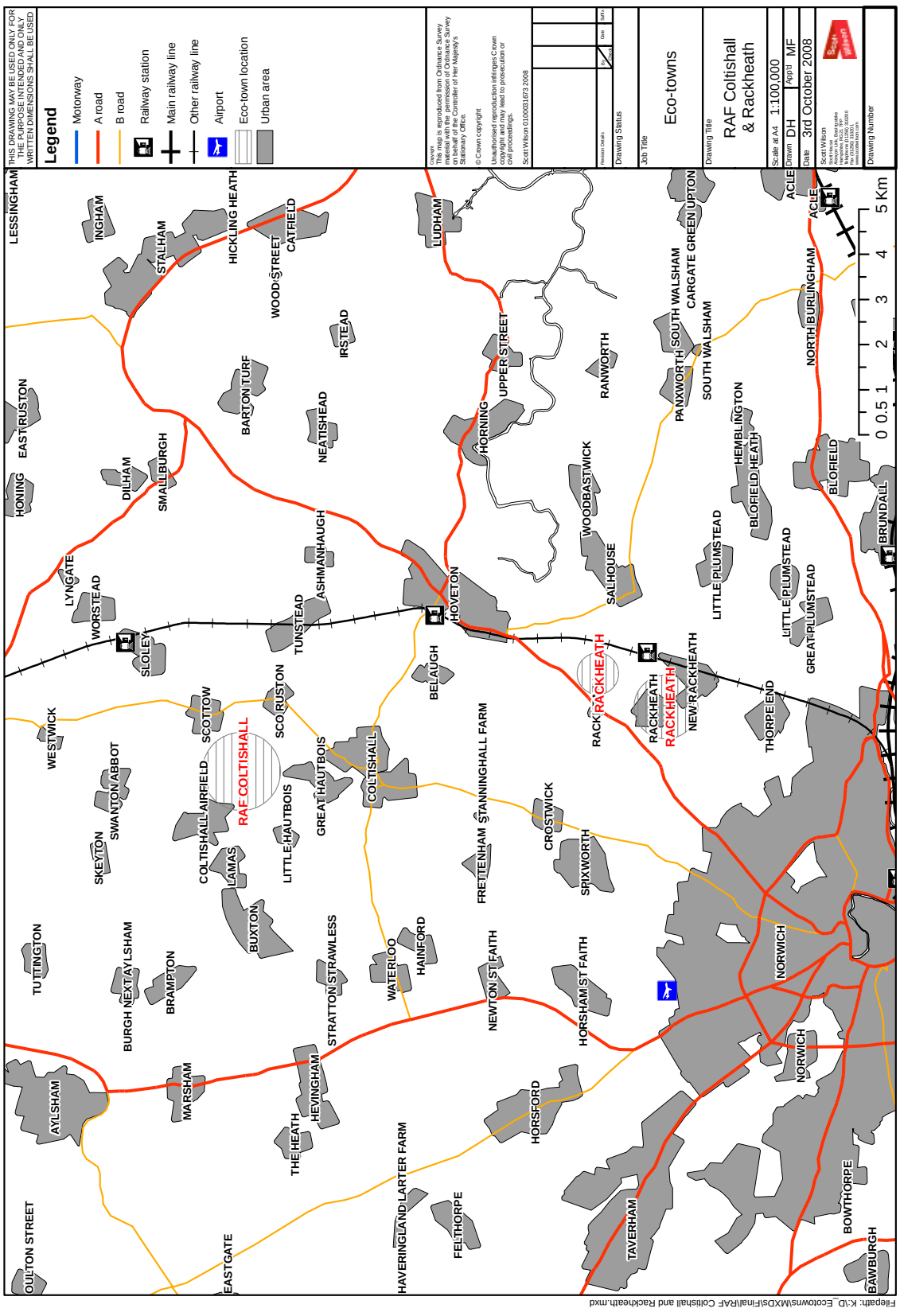
Have any further local alternatives been proposed?

2.2.4 An alternative to the Coltishall eco-town has been proposed by the Greater Norwich Development Partnership, currently preparing a Joint Core Strategy for the districts of Broadland, Norwich and South Norfolk. This alternative location, at Rackheath near Norwich, has support from Broadland District Council, Norwich City, South Norfolk and Norfolk County Councils and the Broads Authority.

2.2.5 The location has also been proposed in options included in a Regulation 25 consultation on strategic growth locations for the Joint Core Strategy. It consists of two sites. The sites (north east of the City of Norwich astride the proposed Northern Distributor Road (NDR)) are intended to deliver a settlement providing at least 6,000 dwellings (rising to a total of at least 10,000 dwellings after 2026) including related employment and community infrastructure (see Figure 1). According to the Greater Norwich Development Partnership this new community will take the form of a series of inter-related new villages or quarters and delivery is dependent on the implementation of the NDR.

2.2.6 The Rackheath location has been appraised in this report although there is only limited information available on the nature of the proposed development. Some work has been undertaken on a proposal for the Rackheath Sustainable Community prepared by Barrett Strategic in February 2008 but only includes one of the sites. A brief reference will be made where relevant to the information in this proposal in Section 2.7 – *What will be the situation with the eco-town?*.

Figure 1: Coltishall eco-town and alternative Rackheath location – settlement pattern and transport infrastructure



2.3 What's the policy context?

2.3.1 The national policy context in relation to housing provision, climate change and other relevant issues is set out in Part I. This section considers the policy context at regional and local level relevant to the shortlisted location and the alternative site.

2.3.2 The East of England Plan – the Revision to the Regional Spatial Strategy for the East of England (May 2008) – sets a minimum regional housing target for the period 2006 to 2021 of 402,540 net additional dwellings. However, the Plan states that while this figure (which equates to at least 26,830 dwellings per annum) represents a significant step towards a more adequate rate of housing provision, it is less than forecast household growth and less than the National Housing and Planning Advice Unit (NHPAU) suggests is needed to avoid further deterioration in affordability[7]. In light of this, the East of England Plan points to the role of eco-towns in further increasing housing provision.

2.3.3 The East of England Plan does not refer to Coltishall as a specific location for growth. However, the Plan does refer in Policy NR1 to Norwich as key centre for development and change including a regional focus for housing, employment, retail, leisure, cultural and educational development. It is proposed to provide for 33,000 net additional dwellings in the Norwich Policy Area (NPA) in the period 2001-2021 facilitated by joint or coordinated Local Development Documents prepared by Norwich, South Norfolk and Broadland Councils. The district total for Norwich, Broadland and South Norfolk is 37,500 net additional dwellings in the period 2001-2021. The alternative site at Rackheath is located within the NPA.

Coltishall

2.3.4 A new settlement at the Coltishall was not considered as part of the development of the Core Strategy or Site Specific Proposals for the North Norfolk Local Development Framework (LDFs). The Core Strategy Submission Document[8] considers that the focus of the majority of development activity in North Norfolk will be the towns of Cromer, Fakenham, Holt, North Walsham, Sheringham, Stalham and Wells-next-the-Sea and the large village of Hoveton.

2.3.5 It also considered that former RAF airbases at Sculthorpe, West Raynham and Coltishall which provide significant levels of existing housing but lack key services, are not well served by transport networks and are remote from resident populations and local services. They were thus considered

[7] National Housing and Planning Advice Unit (2007). *Developing a target range for the supply of new homes across England* [online] available at www.communities.gov.uk/nhpau/keypublications/reports/supplynewhomes

[8] North Norfolk District Council (2008) *Core Strategy incorporating Development Control Policies – incorporating all minor modifications 25.01.08* [online] available at www.northnorfolk.org/ldf/1267.asp

unsuitable locations for new housing development which would be likely to increase the need to travel by car and could undermine the strategy of focusing new development on the eight main settlements which can provide a more sustainable pattern of new development. However, it is recognised that although the scale of existing building on these sites would normally be regarded as inappropriate in countryside locations, they nevertheless represent a significant under-used resource. The Council supports their re-use for appropriate purposes and to enhance the overall appearance and character of the sites.

2.3.6 The Core Strategy addresses the specific issues at redundant defence establishments (including Coltishall) via policy EC4. The Proposals Map also shows areas defined as the former "technical area" for the site where development will be focused. The non-technical area (such as the former airfield) is defined as countryside. Policy EC4 allows for development proposals on the former defence establishment for use of existing or development of replacement buildings within the defined "technical areas" provided that there is no overall increase in gross floor space of the existing permanent buildings. It also permits proposals for renewable energy uses where compliant with Policy EN6, and permits new build employment-generating proposals in areas designated as Countryside where there is particular environmental or operational justification.

2.3.7 The North Norfolk LDF Core Strategy document was declared "sound" by the Planning Inspectorate on 15th July 2008. The Inspector stated that "It is not part of my role to reach a judgement or recommendation on whether an eco-town at Coltishall should go ahead…" However, he noted that "the development of a further 3,000-5000 dwellings, at a location not currently identified as a selected settlement within the spatial strategy, would be clearly at odds with the thrust of the Core Strategy and the emerging RSS."

2.3.8 The Coltishall eco-town location was not considered as part of the Core Strategy strategic growth location options for the Joint Core Strategy for the districts of Broadland, Norwich and South Norfolk by the Greater Norwich Development Partnership.

Rackheath

2.3.9 The Joint Core Strategy for the districts of Broadland, Norwich and South Norfolk identified three options in its consultation document[9]. Rackheath is mentioned in all three growth options.

[9] Broadland District Council (2008) Report for Extraordinary Cabinet: Joint Core Strategy Options Consultation [online] available at http://www.broadland.gov.uk/bdc_shared_content/bdc/committee_papers/Extraordinary_Cabinet-_JCS_options_consultation_v9_-_18_July_2008.pdf

2.3.10 The consultation document refers to the Rackheath location as potentially accommodating a settlement extending either side, at least, of the Norwich Distributor Road (NDR). Delivery is dependent on the implementation of part of the NDR. The structure of the local geography suggests that this new community will take the form of a series of inter-related new villages or quarters and will include:

- at least 6,000 dwellings (rising to a total of at least 10,000 dwellings after 2026)
- a district centre based around an accessible "high street" and including a new library, education and health facilities – the development will also require new local centres
- a new secondary school with an initial phase to open within the first five years – the early phases of development will concentrate on family housing
- retention of existing important greenspaces and significant levels of heathland re-creation to provide stepping stones to link Mousehold Heath to the surrounding countryside – historic parkland will be conserved
- bus rapid transit to the city centre possibly via Salhouse Road and Gurney Road and a choice of safe and direct cycle routes to the centre
- safe and direct cycle and pedestrian routes, and orbital bus services, to Broadland Business Park, Rackheath employment area, Airport employment areas
- a new rail halt at Rackheath
- permeability and community integration across the NDR and with existing communities.

2.4 What are the key sustainability objectives we need to consider?

2.4.1 Separate preliminary scoping work undertaken on behalf of Communities and Local Government identified a significant number of potentially relevant sustainability objectives to inform the appraisal. Taking into account this initial work, Scott Wilson has identified 14 core sustainability issues which will provide the basis for the SA of the locations and associated development proposals (no priority should be inferred from the ordering):

Environment

- biodiversity and green infrastructure
- climate change adaptation and flood risk

- climate change mitigation
- landscape and historic environment
- waste
- water resources and water quality.

Socio-economic

- community infrastructure
- community wellbeing
- decent and affordable homes
- transport and accessibility
- employment and economy.

Spatial issues

- spatial issues.

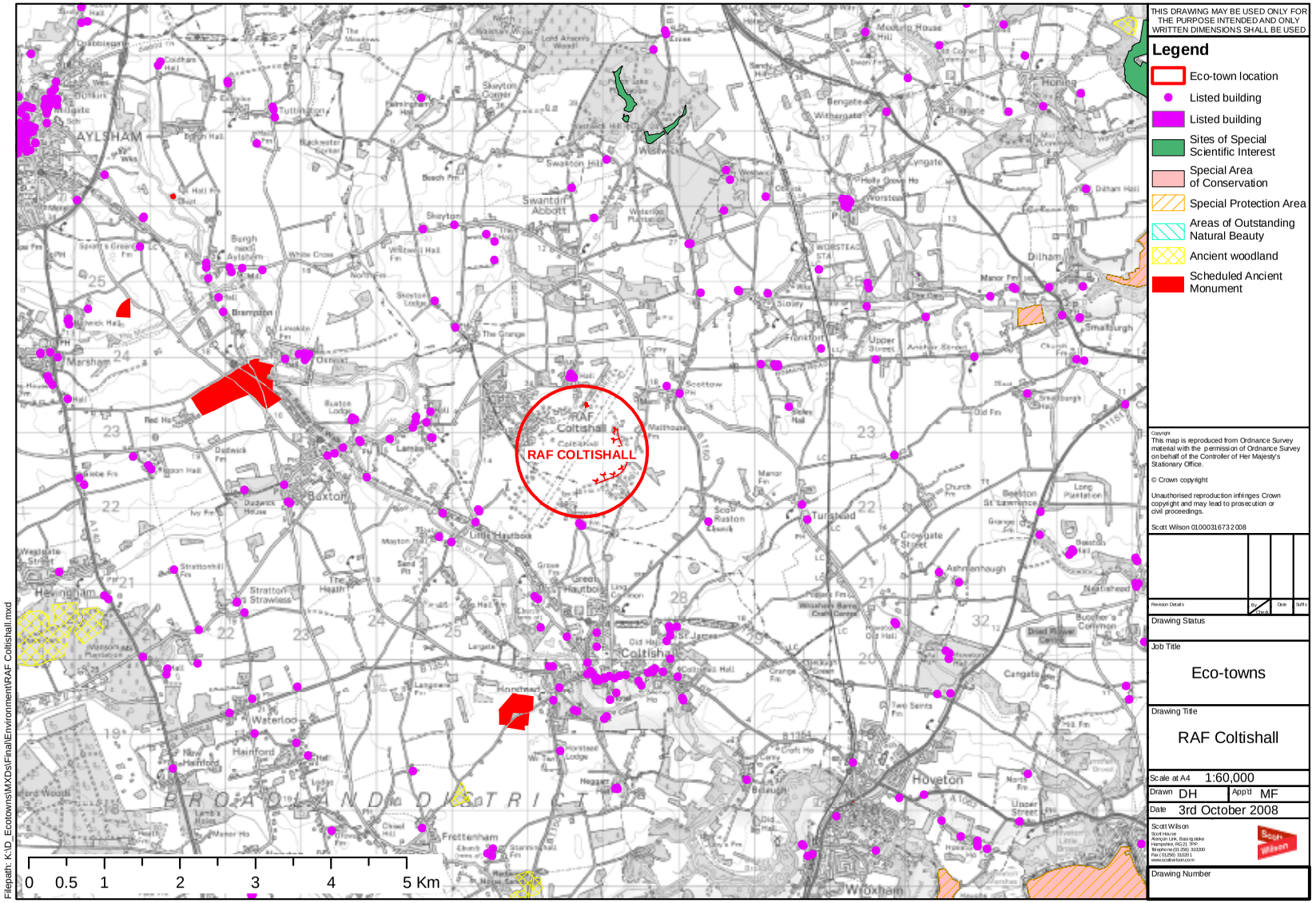
2.5 What's the situation now? (including any existing problems)

Biodiversity and green infrastructure

Coltishall

2.5.1 Figure 2 shows the Coltishall location and environmental constraints in the area. The site itself and surrounding area has no landscape or ecological designation. Features of local interest include small trees and hedgerows on the site boundary. According to the Environment Agency, there are Great crested newts on site and bats may roost in the existing buildings.

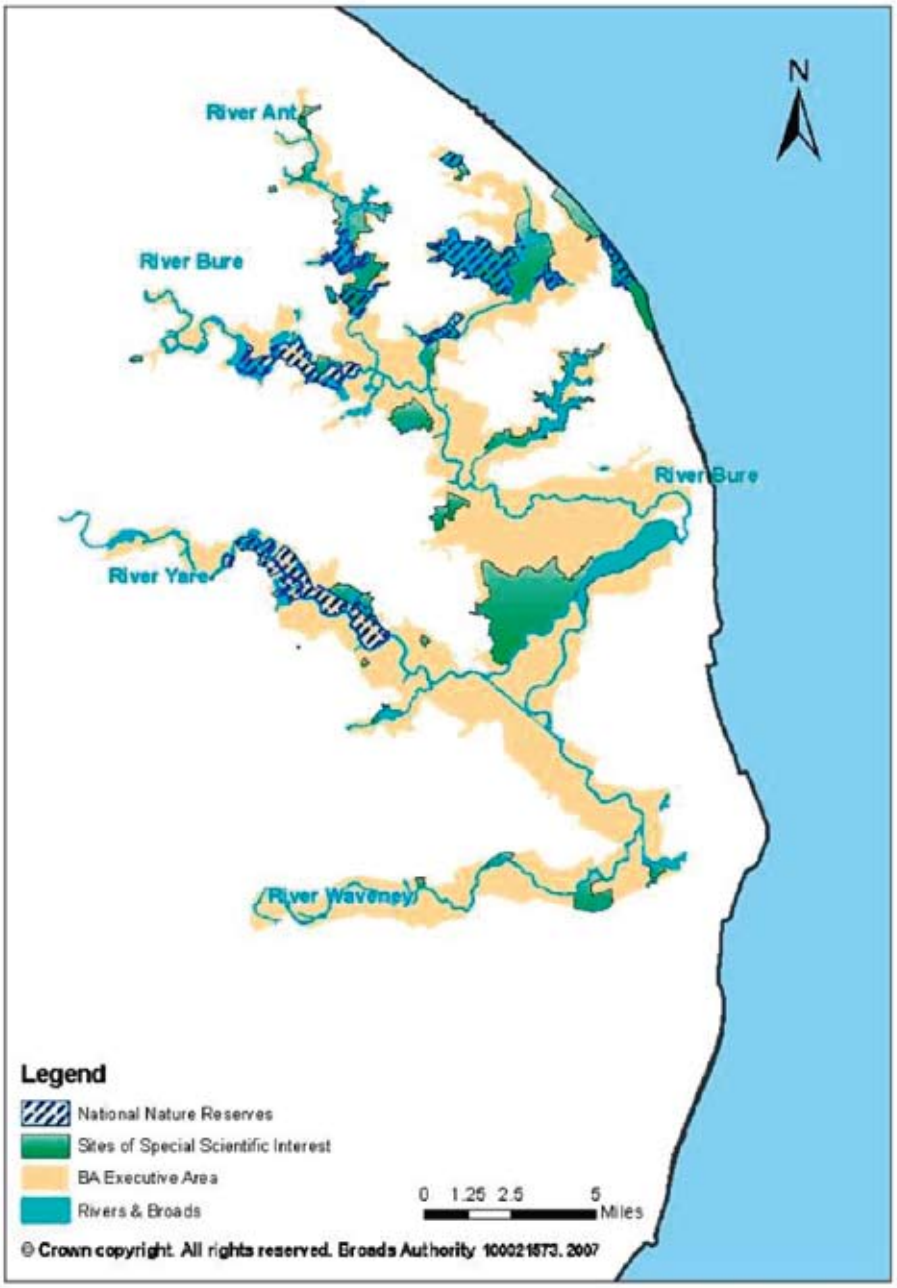
Figure 2: Coltishall eco-town location and environmental constraints



2.5.2 As shown in Figure 2 the wider area is predominantly countryside with patches of ancient woodland, heathland and fen and the Broads to the south east – Britain's largest protected wetland with the status of a National Park. The heathlands and fen are mainly classified as Sites of Special Scientific Interest (SSSI) and there is also a considerable amount of valuable wildlife habitat, of international and national importance, as well as numerous local County Wildlife Sites.

2.5.3 Figure 3 and Figure 4 show the extent and designations of the Broads. Under national legislation, 28 sites within the Broads have been designated as SSSIs, and many of these are also National and Local Nature Reserves (NNR and LNR). Virtually all of the SSSI network is also designated as internationally important for nature conservation under the European Habitats and Birds directives, and the Ramsar Convention on Wetlands of International Importance. The Broads Authority was set up in 1989, with responsibility for conservation, planning, recreation and waterways.

Figure 3: The Broads – Network of Sites of Special Scientific Interest and National Nature Reserves[10]

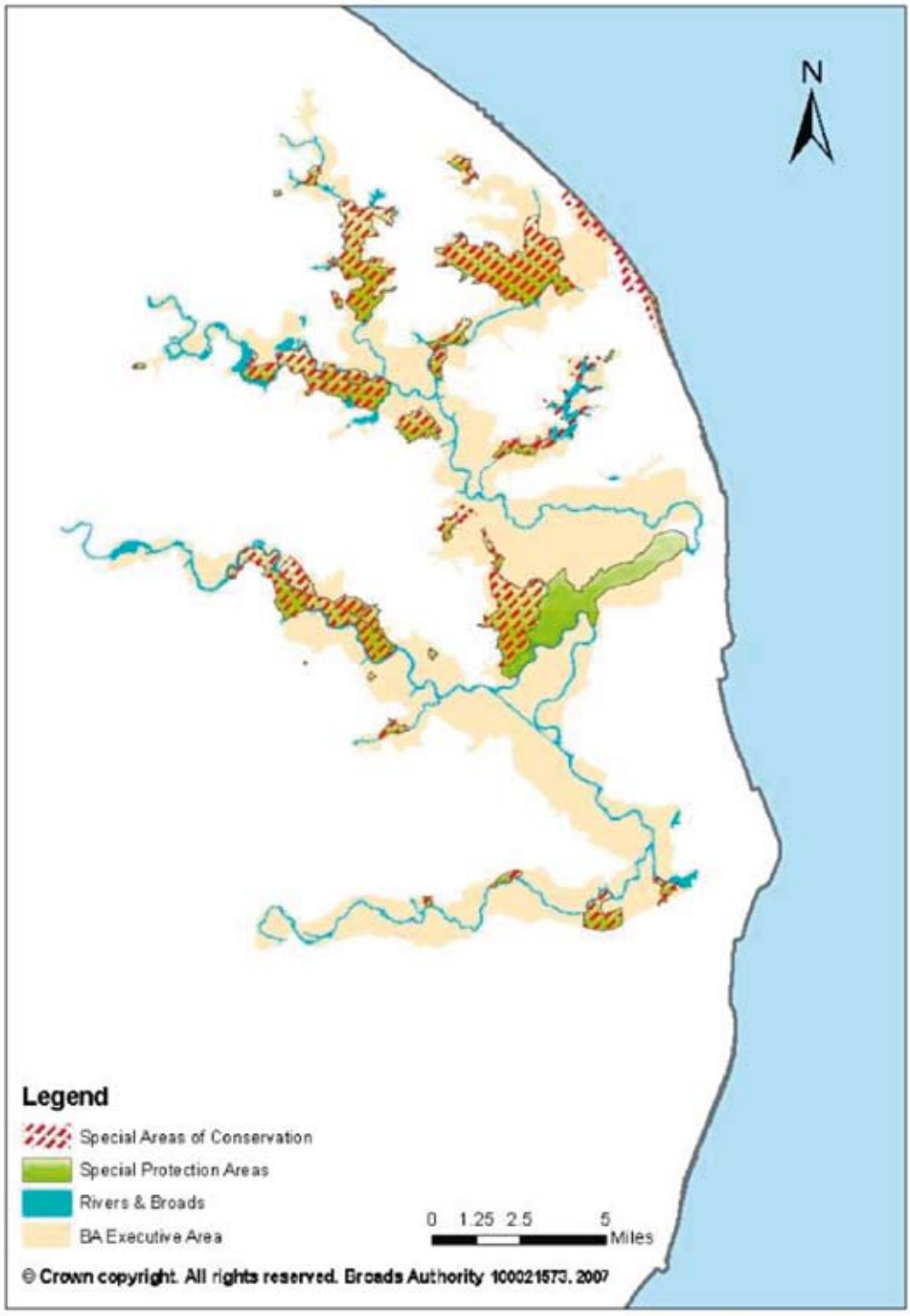


2.5.4 The nearest Natura 2000 sites to Coltishall are:

- Norfolk Valley Fens Special Area of Conservation (SAC), approximately 7km to the west
- Broadlands Special Protection Areas (SPA) & Ramsar site (incorporating The Broads SAC), approximately 7km to the east
- Paston Great Barn SAC, approximately 10km to the north; and
- River Wensum SAC; approximately 12km to the southwest.

[9] Source: The Broads Authority (2007) *Network of SSSIs and NNRs Map* [online] available at www.broads-authority.gov.uk/planning/planning-policy/local-development-framework/core-strategy-dpd.html

Figure 4: The Broads – Network of Sites of Special Scientific Interest of European importance



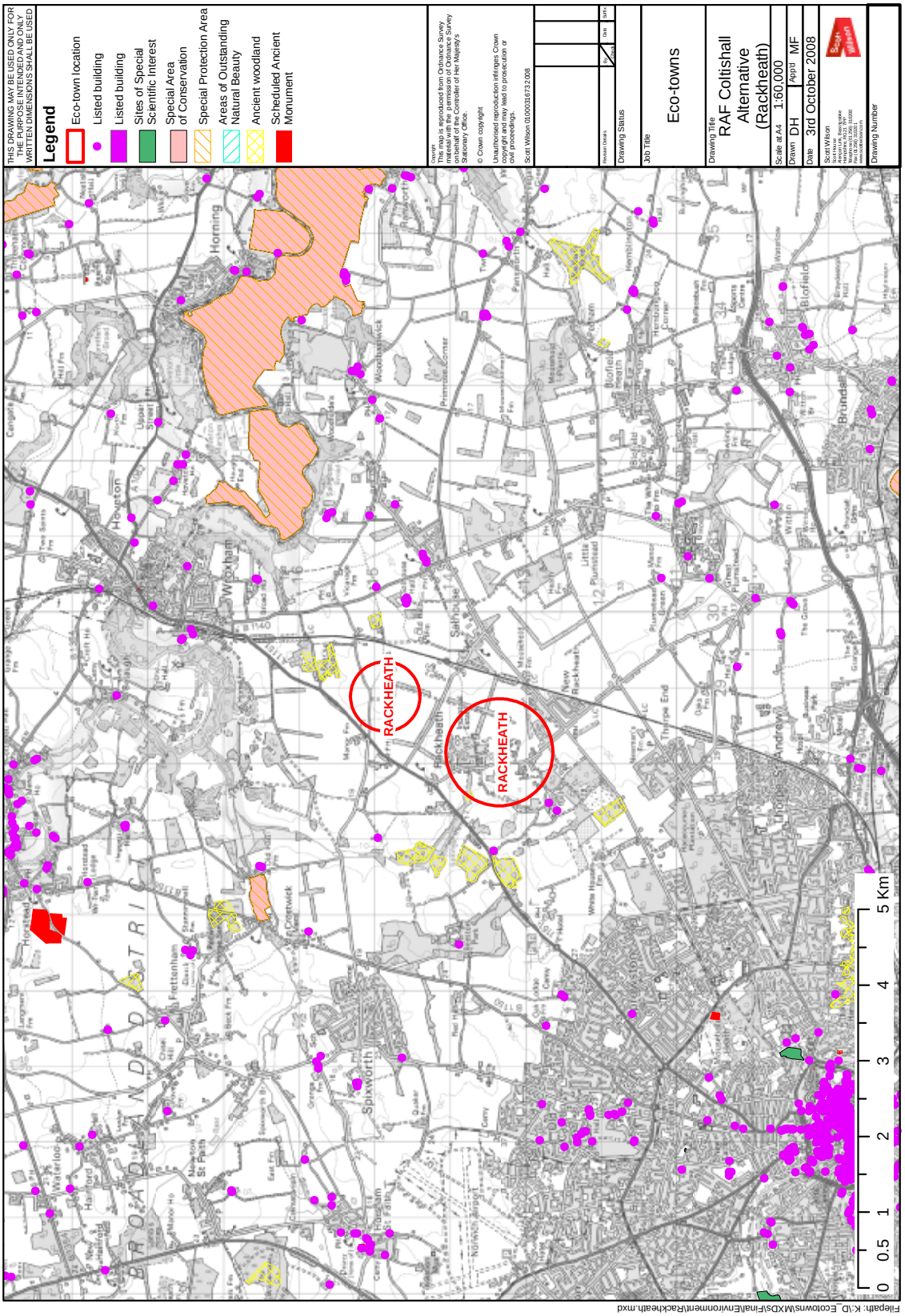
Rackheath

2.5.5 Figure 5 shows the Rackheath location and environmental constraints in the area. The alternative location shows patches of ancient woodland within and around the perimeter of the sites as well as some sites of local wildlife importance. The northern site is also close to the Broads area.

2.5.6 The nearest European sites to Rackheath are:

- Norfolk Valley Fens SAC, approximately 7km to the west
- Broadlands SPA & Ramsar site (incorporating The Broads SAC), approximately 7km to the east
- Paston Great Barn SAC, approximately 10km to the north; and
- River Wensum SAC; approximately 7km to the northwest.

Figure 5: Rackheath alternative eco-town location and environmental constraints



Climate change adaptation and flood risk

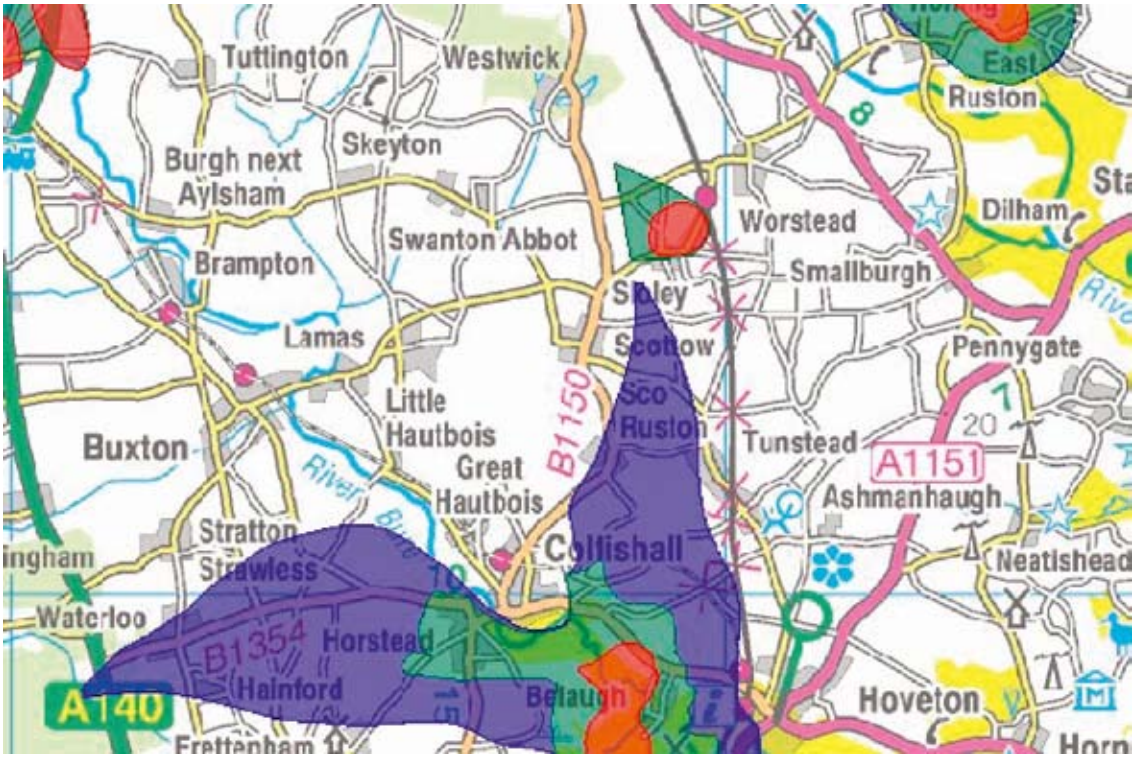
Coltishall

2.5.7 The Coltishall site exhibits negligible flood risk as indicated by the Flood Map facility on the Environment Agency (EA) website. However, the site is located close to the River Bure, and currently has a large surface water discharge to the river. The River Bure to the west and south west of Lamas is at risk of flooding (Flood Zone 3).

2.5.8 A joint Strategic Flood Risk Assessment (SFRA) for North Norfolk District Council, Broadland District Council, The Broads Authority, Norwich City Council and South Norfolk District Council, is currently being undertaken to inform preparation of their respective Local Development Frameworks (LDFs) and also to provide further details to developers on flood risks within the area. Stage 1 – Inception Report (2006) is complete with Stage 2 to follow.

2.5.9 The site (according to the Source Protection Zone Map facility on the EA website) is indicatively shown and not located within a Water Source Protection Zone that could constrain the location of Sustainable Drainage Systems (SUDS) and other activities. See Figure 6.

Figure 6: Source protection zone map for Coltishall[11]



Key:

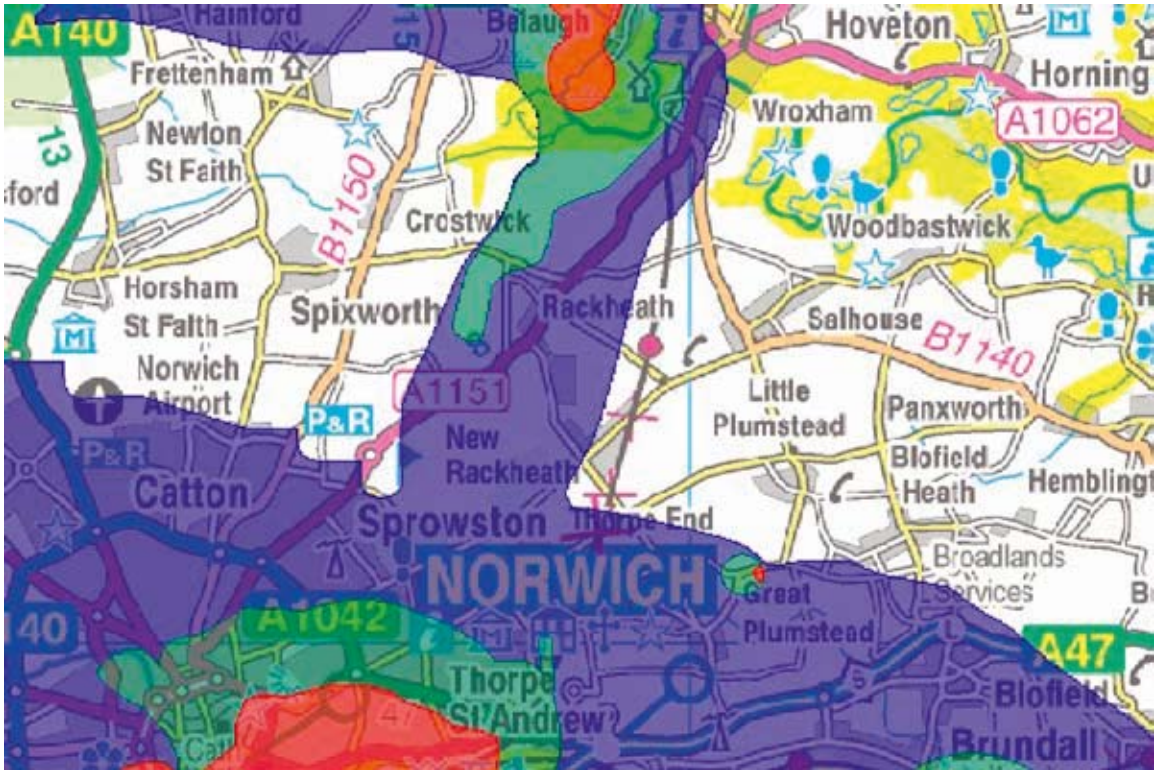
- inner zone
- outer zone
- total catchment

[11] Environment Agency (2008) *Source Protection Zone Map* [online] available at http://maps.environment-agency.gov.uk/wiyby/wiybyController

Rackheath

2.5.10 The overall site (according to the Source Protection Zone Map facility on the EA website) is indicatively shown and located within the outer zone and total catchment of a Water Source Protection Zone and this could constrain the location of SUDS and other activities (see Figure 7)

Figure 7: Source protection zone map for Sprowston/Rackheath[12]



Key:

- inner zone
- outer zone
- total catchment

[12] Environment Agency (2008) *Source Protection Zone Map* [online] available at http://maps.environment-agency.gov.uk/wiyby/wiybyController

Climate change mitigation

Coltishall and Rackheath

2.5.11 Table 2 shows an estimate of 2005 CO_2 emissions by end user in North Norfolk and Broadland Districts compared with the East of England region.

Table 2: CO_2 Emissions by end user (2005)[13]

	Broadland	North Norfolk	East of England
Industry and Commercial (not inc ETS installations or diesel railways) (kt CO_2)	237	282	16,135
Domestic (kt CO_2)	297	256	13,430
Road Transport (not including motorways) (kt CO_2)	286	278	12,327
Total emission for indicator (kt CO_2)	820	816	41,891
CO_2 Emissions per Capita (Tonnes of CO_2)	6.8	8.1	7.6

2.5.12 The table shows that total CO_2 emissions per capita are higher in North Norfolk District than the estimates for Broadland District and the East of England. This is probably due to high levels of car ownership and distances travelled in a highly rural area.

2.5.13 The East of England now has some 419 MW of installed renewable energy capacity. Renewables East estimates that currently 8 per cent of the region's electricity consumption is being generated from renewables.

2.5.14 The North Norfolk Annual Monitoring Report (AMR) 2006/07 states that there is 79.2 MW of installed renewable energy capacity in the County. The technologies utilised include on-shore wind, biomass, landfill gas and sewage gas.

2.5.15 Current and upcoming renewable energy projects in North Norfolk are estimated to generate a total of 617 MW and include two off-shore wind operations and a landfill gas operation.

2.5.16 In Broadland District according to the 2006/07 AMR, there were 12 renewable energy installations. These included six solar thermal, two solar photovoltaic and four wind turbines. The total expected energy generated from the installations is 13,808 kWh.

[13] DEFRA (2005) *Local and Regional Estimates Carbon Emissions by End User, Summary 2005* [online] available at www.defra.gov.uk/Environment/statistics/globatmos/download/regionalrpt/local-regionalco2emissions2005-rev200804.xls

Landscape and historic environment

Coltishall

2.5.17 English Heritage has advised that the fighter pen (WW2) and 1950s Blast Walls at Coltishall are currently being recommended for scheduling. English Heritage would like to see a visual link retained whereby the blast walls can be seen from the line of the runway. The late 1930s layout has some design value and English Heritage is currently funding a characterisation study.

2.5.18 There are a number of buildings to be retained:

- flight control tower
- line of runway and airfield skirt
- blast walls; and
- three air hangers.

2.5.19 The North Norfolk District Council Draft Landscape Character Assessment (2005)[14] includes the Coltishall location within the Randomly Enclosed Low Plain Farmland landscape. The overall character of this area is one of either flat or very gently undulating land with a generally open feel. This openness is due to the flat landform, widespread hedge removal, and large expanses of land without many dominant features, apart from those on the skyline. The contours in this character area range from 10 to 40m.

2.5.20 Views are extensive and structures such as church towers can be seen on the horizon some distance away. The horizon is often lined with trees, either areas of older deciduous woodland, or more recent belts of conifers.

2.5.21 The land use is predominantly arable, with some areas of localised rough grazing that tend to be close to areas of water/marsh/broad. This combination of arable farming and low grassy banks in place of hedges contributes greatly to the overall character of this area. Field sizes are medium to large on the whole and fairly regular in shape.

2.5.22 The varied landscape and geology of North Norfolk has led to the development of local architectural styles and traditions such as flint, pantiles and thatch roofs. The quality and distinctive character of the built environment derived from these architectural styles and traditions is particularly apparent in the area's town centres, small villages and older farm buildings; and has been recognised in the large number of Listed Buildings (2,250) and Conservation Area designations (82).

[14] North Norfolk District Council (2005) *Landscape Character Assessment for North Norfolk District Council Local Development Framework: Draft Version* [online] available at www.northnorfolk.org/planning/5446_5684.asp

2.5.23 Broadland is a largely rural district and contains a wealth of environmental assets. Most of the land is 'countryside' with large areas being classed as high agricultural quality, or used for forestry. Just over 5 per cent is developed, with a further 1.8 per cent containing roads and railways. The landscape varies from low lying fens and wide river valleys in the east, much of which is incorporated within the Broads Area, to the more rolling and wooded countryside and valleys to the north and west. Much of this is defined as an Area of Landscape Value, parts of which are within the Broads Environmentally Sensitive Area management scheme.

Rackheath

2.5.24 The Broadland District Landscape Character Assessment (2008)[15] includes the Rackheath location within the Wooded Estatelands landscape type. Within this Landscape Character Type, Rackheath has been identified in the E4: Rackheath and Salhouse Landscape Character Area.

2.5.25 This landscape character area forms a large tract of land extending southwards from the edge of the Bure Valley within the Broads Authority Area. The topography of this area is generally flat, particularly in western parts, and falls gradually towards the Broads. The land becomes increasingly undulating in northern and eastern parts, and where tributaries of the Yare and Bure rivers are incised. Geology is an important influence on the character of the area. Located on a band of sands and gravels, the soils produced are light, sandy, and less fertile that the high quality land further west.

2.5.26 Historically, much of this character area formed part of a large area of heathland. The heathland extended from the northern settlement edge of Norwich almost to Salhouse. Today, only areas of heath within the urban area of Norwich remain (Mousehold Heath), which contain high ecological value and provide an important landscape resource. However, subtle clues of the area's past land cover is reflected in local names of villages, roads and farms, such as Rackheath, Heath End, Heath Farm and Mousehold Heath Farm. The area has a recent history of agricultural development. The parcelling of land has created a strong geometric layout, with medium-sized regular fields and a strong grid road pattern. These mostly arable fields are interspersed with plantations, copses of mature trees and woodland belts, along with remnant patches of heath. Woodland in the area is a mixture of deciduous and coniferous plantations, often with patches of scrub and heath within the interior. Radial routes extending from Norwich, including the Bittern Railway, dissect the mosaic of fields, woodland and roads.

[15] Broadland District Council (2008) *Broadland District Landscape Character Assessment: Final Version* [provided by the Council]

2.5.27 Retained for a long period as an area of common land, few settlements developed within this landscape. Many of the settlements located in this area have only developed in recent years, providing housing on the outskirts of Norwich along main transport routes, often nucleated around road junctions. The settlements form blocks within the surrounding rural landscape, and often comprise abrupt boundaries. This is particularly evident in western parts of the area. Here, the housing style is typical of modern suburban developments – detached and semi-detached dwellings, often located around cul-de-sacs. A large industrial estate has recently developed immediately west of the Bittern Railway, which is fairly enclosed from the wider landscape by linear belts of mature woodland. In northern and western parts of the area, part enclosure of the land has allowed medium sized estates to develop around large houses and halls, such as Beeston Park, Salhouse Hall, Rackheath Hall and Woodbastwick Hall, in several places with their associated historic parkland. These are smaller and less dramatic than those in the north of the District, but comprise a similar parkland character.

2.5.28 Northern and western parts of the area comprise a different settlement pattern and built character, which reflects a long history of development. Here, strings of historic settlements, scattered with historic halls, villages and isolated farmsteads are nestled against the wooded slopes that fall away to the Broads. These settlements, such as Woodbastwick, have hardly expanded in recent years. They comprise a strong local vernacular, including traditional buildings clustered around a historic core. Shaped gables, steep pitched pantile roofs, brick barns and flint walls are key characteristics. The architecture and landscape of the historic halls and houses are important features within northern and western parts of the area, and strongly contribute to a rich and distinctive character in these parts. Linear coniferous tree belts and the development of an industrial estate, has resulted in hedgerow loss in central parts of the area, diluting the rural landscape character in this part.

2.5.29 The Rackheath southern site either contains or abuts a large area of historic parkland and contains listed buildings.

Waste

Coltishall and Rackheath

2.5.30 Table 3 shows the waste statistics for Broadland and North Norfolk Districts and Norfolk County for 2006/2007 obtained from best value performance plans. In total Broadland shows a greater percentage of household waste recycled and composted and reduced household waste per head in comparison to North Norfolk and Norfolk.

2.5.31 In comparison to the figures for 2005/2006, Broadland has improved its total percentage of household waste recycled and composted by 3.7 per cent and reduced the household waste per head by 3 kgs. North Norfolk has improved its total percentage of household waste recycled and composted by 3.9 per cent and increased the household waste per head by 14 kgs.

Table 3: Waste statistics for Broadland and North Norfolk Districts and Norfolk County

2006/2007	Broadland	North Norfolk	Norfolk
% of household waste recycled	32.2	26.6	26.1
% of household waste composted	13.5	17	12.4
Household waste collected per head (kg)	404	425	472.3
% of household waste landfilled	Not available	Not available	60.2
Tonnage of household waste landfilled	Not available	Not available	234,368

Water resources and water quality

Coltishall

2.5.32 The East of England is the driest region in the UK and pressure on water resources is likely to grow due to altered rainfall patterns and increased temperatures associated with climate change. This is significant in a region which has the fastest growing population in the country and where agriculture plays an important role in the economy.

2.5.33 Anglian Water is the local water supplier for both sites. The primary sources of water are rivers and groundwater, supplemented by artificial storage in reservoirs.

2.5.34 The Anglian Water region has around half the national average rainfall for England and Wales. In an average year only a quarter of the rainfall is available as a water resource after evaporation and use by plants. Long dry summers, during which evaporation exceeds rainfall, are a normal part of the climate in this region.

2.5.35 Daily domestic water use per person in 2004[16] was 140 litres in North Norfolk and 131 litres in Broadland – which are well below the national average for that year of 154 litres.

[16] Audit Commission Area Profiles

2.5.36 The proposed site lies close to the River Bure. The Catchment Abstraction Management Plan identifies the Upper Bure catchment as 'over abstracted', while the River Ant and Lower River Bure have been assessed as 'no water available'. Stage 3 of the Environment Agency's Review of Consents identified 13 surface and 10 groundwater abstraction licences that could not be shown not to be adversely affecting the Bure Broads and Marshes site. In addition five licences were believed to be affecting the site 'alone'. At this early stage in the Stage 4 process it appears that existing licences will need to be modified so as to reduce their hydrological impact during drought years. In conclusion, the Environment Agency and Natural England believe that there is no additional water available in the catchments around the proposed development at Coltishall.

2.5.37 The nearest Sewage Treatment Works (STW) to which the Coltishall development is most likely to be connected ultimately discharges treated effluent to tributaries of the River Bure, which is in hydraulic continuity with the Broads SAC and Broadlands SPA/Ramsar via the Bure Broads & Marshes SSSI, much of which is currently in an unfavourable condition as a result of poor water quality.

2.5.38 The Bure Broads & Marshes SSSI is currently exceeding its nutrient targets: 42 per cent of the nutrients impacting the SSSI site are from point sources, while 58 per cent are from diffuse pollution. The Environment Agency has calculated that their points sources should not exceed 0.023 to 0.027 mg/l ortho-phosphate. Currently fully consented discharges allow 0.029 mg/l ortho-phosphate (exceeding the Natura 2000 targets), however current 'real' concentrations are running between 0.024 and 0.026 mg/l ortho-phosphate. Put simply the site is 'at capacity' for point source nutrients. Moreover, it is understood that all the major STWs in the Bure valley are already at the limits of Best Available Technology, such that it is possible that a new STW and alternative discharge locations (potentially a considerable distance away) would need to be sought to service the Coltishall development. Opportunities to move discharge to a neighbouring catchment are also severely limited as these also are at, or exceeding capacity and contain other floodplain Natura 2000 sites.

Rackheath

2.5.39 A Stage 1 Water Cycle Study was completed by Scott Wilson in November 2007 for the Joint Core Strategy being prepared by the Greater Norwich Development Partnership. The objective of the study was to provide an integrated approach to managing flood risk, water supply and waste water infrastructure in the area.

2.5.40 The study looked at the potential growth areas for the Joint Core Strategy and identified the alternative location sites at Rackheath as NPA1 – North East Sector (inside the NNDR) and NPA2 – North East Sector (outside the NNDR, vicinity of Rackheath).

2.5.41 The NPA1 – North East Sector (inside the NNDR) receives most of its water supply from the River Wensum. There are sufficient water resources for up to 10,000 new dwellings.

2.5.42 Whitlingham STW has capacity for in excess of 20,000 new dwellings, however the sewage pumping mains are unlikely to take beyond 5,000 new dwellings. Technological modifications to Whitlingham STW would be required to ensure that significant adverse impacts on the Broads SAC/ Broadland SPA did not occur.

2.5.43 The NPA2 – North East Sector (outside the NNDR) receives most of its water supply from the River Wensum/Heigham Water Treatment Works. There are sufficient water resources for up to 20,000 new dwellings.

2.5.44 Rackheath (The Springs) STW currently serves a total population equivalent of 1,807. The works would need upgrading to double its capacity and a review of the receiving watercourses. Up to 1,000 houses are suitable in this potential growth area unless the STW capacity is increased.

Community infrastructure

Coltishall

2.5.45 Lower Layer Super Output Area (SOA) North Norfolk 012C includes the northern part of the Coltishall site and Coltishall village and the southern part of the site in SOA Broadland 003C. The combined population of both SOAs is 3,117 people.

2.5.46 Both SOAs perform well for rural areas in regard to the Index of Multiple Deprivation (IMD) (2007). In terms of barriers to housing and services, as calculated by the IMD shows that SOA Broadland 003C performs very well, probably due to the inclusion of Coltishall Village in the SOA, whereas SOA North Norfolk 012C does not perform as well and is likely experiencing barriers to housing and services.

2.5.47 Table 4 shows road distance to services indicator for both SOAs using the barriers to housing and services domain and geographical barriers sub domain of the IMD 2004 obtained from the Office for National Statistics. This highlights that there are quite some distances to travel to the nearest GP premises and supermarket or convenience store in the North Norfolk 012C in comparison to SOA Broadland 003C.

Table 4: Combined Road Distance to Services Indicator

2004 (kilometres)	Broadland 003C	North Norfolk 012C
Road distance to GP premises	1.16	6.57
Road distance to primary school	1.26	1.19
Road distance to Post Office	1.32	1.29
Road distance to supermarket or convenience store	5.21	9.55

2.5.48 This also adds substance to the following key sustainability issue that was identified in the North Norfolk SA Scoping Report – limited accessibility to services and facilities (for example health, education, shops and jobs) exacerbated by poor public transport.

2.5.49 In the SA Scoping Report for the Joint Core Strategy for Broadland, Norwich and South Norfolk it was identified that in the Greater Norwich area as the population grows and ages, the need to supply facilities and services, and in particular access to them, especially in the rural area, will become increasingly pressing.

2.5.50 Activities for teens was defined by local residents as their 'third priority for improvement in the local area' (2003/2004) in North Norfolk and Broadland Districts.[17]

2.5.51 Coltishall village (from a local website advertising the village accessed from Broadland District Council's website) seems to show quite a range of businesses and services from a post office, some local food stores, several public houses, a dental surgeon, a doctor's surgery, a pharmacy and a primary school amongst others.

Rackheath

2.5.52 Lower Layer SOAs Broadland 008C, 008D, 012B and 013E approximately cover the Rackheath alternative sites. The combined population of the SOAs is 5,832 people.

2.5.53 All of the SOAs perform well in regard to the Index of Multiple Deprivation (IMD) (2007). In terms of barriers to housing and services SOAs Broadland 012B and 013E perform very well, whereas SOAs Broadland 008C and 008D do not perform as well and are likely experiencing barriers to housing and services.

[17] Audit Commission Area Profiles

2.5.54 Table 5 shows road distance to services indicator for both SOAs using the barriers to housing and services domain and geographical barriers sub domain of the IMD 2004 obtained from the Office for National Statistics. This highlights that there are quite some distances to travel to the nearest supermarket or convenience store in SOA Broadland 008C and 008D in comparison to SOA Broadland 012B and 013E.

Table 5: Combined Road Distance to Services Indicator

2004 (kilometres)	Broadland 008C	Broadland 008D	Broadland 012B	Broadland 013E
Road distance to GP premises	1.31	1.02	0.72	0.95
Road distance to primary school	2.25	0.94	1.05	0.82
Road distance to Post Office	2.66	1.39	1.12	1.23
Road distance to supermarket or convenience store	4.37	5.27	1.01	0.54

2.5.55 Rackheath (from Broadland District Council's website) community facilities include two public houses, a hotel, a newsagents and a post office. There is also a large playing field with a bowling green, a children's play area and a village hall.

Community wellbeing

Coltishall and Rackheath

2.5.56 Broadland is a relatively affluent local authority ranked 301 out of 354 local authorities in the 2007 Index of Multiple Deprivation (IMD), up from 302 in the 2004 IMD (where 1 is most deprived and 354 least deprived). North Norfolk on the other hand was ranked 160 of 354 local authorities, down from 180 in the 2004 IMD. There are pockets of deprivation in the east of the District as identified in the North Norfolk SA Scoping Report and the 2006/2007 Annual Monitoring Report.

2.5.57 Educational achievement in North Norfolk is below average: 54 per cent of 16 years old achieved five of more GCSEs at grade A* to C in 2005/2006, compared to the national average of 58.5 per cent, and the regional average of 59.1 per cent. 22 per cent of the economically active population have a degree (or higher) compared to 26 per cent regionally. The percentage of people without any qualifications is almost 15 per cent compared to 12.5 per cent for the region.

2.5.58 Educational achievement in Broadland is slightly below average: 58.1 per cent of 16 years old achieved five of more GCSEs at grade A* to C in 2005/2006, compared to the national average of 58.5 per cent, and the regional average of 59.1 per cent. 23 per cent of the economically active population have a degree (or higher) compared to 26 per cent regionally. The percentage of people without any qualifications is almost 14 per cent compared to 12.5 per cent for the region.

2.5.59 Life expectancy for North Norfolk is high. The average life expectancy across the area is 81.3 years for females and 77.2 years for males compared to 81.1 and 76.9 respectively for England. Mortality rates are significantly higher than average for England for cancer and significantly lower than England for circulatory disease. Suicide rates in North Norfolk for 2000-2003 are higher than Broadland, the same as the region but lower than England and Wales[18]. Teenage conceptions are low at 39.8 compared to 41.6 nationally. Across Norfolk County, road injuries are significantly worse than the English average.

2.5.60 Life expectancy for Broadland is high. The average life expectancy across the area is 82.3 years for females and 78.6 for males compared to 81.1 and 76.9 respectively for England. Mortality rates are significantly higher than average for England for cancer and significantly lower than England for circulatory disease. Suicide rates in Broadland for 2000-2003 are lower than North Norfolk, the region and England and Wales[19]. Teenage conceptions are low at 39.8 in Norfolk County compared to 41.6 nationally.

2.5.61 North Norfolk District had an estimated resident population of 100,600 in mid 2006, compared with 100,200 in mid-2005 and 98, 382 in the 2001 Census. North Norfolk's population has a relatively elderly age profile. The Census 2001 revealed that 25.4 per cent of the District's population was aged 65 or over, compared with 20 per cent and 16 per cent for Norfolk and England and Wales respectively.

2.5.62 The population of Broadland was estimated to be 121,440 in mid-2006, compared with 121,100 in mid-2005 and 118,500 in the 2001 Census. Broadland's population has a relatively elderly age profile. Compared with England and Wales it has higher proportions of people aged 40-44 and over, and lower proportions of the younger age groups, especially 20-29 year olds.

2.5.63 These figures show that both Districts have a relatively ageing population which could have implications in terms of infrastructure and service provision (eg health related).

[18] Office for National Statistics (2005) *Adult suicide rates* [online] available at www.statistics.gov.uk/downloads/theme_health/Suicides_2000_2003.xls

[19] Office for National Statistics (2005) *Adult suicide rates* [online] available at www.statistics.gov.uk/downloads/theme_health/Suicides_2000_2003.xls

2.5.64 Levels of crime in North Norfolk in 2004/2005[20] were comparable to Broadland for domestic burglaries, violent offences and theft of a vehicle. In comparison to other areas in Norfolk County the level of crime in North Norfolk and Broadland is lower in most instances.

Decent and affordable homes

Coltishall and Rackheath

2.5.65 The 2006/2007 AMR for North Norfolk states that house prices have more than doubled since 2001, rising from £91,560 to £202,557 for an average house, creating acute housing shortage for local people, most of whom are not able to access the private housing market based upon the relatively low average incomes in the District. The housing stock within North Norfolk has more detached houses than other house types with the majority of houses owner occupied, either outright or with a loan or mortgage. The average value for all property types in North Norfolk between April and June 2007 was £202,557 compared to £186,607 for the same period in 2006.

2.5.66 Affordable housing is the first priority for improvement in the local area as defined by the local residents in North Norfolk in 2003/2004[21]. The Core Strategy contains policies which seek a 45 per cent affordable housing element on all new developments of more than 10 dwellings in the eight largest settlements in the district; and in 16 identified service villages one affordable housing unit for every market unit on developments of two or more dwellings. The Strategy also contains a rural exceptions policy for 100 per cent affordable housing developments through grant mechanisms in the countryside to address the particular affordable housing pressures faced in individual rural settlements. This demand is caused by second and holiday homes; loss of social housing stock through the Right to Buy policy and high levels of in-migration for retirement.

2.5.67 In 2004 the North Norfolk Council set a target to build 375 new affordable dwellings by 2009 (75 per year). In light of the high levels of identified need this has been increased to 90 dwellings per year from 2006-2009; and 100 dwellings per year from 2009 – 2011. A total of 108 affordable dwellings were built during the year 2006/2007 according to the AMR for North Norfolk.

2.5.68 The housing stock in Broadlands, according to the Joint Core Strategy Scoping Report, is dominated by detached and semi-detached family-sized housing, with over 80 per cent of homes being owner-occupied. Despite adding 114 affordable homes built between 2004 and 2006, the share of social housing only amounts to 9 per cent of the total housing stock. The average house price in Broadland in 2006 was £201,918 with

[20] Audit Commission Area Profiles

[21] Audit Commission Area Profiles

an approximate house price to income ratio of 6.21. Average house prices are highest for semi-detached homes, but starter units offer more accessible prices as terraces and flats are evenly priced (£148,000 in December 2006). Although this does represent a significant jump in prices between the traditional 'starter-unit' and family-sized home, the fluidity of movement between housing markets possibly lessens this impact. Related to this, Broadland does have relatively few households in unsuitable accommodation.

2.5.69 For Broadland a total of 107 new affordable homes were completed in 2006/2007 and is 143 per cent of the target of 75.

Transport and accessibility

Coltishall and Rackheath

2.5.70 North Norfolk's peripheral location is reflected in the fact that it has no trunk roads or motorways. Only the A140 (Cromer to Norwich), the A148 (Cromer to King's Lynn – via Holt and Fakenham but also serving Sheringham) and the A1065 (Fakenham to Mildenhall) are regarded as part of the national 'primary route network'. Other important routes are the A1067 (Fakenham to Norwich), the A149 (Cromer to Great Yarmouth – via North Walsham and Stalham) and the A1151 (linking the A149 at Smallburgh to Norwich via Hoveton).

2.5.71 The only public rail service is the 'Bittern Line', operated by National Express, linking Sheringham with Norwich. This is part of the regional rail network and includes stations at Cromer, North Walsham and Hoveton as well as several rural halts.

2.5.72 Most of North Norfolk's villages are served only by very limited public bus services and two of the seven towns, Holt and Stalham, are deemed by the County Council not to benefit from the desired level of service for their respective populations. The 'Coast Hopper' bus service runs from Hunstanton to Cromer providing an increasingly popular regular service for locals and visitors along the coast. Related to the modest level of public transport services across the area is the finding from the 2001 Census that 82 per cent of households in North Norfolk owned at least one car and 33 per cent owned two or more.

2.5.73 Public transport is the second priority for improvement in the local area as defined by the local residents in North Norfolk in 2003/2004[22].

2.5.74 In the rural areas of Greater Norwich, including Broadland District, the use of a car is often essential in reaching vital services. Due to the more

[22] Audit Commission Area Profiles

dispersed population and the longer distances it can be less viable to use more sustainable forms of transport. Realistically, in the more rural areas there are limited alternatives to the use of the private car to meet transport requirements. Public transport primarily provides links to and from Norwich and the main service centres, and supports the need for specific services such as school bus services and rural hopper services. In some rural villages and towns there are demand-responsive community transport schemes that are funded by parish councils. 72 per cent of travel to work journeys in Broadland use motor vehicle, a higher percentage than the region and England.

2.5.75 Public transport is the first priority for improvement in the local area as defined by the local residents in Broadland followed by transport congestion[23].

2.5.76 The proposed Coltishall development is situated approximately 20 km to the north east of Norwich. The main connecting route between Coltishall and Norwich is the B1150. The location proposed is a geographically remote area that is currently poorly served by existing road and transport infrastructure with poor access to the strategic A11 and A47 Trunk Road routes serving the County. Links to the north and south by road are poor. The site is further constrained in that the River Bure to the south of the site prevents easy access to both the A140 Cromer Road and B1150 Norwich Road into Norwich and beyond. Current road infrastructure will need considerable improvement, including a Coltishall/Horsted bypass, and a link to the proposed Norwich Distributor Road (NDR). However, funding and support is needed for the NDR, as currently the road has no funding and there are environmental issues surrounding the preferred route which have been highlighted by the Department for Transport.

2.5.77 There is no available analysis of transport impacts, including the impact of additional traffic on B roads. No viable rail alternative exists, even though the site is approximately 3 km to the west of the Norwich to Sheringham railway line. This line currently has a service between Norwich and the coastal towns of Cromer and Sheringham. At Norwich, the service connects with Intercity links to London (Liverpool Street), and Cross-Country services to Liverpool (Lime Street) via Peterborough and Cambridge.

2.5.78 There is no certainty that a rail link could be provided to Coltishall. Without this alternative transport link the town would be totally dependent on road travel provided by new and improved road links. Significant new road infrastructure and online improvements will be needed in order to provide bus services. The environmental implications of a bypass are not yet known but this would be essential for the eco-town's development. Even if such infrastructure could be provided the location of Coltishall will always be at a

[23] Audit Commission Area Profiles

relative disadvantage in terms of attraction to inward investors given more strategically placed development opportunities in the A11 and A47 corridors.

2.5.79 The sites at Rackheath are located either side of the NDR and delivery is dependent on, at least, the implementation of part of the NDR. Rackheath is already served by both rail and bus.

Employment and economy

Coltishall and Rackheath

2.5.80 Unemployment rates in North Norfolk are low. Economic activity rates are also low due to the large numbers of retired residents. Rates of pay/household income in the District are only 70 per cent of regional and national averages (£20,766 compared with £28,988 in England), reflecting the dependence on employment in low value-added sectors – ie agriculture, tourism and social care. Rural poverty is often exacerbated by lack of transport to access jobs and local services.

2.5.81 The economy of North Norfolk remains fairly narrow with a relatively high dependence upon employment in the agriculture, manufacturing and tourism sectors – all of which face significant structural change. The majority of employees (84 per cent) work in small businesses. Whilst there has been a change in the business base of the manufacturing sector with business closures/rationalisations in the food processing and engineering sectors in recent years, there has been a growth in employment in the manufacture of plastic and timber products and marine engineering/boat-building. North Norfolk's relatively narrow economy is due to its poor strategic location and increased costs/journey times for manufacturers getting materials/finished goods through/around Norwich.

2.5.82 Today, significant numbers of employees in the District are engaged in the provision of education, health and social care, public administration, retailing and tourism. In recent years the tourism sector has enjoyed growth through investment in quality accommodation and attractions, and a move to year-round operations capturing short breaks and specialist markets in addition to the traditional summer holiday.

2.5.83 Whilst most of North Norfolk's towns have small industrial estates, the main concentration of manufacturing employment is in Fakenham and North Walsham. Cromer, Mundesley, Sheringham and Wells-next-the-Sea are traditional seaside resorts, and Hoveton acts as an important centre for Broads-based tourism.

2.5.84 In general, the Greater Norwich area which includes Broadland District has a successful and growing economy with a buoyant jobs market. With Norwich at its centre, the area provides the largest concentration of jobs

in the eastern region. Businesses have access to a high skills base; a high proportion of people are employed in professional occupations and there is a high graduate retention rate, particularly in Norwich itself.

2.5.85 In Broadland, the average gross weekly pay by residence – full time (2006) was £411.80, which is less than Greater Norwich and the region. Despite Greater Norwich having lower wages than the regional average there is generally the same level of employment and a sizeable number of small businesses. The economy of Broadland District is fairly even across sectors with most employment in the public administration, tourism, finance and manufacturing sectors.

2.5.86 A large proportion of jobs are located outside the district, primarily within the City of Norwich. Census 2001 'Travel to work' data shows that only 13.6 per cent of working residents in Broadland travel less than 2km to the workplace (compared to over 20 per cent for Norfolk) despite over half the population living in the Norwich city suburbs. This may suggest there to be a general lack of local employment opportunities in Broadland, particularly in the more rural areas as people are forced to travel away from their residential areas to find work. The North Norfolk District by comparison has high levels of self-containment for work within the District according to the *Settlement Planning for North Norfolk* report prepared by Land Use Consultants in 2005.

2.5.87 There are a significant number and range of employers within Broadland; the number of VAT registered businesses was 3,645 at the end of 2004 (Nomis). The majority of these businesses are small, employing one to five people, though there are also large employers. In total, there are over 40,000 employee jobs in the district, nearly 15,000 of these being part-time, many possibly within the important tourism sector.

2.5.88 Coltishall is poorly situated for sustainable access to existing job opportunities, which are principally in, or in close proximity to Norwich.

2.5.89 Rackheath contains several strategic employment sites.

Spatial Efficiency

Coltishall and Rackheath

2.5.90 North Norfolk District Council has completed its draft Core Strategy. The Council is concerned that the Coltishall proposal could serve to undermine aspects of this strategy by diverting investment away from its priorities such as the regeneration of North Walsham. The Greater Norwich Development Partnership is also proceeding with its Core Strategy and argues for development closer to Norwich than Coltishall, hence its proposal for Rackheath.

2.5.91 Some of the concerns from various consultees surrounding this proposal's in the context of spatial planning are:

- any eco-town development at this location may undermine other sustainable developments and delivery of planned growth in the Greater Norwich area
- this proposals' impact on local settlement patterns and hierarchy, specifically impacts upon North Walsham and doubling of the district's housing allocation to 2021
- its disadvantaged location to the North of Norwich due to current poor transport infrastructure and sustainable transport links
- its impacts on Norwich as a Growth Point, delivery of existing housing requirements in the NPA and priority area for regeneration as there is a strong concern that an eco-town should not divert resources from delivering more sustainable housing growth in Greater Norwich.

2.6 What will be the situation *without* the eco-town? (the 'business-as-usual' option)

Coltishall

2.6.1 If the eco-town does not progress at Coltishall there are a number of possibilities. There has been a consideration of potential future uses of the site by a Task Force consisting of local public sector partners working with the Ministry of Defence Estates and others during 2005 and 2006. The following lists the potential uses which could feasibly be considered/ proposed for the site:

- airfield related
- business use
- institutional
- leisure
- agriculture
- reclamation/restoration
- renewables.

2.6.2 The Ministry of Justice also have plans for a category C prison at Coltishall.

Rackheath

2.6.3 The sites at Rackheath have been included as options for growth in the Greater Norwich Development Plan and it is possible that development

might take place in any event. However, it would be less likely to be an exemplary sustainable development.

2.7 What will be the situation with the eco-town?

Introduction

2.7.1 In this section we consider the sustainability of the proposed locations and developments at Coltishall and Rackheath. The discussion is structured around the sustainability issues derived from the earlier scoping work.

2.7.2 The appraisal draws on information derived from:

- the scoping studies
- the developer's proposal
- discussions with the agents for the Coltishall Group
- discussions with North Norfolk and Broadland District Councils
- a site visit to Coltishall
- the comments of statutory agencies (eg English Heritage, the Environment Agency, Natural England, the Department of Transport)
- discussions with Communities and Local Government.

Biodiversity and green infrastructure

Coltishall

2.7.3 The Habitats Regulations Assessment is set out in detail in Sections 3 and 4 of this chapter. In summary, six Natura 2000 sites (Norfolk Valley fens SAC, Broadlands SPA and Ramsar site (incorporating The Broads SAC), Paston Green SAC, and River Wensum SAC) were considered in the assessment. It was not possible to state that development at Coltishall or Rackheath will not lead to material adverse effects on four of these sites (Norfolk Valley Fens SA, Broadlands SPA and Ramsar site or the River Wensum SAC) as a result of recreational pressure. It was also not possible to rule out adverse effects on European sites as a result of increased abstraction or on the Broadlands SPA as a result of deteriorating water quality. Additional measures are therefore required within the Policy Statement to give greater certainty that adverse effects will not result and these are detailed in Sections 3 and 4.

2.7.4 The developers have given thought to the creation of green infrastructure as part of the Concept master plan. Principles have been established to:

- create a new Broad of high ecological value

- retain existing trees and hedgerows either on or adjacent to the site
- integrate the development with the surrounding environment
- provide opportunities for recreation through the provision of open space, both on and off water, and a network of footpaths/cycleways.

2.7.5 The open expanse of water (the new Broad) will be the key attraction, both the recreation lake to the north of the existing runway and nature conservation lake to the south will offer opportunities for habitat creation.

2.7.6 To ensure the long term management of green spaces and expanses of Broad, a Nature Conservation Strategy and Biodiversity Action Plan for Coltishall and a Management Plan for surrounding land will be produced providing local biodiversity within the area.

2.7.7 Included within the Masterplan are green spaces made up of open space (on and off water) 156 ha and allotments 1.1 ha. In total green spaces will make up 60 per cent of the total site area. If the total dwellings numbers are increased on site, this will fall to approximately 40 per cent open space. Both lakes making up the Broad will include management as part of a Nature Conservation Strategy.

Rackheath

2.7.8 Outline proposals include the retention of existing important green spaces and significant levels of heathland habitat re-creation to provide stepping stones that would eventually link Mousehold Heath to the surrounding countryside, and historic parkland, and the Broads.

Climate change adaptation and flood risk

Coltishall

2.7.9 Development at Coltishall potentially avoids Flood Risk Zones 2 and 3, although there is potential for increased down catchment flood risk.

Rackheath

2.7.10 The Stage 2 SFRA indicates that the Rackheath proposal is located within flood risk zone 1 (low risk). The Stage 2 SFRA also indicates any which exhibit good, average, or poor SUDS potential. The entire Rackheath site exhibits soil types classified as having good infiltration capacity with good SUDS potential and therefore all SUDS components can be used within the development.

2.7.11 The Rackheath site is located within the total catchment of a Source Protection Zone. This will not prevent the incorporation of SUDS components across the site. However, it will be necessary to incorporate design features

that eliminate the pollution risk to groundwater from its surface water soaking into the ground from hardstanding or trafficked areas.

Climate change mitigation

Coltishall

2.7.12 Coltishall will be designed for 'low carbon living' through the provision of zero carbon housing and buildings, sustainable travels plans and large green spaces. The intention is for all homes to be Code for Sustainable Homes Level 6, and other buildings BREEAM excellent, or LEED gold.

2.7.13 The development proposal also states that housing and buildings within Coltishall will exceed these standards by additionally addressing emissions arising from waste, transport and sewage treatment taking a whole development approach.

Rackheath

2.7.14 The Rackheath Eco-Community will adopt low carbon design standards and is to be designed around a palette of on-site renewable energy sources such as wind turbines, combined heat and power (CHP) and ground source heat pumps and perhaps on-site biomass cropping. BREEAM standards and the Code for Sustainable Homes (Code 6) will also be used, paving the way towards zero carbon.

Landscape and historic environment

Coltishall

2.7.15 The developer's landscape strategy proposes the retention of the majority of the important landscape features on site and on adjacent land including hedgerows and trees. New hedgerows are proposed which will contribute to Norfolk's Biodiversity Action Plan (BAP) targets.

2.7.16 The proposal will retain all structures of historical significance including the blast walls, airfield skirt, fighter pen, control town and hangers. These structures will be integrated fully into the public realm, and re-use buildings for public use.

2.7.17 A landscape management programme will also be adopted to ensure the long term survival of existing features. The overall landscape strategy will not only complement the urban design, but also soften and screen the proposed development within the wider landscape.

2.7.18 Tree lined boulevards are planned to give identity to the primary roads and bus links.

2.7.19 The proposal will retain the structures of historic significance including the blast walls, airfield skirt, control tower and hangers. These structures will be integrated into the development and re-used as appropriate.

Rackheath

2.7.20 It is planned to retain existing important green spaces and to recreate significant levels of heathland to provide stepping stones that would eventually link to Mousehold Heath to the surrounding countryside, and historic parkland, and the Broads.

2.7.21 The location of the community will facilitate the retention of a strategic green space to protect the setting of the city.

Waste

2.7.22 The development proposal at Coltishall states that it will be designed to minimise pollution during the construction phase including reducing waste.

Water resources and water quality

Coltishall

2.7.23 Water resources in the region are under pressure, and the Environment Agency believes that there is no additional water available in the catchments around the proposed site as identified in the Catchment Abstraction Management Plan.

2.7.24 The proposal at Coltishall states that buildings will be designed for low water demand requirements with rain water harvesting systems ensuring that the location minimises its impact on resources.

Rackheath

2.7.25 The development will employ a sustainable water strategy which promotes reduction in water usage: rainwater harvesting, and water recycling and re-use, with the aim to achieve water neutrality.

Community infrastructure

Coltishall

2.7.26 Current proposals for service provision include:

- mixed-use town centre
- a neighbourhood centre (essential shopping, retail provision and on-site leisure)
- employment areas

- two primary schools
- one secondary school
- healthcare facilities
- library provision
- banking and financial facilities
- Norfolk Broad (recreation lake, nature conservation lake and SUDS)
- eco spa hotel
- wetlands education centre
- boatyard
- Douglas Bader Museum
- traditional crafts training centre
- areas of open space – formal (sport pitches and pavilion) and informal
- waste treatment works
- allotments.

2.7.27 The Developers hope that the provision of these facilities on site, all within easy walking and cycling distance of the residential development, will greatly reduce the need to travel by private car.

Rackheath

2.7.28 Current proposals for service provision include:

- an accessible high street
- library, education and health facilities
- local centres
- secondary school
- sports and recreation facilities
- green space network including accessible open space, as well as access to the countryside.

Community wellbeing

Coltishall

2.7.29 The Coltishall development is planned to create a new community with its own strong identity but also with links to the wider area.

2.7.30 The Developers will strongly encourage public participation in the detailed planning of the settlement and particularly in the 'operation' of the town.

2.7.31 The Developers propose to encourage community involvement, ownership and the creation of community spirit by setting up a group of major stakeholders to aid the management of the eco-town. This group will be established at an early stage in the development and will remain active once built to encourage and coordinate civic activity.

Rackheath

2.7.32 The planning of Rackheath Eco-Community will particularly involve residents of the existing communities of Rackheath, as these individually will be most affected by the proposal, with residents areound Salhouse, as well as employees based in the area, being consulted. Formulation of a development strategy will involve extensive consultation with all stakeholders.

Decent and affordable homes

Coltishall

2.7.33 The developers are aiming for all homes to be Code for Sustainable Homes Level 6. It is intended that 40 per cent of the homes will be affordable with a range of accommodation from flats to family homes.

Rackheath

2.7.34 The Rackheath Eco-Community will provide for a range of housing types.

Transport and accessibility

Coltishall

2.7.35 A key objective of eco-towns is to achieve a significant reduction in the need to use private cars. The proponents have created a transport strategy which minimises the use of the private car and provides convenient alternative sustainable modes for all potential trips. They also assume that the provision of facilities on site, all within easy walking and cycling distance of the residential development, will greatly reduce the need to travel by private car.

2.7.36 The proposals for transport and accessibility at Coltishall are based on four principles. The first is to make the development "ultra-low-car." The goal would be to restrict traffic generation to similar levels to the former operational RAF airbase (in practice, about 10 per cent of what might be expected of a more conventional development). The second principle is that infrastructure provision will be focused on public transport, cycling and walking. Thirdly, there will be a strong commitment to community engagement, monitoring and intervention. Fourthly, the development will target individuals, families and businesses with a low need to travel such retired people and those with a commitment to eco-living.

2.7.37 Ultra-low-car development will involve minimal car parking standards, car parking charges, a car club and incentives to live and work on site. There will be no improvements to highways other than for safety purposes but a small sum will be reserved for such improvements to be used in accordance with agreed criteria by the highway authority. The railway will be extended into the site and good services provided to Norwich. Bus services will seek to establish Coltishall as a local "hub".

2.7.38 The Norwich to Sheringham (Bittern Line) runs approximately 3 km to the east of the site, with stations at Wroxham and Worstead. The Bure Valley Narrow Gauge Railway, which runs between Wroxham and Aylsham, passes close to the southern boundary of the site. This narrow gauge line was a former branch line and is now used for leisure trips. It is proposed that the section of the existing Bure Valley Railway, between the site and Wroxham, be re-instated to full mainline standard gauge requirements and that a new station be constructed within the site along with improvements at Coltishall and Wroxham. The improvements at Wroxham station will allow a new platform to be provided and waiting area to enable the mainline trains to pass.

2.7.39 It is then proposed to run a new service (possibly a light EcoTrain) between the site and Norwich City Station. It is proposed that this service would also stop at Broadland Park linking the site with this strategically important employment site, providing a regular service without affecting the main line services.

2.7.40 Due to the important restriction on rail access, it is also proposed to provide a new regular bus service from the site to the city centre, linking the development with the retail and employment developments in the northern suburbs, Norwich International Airport, the Park and Ride and the city centre. It is proposed that this route will utilise the A140 Cromer Road route into the city. A series of bus priority measures will be introduced along this route which will be developed in partnership with the Highway Authority and the public transport operators.

2.7.41 An extensive network of high quality footpath/cycleway facilities will be provided within the development linking all of the key facilities. It is also proposed that, beyond the site boundary, footway/cycleway facilities will be provided adjacent to existing carriageways and other corridors where possible. These would also link to the long distance leisure routes in the area.

2.7.42 As part of the overall sustainable transport strategy, a travel plan will be developed and operated for the scheme. This will include a wide range of travel incentives and awareness measures. It is proposed that all dwellings will be Broadband connected with a central collection and ordering point for the main supermarkets, such as Asda, Tesco and Sainsbury's. Discounted bus/rail tickets will be provided to occupants as well as details on individual travel

plans. It is proposed that a Car Club facility will also be provided on the site. The plan will be agreed with the Highway Authority and operated by a dedicated on site Travel Plan Coordinator.

Rackheath

2.7.43 In correspondence to the Minister for Housing dated 1 August 2008 from Greater Norwich Development Partnership (GNDP) it was stated that:

- the location lends itself to being serviced by improved public transport corridors
- is in close proximity to an operational railway line with station access
- is in close proximity to existing and planned areas for employment growth
- is in proximity to Norwich's retail and cultural facilities.

2.7.44 A key objective of eco-towns is to achieve a significant reduction in the need to use private cars. The layout of the community will be planned such that all facilities are within easy walking distance of residential areas, with key facilities and employment within 5 minutes walk of residential areas. The development seeks to achieve excellence in the provision of public transport and the facilities for walking and cycling to minimise car usage. The design of the development will give priority to walking and cycling with restricted access by private car. Some of the proposed transport improvements include:

- bus rapid transit to the city centre possibly via Salhouse Road and Gurney Road and a choice of safe and direct cycle routes to the centre
- safe and direct cycle and pedestrian routes, and orbital bus services, to Broadland Business Park, Rackheath and the Airport employment areas
- a second railway station at Rackheath and a new rail freight facility to serve the biomass CHP, building materials and an intermodal facility for the sub-region.

2.7.45 There is a minerals investigation area west of Salhouse Station. This area is not seen as a significant constraint to the development and, if deposits are proven, could provide a valuable resource for building materials, further reducing the need to transport materials to the site.

Employment and economy

Coltishall

2.7.46 It is proposed that the Coltishall eco-town provide in excess of 3,000 jobs. Ultimately, the aim is to create a similar number of jobs in the town as there are residents available for work, thereby minimising the need for residents to travel. Employment opportunities will include:

- wide range of skilled and unskilled jobs
- high quality business and technology park in a parkland setting
- business incubator and start-up business premises
- ideal location for footloose business and home workers
- park rangers, wetland specialists and groundskeepers
- teachers, doctors and community liaison staff
- service sector including catering and cleaning.

2.7.47 To ensure that a balanced provision of employment opportunities is made at Coltishall, it is proposed that there will be close-working with East of England Regional Assembly (EERA) and sub-regional organisations to support planned new economic growth. An economic strategy will be produced to guide development within the eco-town and its linkages to Growth Points, most notably Norwich City.

Rackheath

2.7.48 Existing opportunities at Rackheath industrial estate will be supported and the site enhanced. Other opportunities will be provided within mixed use areas within the community. The community will also have high quality bus and rail links to other key employment sites in the Norwich Policy Area, including the city centre.

Spatial issues

Coltishall

2.7.49 The proposed development is located on brownfield land.

2.7.50 The agricultural land classification is Grade 4.

Alternative sites – Rackheath

2.7.51 Most of the land on the northern site was formerly an airfield, other than this land at the location has not been previously developed.

2.7.52 The agricultural land classification is Grade 3.

2.8 How can we mitigate/enhance effects?

Coltishall

2.8.1 The **key strengths of the location** from a sustainability viewpoint are:

- the limited landscape, ecological and historic interest of the site and the potential to create ecological gain

- it is a brownfield site.

2.8.2 The **key weaknesses of the location** from a sustainability viewpoint are that:

- current isolation of the site in relation to current public transport links and the requirement for major transport infrastructure upgrades
- available water resources

2.8.3 The sustainability of Coltishall as a potential eco-town location is further assessed in Table 6. The table uses a series of 23 indicators, derived from the appraisal criteria, to provide an objective summary of the strengths and weaknesses of the location from a sustainability viewpoint. These have then been assessed as positive (green), negative (red), neutral (orange) or not known or not material (blank). On this basis, Coltishall been assessed as:

C. Location only likely to be suitable for an eco-town with substantial and exceptional innovation

Table 6: Sustainability of Coltishall as an eco-town location

SA Issue	Site Specific Issues	Indicators	Comment
Biodiversity and green infrastructure	Conserve and enhance biodiversity	SSSIs within or adjacent to the site	No
	Protect and enhance priority habitats and species	Presence of priority habitats/species	Not known
	Increase and enhance green infrastructure		
Climate change adaptation and flood risk	Avoid development in areas of high flood risk	Area of flood risk 3 within site	No
	Avoid exacerbating flooding in the vicinity of the site	Area of flood risk 3 adjacent to the site	Yes – nearby River Bure west and south west of Lamas
Climate change mitigation	Maximise use of renewable energy	Potential of the site for renewable energy	Not known
Landscape and historic environment	Protect and enhance the landscape	Designated landscapes across or adjacent to the site	No
	Protect and enhance heritage assets and their settings	Listed buildings/ ancient monuments within or adjacent to the site	No
Water resources and water quality	Minimise impacts on water resources and water quality	Water supply status	No additional water available
		STW capacity	New STW required

Table 6: Sustainability of Coltishall as an eco-town location *(continued)*

SA Issue	Site Specific Issues	Indicators	Comment
Community infrastructure/ wellbeing	Utilise existing infrastructure within its capacity Complement broader planning policies/ objectives	Will contribute to retaining character of higher order centre	No
		Will facilitate regeneration	May detract from regeneration in North Walsham
		Within or adjacent to Air Quality management Area (AQMA)	Yes – 3 NO2 AQMAs at St Augustines, Grapes Hill and Castle in Norwich
Decent and affordable homes	Meet housing need	Demand for housing	Yes – Annual target of 90 completions for NNDC Target of 37,500 completions for Norwich, BDC and SNDC b/n 2001-2021
		Demand for affordable housing	Yes – lack of affordable housing identified in NNDC & BDC
Transport and accessibility	Provide easy access to a higher order centre Provide easy access to a railway station Discourage long distance commuting Proximity to area of poor air quality	Proximity to higher order centre (distance)	Norwich c.20km (12.5 miles)
		Proximity to railway station (distance)	Worstead c.5km (3 miles)
		Proximity to existing sources of employment (scale/ distance)	North Walsham c.9km (5.5 miles) and Norwich c.20km (12.5 miles)
		Proximity to motorway/strategic road network (distance)	A140 c.6.5km (4 miles), B1150 c.1km (0.6 miles)
Spatial issues	Use brownfield land wherever possible Reduce the loss of and damage to the most versatile agricultural land Reduce the quantity of contaminated land	Area of previously developed land within the site	Yes – All of site previously developed land
		Area of grade 1/2 agricultural land within the site	No – Grade 4
		Area of contaminated land	Not known
		Part or all of site within Green Belt	No
		Within growth area	No

Key:			
Positive	Not known	Potential Negative	Negative

2.8.4 The **key strengths of the development** from a sustainability viewpoint would be subject to verification of their feasibility and further development:

- the transport and accessibility proposals
- the community management arrangements
- the proposed range of community infrastructure
- the range of proposed employment
- the proposed exemplar sustainability standards for houses and buildings.

2.8.5 Issues which require further consideration and elaboration are:

- the traffic impacts on the local road network
- ecological study
- an energy strategy
- a water cycle/drainage study
- a waste management strategy
- any proposals to minimise the adverse impacts and maximise the positive impacts on nearby existing communities
- a site specific Flood Risk Assessment should clear up existing uncertainty relating to the potential for flood risk elsewhere as a result of increased surface water run-off and possible locations and use of SUDS
- HRA results.

2.8.6 The table below compares the development with the draft standards for eco-towns set in the Progress Report published in July.

Table 7: Coltishall and eco-town criteria

Progress Report Draft eco-towns Criteria	Indicators	Performance of Coltishall Development
Master planning and Sustainability Action Plans	All eco-towns proposals must be accompanied by a detailed master-plan and a sustainability action plan that will show how the overall target to reduce CO_2 emissions by 80% and any other targets such as those on transport and jobs will be achieved and sustained. Core services that underpin the delivery of CO_2 targets such as public transport infrastructure and services must be delivered and be operational when the first residents move in.	No detailed master-plan available (illustrative masterplan available) – proposal in early stages.
Governance	Proposals must be accompanied by long term governance proposals for the development to ensure that: • there is engagement and consultation with existing neighbouring communities • targets are met and maintained • future development continues to meet the minimum criteria • there is continued community involvement and engagement • community assets are maintained	Proposal includes reference to the strongly encouraging public participation in the detailed planning of the settlement and particularly in the 'operation' of the town. Community involvement, ownership and the creation of community spirit to be encouraged by setting up a group of major stakeholders to aid the management of the eco-town. This group will be established at an early stage in the development and will remain active once built to encourage and coordinate civic activity.
Zero Carbon	Proposals must demonstrate that over a year the net carbon dioxide emissions from all energy use within the buildings on the development are zero or below (excludes embodied carbon and emissions from transport)	The intention is for all homes to be Code for Sustainable Homes Level 6, and other buildings BREEAM excellent, or LEED gold.
Transport	Proposals must demonstrate that they will achieve significant reduction in the need to use private cars and that modal share should reflect the very best European examples where over 50% of trips are by other modes. All homes should be within a 10/15 minutes walk of core services (such as schools, local shops, health services and sports facilities) and of a frequent and high quality public transport service linking business and residential areas and the wider transport network.	Proposal assumes that the provision of facilities on site, all within easy walking and cycling distance of the residential development and other measures will greatly reduce the need to travel by private car.

Table 7: Coltishall and eco-town criteria *(continued)*

Progress Report Draft eco-towns Criteria	Indicators	Performance of Coltishall Development
Homes	As well as being zero carbon, homes in eco town proposals: • must all achieve Building for Life Silver Standard and Level 4 of the Code for Sustainable Homes at a minimum (unless higher standard set elsewhere) • must all meet lifetime homes standards and English Partnerships space standards • must all have real time energy monitoring and high speed broadband access with real time public transport information • at least 30% must be affordable (which includes social rented and intermediate housing)	No mention of Building for Life or lifetime home standards, energy monitoring or high speed broadband access. It is proposed that all dwellings will be Broadband connected. No mention of speed of connection. All homes to be Code for Sustainable Homes Level 6 Commitment to providing at least 40% affordable housing.
Employment	It is important to ensure that eco towns are genuine mixed use communities and that unsustainable commuter trips are kept to a minimum. Therefore proposals must ensure that there is significant provision for the creation of employment opportunities within the town. In addition proposals must be accompanied by an economic strategy that demonstrates how targets for access to jobs will be achieved. As a minimum this should be: • the provision of one job or employment opportunity per new dwelling that is easily accessible by foot, cycling or public transport	It is proposed that the Coltishall eco-town provide in excess of 3,000 jobs. Ultimately, the aim is to create a similar number of jobs in the town as there are residents available for work, thereby minimising the need for residents to travel.
Service Provision	Proposals must include a good level of provision of services within the eco town that is proportionate to the size of the development. This must include facilities for retail, leisure, health, education, arts and culture, sport, play etc. [The provision of services within the eco-town should enable those who choose to live as part of a community with a degree of self-containment to do so.]	The proposal includes providing a wide range of community facilities.

Table 7: Coltishall and eco-town criteria *(continued)*

Progress Report Draft eco-towns Criteria	Indicators	Performance of Coltishall Development
Water efficiency and drainage	Eco-town proposals should aspire to achieve water neutrality for the wider area around them and in particular they must: • achieve level 6 of the water element of the Code for Sustainable Homes; • have Sustainable Drainage Systems (SUDS)	All homes to be Code for Sustainable Homes Level 6. Proposal mentions buildings will be designed for low water demand requirements with rain water harvesting systems. No particular mention of SUDS.
Green Infrastructure and Biodiversity	40% of the town's total area must be allocated to green infrastructure of which at least 20% must be public and consist of a network of well managed, high quality green/open spaces which is linked to the wider countryside.	Includes proposals for green/open spaces made up of open space (on and off water) 156 ha and allotments 1.1 ha. In total green spaces will make up 60% of the total site area. If the total dwellings numbers are increased on site, this will fall to approximately 40% open space.
Waste	Eco-town proposals must set out how they will surpass the 2007 National Waste Strategy targets for 2020 and in particular: • all homes must achieve the maximum 4 points in the Code for Sustainable homes for storage of non-recyclable waste and recyclable household waste • all non-residential buildings to achieve BREEAM/CEEQUAL standards	The intention is for all homes to be Code for Sustainable Homes Level 6, and other buildings BREEAM excellent, or LEED gold. No specific mention of the Code for Sustainable homes for storage of non-recyclable waste and recyclable household waste.

Rackheath

2.8.7 The **key strengths of the location** from a sustainability viewpoint are:

- close to existing operational railway with station access
- proximity to Norwich and the location within the Norwich Priority Growth Area
- the location is being considered in the Core Strategy by the Greater Norwich Development Partnership.

2.8.8 The **key weaknesses of the location** from a sustainability viewpoint are that:

- the location is split into two sites extending either side of the NDR
- the great majority of the site has not been previously developed.

2.8.9 The sustainability of Rackheath as a potential eco-town location is further assessed in Table 8. The table uses a series of 23 indicators, derived from the appraisal criteria, to provide an objective summary of the strengths and weakness of the location from a sustainability viewpoint. These have then been assessed as positive (green), negative (red), neutral (orange) or not known or not material (blank). On this basis, Rackheath has been assessed as:

A. Generally suitable for an eco-town

Table 8: Sustainability of Rackheath as an eco-town location

SA Issue	Site Specific Issues	Indicators	Comment
Biodiversity and green infrastructure	Conserve and enhance biodiversity	SSSIs within or adjacent to the site	No
	Protect and enhance priority habitats and species Increase and enhance green infrastructure	Presence of priority habitats/species	Yes – Lowland Mixed Deciduous Woodland and Upland Oakwoods
Climate change adaptation and flood risk	Avoid development in areas of high flood risk	Area of flood risk 3 within site	No
	Avoid exacerbating flooding in the vicinity of the site	Area of flood risk 3 adjacent to the site	No
Climate change mitigation	Maximise use of renewable energy	Potential of the site for renewable energy	Not known
Landscape and historic environment	Protect and enhance the landscape Protect and enhance heritage assets and their settings	Designated landscapes across or adjacent to the site	No, but may impinge on historic parkland, ancient woodland and county wildlife sites
		Listed buildings/ ancient monuments within or adjacent to the site	Yes – on-site
Water resources and water quality	Minimise impacts on water resources and water quality	Water supply status	Resources available
		STW capacity	Up to 6,000 houses without increased capacity

Table 8: Sustainability of Rackheath as an eco-town location *(continued)*

SA Issue	Site Specific Issues	Indicators	Comment
Community infrastructure/ wellbeing	Utilise existing infrastructure within its capacity Complement broader planning policies/ objectives	Will contribute to retaining character of higher order centre	Yes
		Will facilitate regeneration	Yes
		Within or adjacent to Air Quality management Area (AQMA)	Yes – 3 NO2 AQMAs at St Augustines, Grapes Hill and Castle in Norwich
Decent and affordable homes	Meet housing need	Demand for housing	Yes – target of 37,500 completions for Norwich, BDC and SNDC b/n 2001-2021
		Demand for affordable housing	Yes – lack of affordable housing identified BDC
Transport and accessibility	Provide easy access to a higher order centre Provide easy access to a railway station Discourage long distance commuting Proximity to area of poor air quality	Proximity to higher order centre (distance)	Norwich c.9km (5.5 miles)
		Proximity to railway station (distance)	Salhouse c.2.5km (1.5 miles)
		Proximity to existing sources of employment (scale/ distance)	Some employment areas on-site, Norwich c.9km (5.5 miles)
		Proximity to motorway/strategic road network (distance)	A.1151 c.500m
Spatial issues	Use brownfield land wherever possible Reduce the loss of and damage to the most versatile agricultural land Reduce the quantity of contaminated land	Area of previously developed land within the site	Yes – most of the northern site is previously developed land
		Area of grade 1/2 agricultural land within the site	No – Grade 3
		Area of contaminated land	Not known
		Part or all of site within Green Belt	No
		Within growth area	Yes

Key:			
Positive	Not known	Potential Negative	Negative

2.8.10 The **key strengths of the development** from a sustainability viewpoint would be subject to verification of their feasibility and further development (including the other part of the site):

- the transport and accessibility proposals
- the community consultation arrangements
- the proposed range of community infrastructure
- the proposed exemplar standards for houses and buildings and on-site renewable energy
- the proposal for a sustainable water strategy.

2.8.11 Issues which require further consideration and elaboration are:

- a detailed development proposal relevant to the whole location.

2.8.12 The table below compares the development with the draft standards for eco-towns set out in the Progress Report published in July 2008.

Table 9: Rackheath and eco-town criteria

Progress Report Draft eco-towns Criteria	Indicators	Performance of Rackheath Development
Master planning and Sustainability Action Plans	All eco-towns proposals must be accompanied by a detailed master-plan and a sustainability action plan that will show how the overall target to reduce CO_2 emissions by 80% and any other targets such as those on transport and jobs will be achieved and sustained. Core services that underpin the delivery of CO_2 targets such as public transport infrastructure and services must be delivered and be operational when the first residents move in.	No detailed master-plan available – proposal in very early stages.

Table 9: Rackheath and eco-town criteria *(continued)*

Progress Report Draft eco-towns Criteria	Indicators	Performance of Rackheath Development
Governance	Proposals must be accompanied by long term governance proposals for the development to ensure that: • there is engagement and consultation with existing neighbouring communities • targets are met and maintained • future development continues to meet the minimum criteria • there is continued community involvement and engagement • community assets are maintained	Proposal mentions that planning of Rackheath Sustainable Community will particularly involve residents of the existing communities of Rackheath, New Rackheath and Salhouse, as well as employees based in the area, as these are the ones most affected by the proposal. Formulation of a development strategy will involve extensive consultation with all stakeholders.
Zero Carbon	Proposals must demonstrate that over a year the net carbon dioxide emissions from all energy use within the buildings on the development are zero or below (excludes embodied carbon and emissions from transport)	The Rackheath Sustainable Community will adopt low carbon design standards and is to be designed around a palette of on-site renewable energy sources such as wind turbines, combined heat and power and ground source heat pumps and perhaps on-site biomass cropping. The use of BREEAM standards and the Code for Sustainable Homes (Code 6) will also be used, paving the way towards zero carbon homes.
Transport	Proposals must demonstrate that they will achieve significant reduction in the need to use private cars and that modal share should reflect the very best European examples where over 50% of trips are by other modes. All homes should be within a 10/15 minutes walk of core services (such as schools, local shops, health services and sports facilities) and of a frequent and high quality public transport service linking business and residential areas and the wider transport network.	Transport improvements are suggested in the proposal; however they are still in the early stages. The layout of the community will be planned such that all facilities are within easy walking distance of residential areas, with key facilities and employment within five minutes walk of residential areas.

Table 9: Rackheath and eco-town criteria *(continued)*

Progress Report Draft eco-towns Criteria	Indicators	Performance of Rackheath Development
Homes	As well as being zero carbon, homes in eco town proposals: • must all achieve Building for Life Silver Standard and Level 4 of the Code for Sustainable Homes at a minimum (unless higher standard set elsewhere) • must all meet lifetime homes standards and English Partnerships space standards • must all have real time energy monitoring and high speed broadband access with real time public transport information • at least 30% must be affordable (which includes social rented and intermediate housing)	No mention of Building for Life or lifetime home standards, energy monitoring, high speed broadband access or proportion of affordable housing. The use of BREEAM standards and the Code for Sustainable Homes (Code 6) will also be used, paving the way towards zero carbon homes.
Employment	It is important to ensure that eco towns are genuine mixed use communities and that unsustainable commuter trips are kept to a minimum. Therefore proposals must ensure that there is significant provision for the creation of employment opportunities within the town. In addition proposals must be accompanied by an economic strategy that demonstrates how targets for access to jobs will be achieved. As a minimum this should be: • the provision of one job or employment opportunity per new dwelling that is easily accessible by foot, cycling or public transport	Existing opportunities at Rackheath industrial estate will be supported and the site enhanced. Other opportunities will be provided within mixed use areas within the community. The community will also have high quality bus and rail links to other key employment sites in the Norwich Policy Area, including the city centre. The layout of the community will be planned such that all facilities are within easy walking distance of residential areas, with key facilities and employment within 5 minutes walk of residential areas.
Service Provision	Proposals must include a good level of provision of services within the eco town that is proportionate to the size of the development. This must include facilities for retail, leisure, health, education, arts and culture, sport, play etc. [The provision of services within the eco-town should enable those who choose to live as part of a community with a degree of self-containment to do so.]	The proposal includes providing a range of community facilities.

Table 9: Rackheath and eco-town criteria *(continued)*

Progress Report Draft eco-towns Criteria	Indicators	Performance of Rackheath Development
Water efficiency and drainage	Eco-town proposals should aspire to achieve water neutrality for the wider area around them and in particular they must: • achieve level 6 of the water element of the Code for Sustainable Homes • have Sustainable Drainage Systems (SUDS)	The development will employ a sustainable water strategy which promotes reduction in water usage and water recycling and re-use.
Green Infrastructure and Biodiversity	40% of the town's total area must be allocated to green infrastructure of which at least 20% must be public and consist of a network of well managed, high quality green/open spaces which is linked to the wider countryside.	Includes proposals for green/open spaces but no information on percentages.
Waste	Eco-town proposals must set out how they will surpass the 2007 National Waste Strategy targets for 2020 and in particular: • all homes must achieve the maximum 4 points in the Code for Sustainable homes for storage of non-recyclable waste and recyclable household waste • all non-residential buildings to achieve BREEAM/CEEQUAL standards	No particular mention of minimising waste in the proposal.

2.9 How should we monitor sustainability impacts?

2.9.1 The sustainability impacts of eco-towns could be monitored partly through regional and local monitoring frameworks. Both the Regional Planning Body and Local Planning Authorities are required to monitor the implementation of their spatial policies – as set out in RSSs and LDFs – and report their findings in an annual monitoring report (AMR). Both RPBs and LPAs could therefore include indicators for monitoring the sustainability performance of eco-towns in their region/district or borough within their AMRs. In light of the appraisal, we consider that indicators should include a particular focus on transport and employment – two of the most challenging issues associated with eco-towns and two of the most important determinants of their overall sustainability. Indicators could include, for example, the proportion of the resident eco-town population who travel to work by

public transport, walking and cycling and the number of eco-town residents employed within the town itself.

2.9.2 However, it will also be important that the wider 'lessons learned' in the planning, development and occupancy of eco-towns are effectively captured and disseminated. This will require gathering a wider range of information including on issues such as funding and partnership working and essentially telling the story of how the town was developed, the obstacles encountered and how these were negotiated. Inspiration could be taken from the Lessons from Cambourne, an evaluation of a new settlement 10 miles west of Cambridge and the insights this provides.[24]

[24] Platt, S. (2007). *Lessons from Cambourne* [online] available at: www.inspire-east.org.uk/FileAccess.aspx?id=744 (accessed 15 August 2008).

3 Habitats Regulations Assessment – Coltishall

3.1 Introduction

3.1.1 This section sets out the draft Appropriate Assessment component of the Habitats Regulations Assessment (HRA) of the shortlisted eco-town location and associated development proposal at **Coltishall**. Part 1 should be referred to for details of the assumptions and principles underlying this assessment.

3.1.2 The European sites that have been scoped into consideration for the two locations are:

- Broadland SPA and Ramsar site and The Broads SAC, approximately 5km to the east (the Smallburgh Fen SSSI being the closest part)
- Norfolk Valley Fens SAC, approximately 7km to the west (the Buxton Heath SSSI being the closest part)
- Paston Great Barn SAC, approximately 10km to the north
- and River Wensum SAC, approximately 12 km to the south west.

3.2 Assessment

Urbanisation

3.2.1 Given that the Coltishall site lies 5km from the nearest European site, it can be said that the settlement will not lead to adverse effects upon European sites as a result of the general 'urbanisation' impacts (eg arson, fly-tipping, car dumping etc) that can be suffered by those sites that lie very close to substantial settlements.

Recreational pressure

3.2.2 Paston Great Barn SAC is not accessible to the public. However, we have not been able to obtain accurate data on the recreational catchment for the Norfolk Valley Fens SAC, Broadlands SPA and Ramsar site or the River Wensum SAC. For example, our understanding is that the Broads Authority only collect data for certain parts of the Broads and generally only for boat users; they do not collect data on the majority of recreational activities that take place and have not calculated recreational catchments. Although a Recreation Technical Report was produced for the HRA of the Regional Spatial Strategy, the authors of that report were also unable to source recreational catchment data for these European sites and made use of

the England Day Visits data as a proxy. The most recent Day Visits survey indicated that recreational users would typically travel 17.2km to visit a 'countryside' site for the day. All three Natura 2000 sites are within 17.2kms of Coltishall.

3.2.3 Given this, it is possible that the new settlement will contribute cumulatively with the 8,000 homes to be delivered in Norfolk under the RSS to an overall increase in visitor pressure on these sites that will make delivery of site management plans that much more challenging.

Local air quality

3.2.4 As discussed in the Introduction to the SRA/HRA of the Programme, this section confines itself to a consideration of local air quality effects on European sites that lie within 200m of those local roads (defined for the purposes of this assessment as those within 2km of the eco-town) that can reasonably be expected to experience substantial increase in regular vehicle movements). Since the nearest European site is 5km from the eco-town, it can be concluded that there will be no such issues associated with Coltishall. The cumulative contribution of the eco-towns to diffuse pollution and local deposition on European sites elsewhere in the region/country are dealt with as a separate issue within the Introduction to the SA/HRA of the Programme.

Water resources

3.2.5 According to Anglian Water's latest Water Resource Management Plan (April 2008), most of the area around Norwich (which lies within the Norwich & The Broads Water Resource Zone) is currently serviced either by abstraction from the River Wensum or from boreholes in the chalk aquifer. The Water Resource Zone is hydrologically linked to a number of Natura 2000 sites including The Broads SAC, Broadlands SPA and the lower part of the River Wensum SAC.

3.2.6 This seems to be supported by Stage 3 of the Environment Agency's Review of Consents process, which has identified 13 surface and 10 groundwater abstraction licences that could not be shown they were not adverse affecting the Bure Broads and Marshes SSSI (part of The Broads SAC/Broadlands SPA). In addition five licences were believed to be impacting the site 'alone'. At this early stage in the Stage 4 process it appears that existing licences will need to be modified so as to reduce their hydrological impact during drought years. While existing problems with damaging abstraction from this CAMS area will be resolved through the implementation of the Review of Consents conclusions, these clearly indicate a water resource problem for the Coltishall eco-town.

3.2.7 As such, it seems likely that a new approach to water supply will be required for the eco-town. It is possible that if abstraction was restricted to the confined chalk aquifer no hydrological impacts on European sites would result, but this would require further investigation since although the aquifer is described in the Environment Agency's Broadland Rivers Catchment Abstraction Management Strategies (CAMS) document at having 'water available', there is nonetheless a hydraulic link to the Broadlands SPA & Ramsar site and Broads SAC.

3.2.8 Since the exact water supply mechanism for this site is not known at this stage, it is not currently possible to definitively conclude that the process of supplying the development with water will not involve levels of abstraction that would inadvertently lead to an adverse effect on European sites.

Water quality

3.2.9 The nearest Sewage Treatment Works (STW) to which the Coltishall development is most likely to be connected ultimately discharge treated effluent to tributaries of the River Bure, which is in hydraulic continuity with the Broads SAC and Broadlands SPA/Ramsar via the Bure Broads & Marshes SSSI, much of which is currently in an unfavourable condition as a result of poor water quality.

3.2.10 The Bure Broads & Marshes SSSI is currently exceeding its nutrient targets: 42 per cent of the nutrients impacting the SSSI site are from point sources, while 58 per cent are from diffuse pollution. The Environment Agency have calculated that their points sources should not exceed 0.023 to 0.027 mg/l ortho-phosphate. Currently fully consented discharges allow 0.029 mg/l ortho-phosphate (exceeding the Natura 2000 targets), however current 'real' concentrations are running between 0.024 and 0.026 mg/l ortho-phosphate. Moreover, it is understood that all the major STWs in the Bure valley are already at the limits of Best Available Technology, such that it is possible that a new STW and alternative discharge locations (potentially a considerable distance away) would need to be sought to service the Coltishall development.

3.2.11 It is therefore not possible to conclude that the Coltishall development will not lead to an adverse effect on European sites as a result of deteriorating water quality.

Coastal squeeze

3.2.12 Not applicable, since the site is 20km from the nearest coastal European site (Winterton-Horsey Dunes SAC).

3.3 Conclusion

3.3.1 It has not proven possible to say that the development that may be delivered at Coltishall under the Eco-towns Planning Policy Statement will not lead to material adverse effects on Norfolk Valley Fens SAC, Broadlands SPA & Ramsar site or the River Wensum SAC as a result of recreational pressure, without further amendments to the Planning Policy Statement. It was also not possible to rule out adverse effects upon European sites as a result of increased abstraction or on the Broadlands SPA as a result of deteriorating water quality.

3.3.2 Additional measures are therefore required in the PPS to provide sufficient direction, in terms of both scope and detail, to ensure the site-specific measures needed to avoid or mitigate an adverse effect. These measures relate to a national policy statement and must therefore be sufficiently general to cover all the eco-towns and any future eco-towns.

3.4 How can we mitigate/enhance effects?

Recreational pressure

3.4.1 It has not been possible (largely due to an absence of accurate data on recreational catchments) to conclude with confidence that the Coltishall (Figure 4: The Broads – Network of SSSIs of European importance map[25]) would not lead to adverse effects on Norfolk Valley Fens SAC, Broadlands SPA & Ramsar site or the River Wensum SAC as a result of recreational pressure, when considered in combination with all other developments promoted by the Regional Spatial Strategies and other initiatives without additional measures being included within the Policy Statement. These measures are given below.

3.4.2 There is a policy in the eco-towns Policy Statement that states:

"Forty per cent of the eco-town's total area should be allocated to green space, of which at least half should be public and consist of a network of well managed, high quality green/open spaces which are linked to the wider countryside. Planning applications should demonstrate a range of types of green space, for example community forests, wetland areas and town squares. The space should be multifunctional, eg accessible for play and recreation by residents walking or cycling safely and easily, and to support wildlife, urban cooling and flood management. Particular attention should be given to land to allow the local production of food from community, allotment and/or commercial gardens."

[25] Source: The Broads Authority (2007) Network of SSSIs with *European Importance Map* [online] available at www.broads-authority.gov.uk/planning/planning-policy/local-development-framework/core-strategy-dpd.htm

3.4.3 The scale of greenspace provision required (40 per cent of the total area) and the reference to habitats of potential biodiversity value (eg community forests) could reduce the extent to which residents are likely to visit European sites and thereby minimise any potential increase in visitor pressure.

- Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each Eco-town that will be making use of the European sites in question and what proportion of the total cumulative load this represents), coupled with the need for any standards within the Draft PPS to be generally applicable, it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided for individual Eco-towns in order to absorb recreational visitors to such an extent that they will not materially contribute towards recreational pressure on the European sites in question.
- While specific standards for the provision of open space have been developed for the Thames Basin Heaths SPA (known as Suitable Accessible Natural Greenspace or SANGs), it is acknowledged that they are not necessarily universally applicable. However, Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.
- In many cases natural greenspace provision to the ANG Standard should serve to minimise the need for recreational resources further afield (ie European sites) to receive an unsustainably large influx of visitors provided that they are delivered within a timescale linked to that of the development and will fulfil a function similar to that of the European site in question (ie dog walking and appreciation of nature rather than more formal recreational activities). For these reasons, we have selected the Natural England ANG standards as the criterion for semi-natural greenspace provision that the Draft PPS should require eco-towns to meet in order to ensure that sufficient recreational space is provided to minimise adverse effects on the identified European sites.
- It is therefore recommended that the following additions to the recreation Policy are incorporated in order for it to provide a more detailed specification.
- As a minimum, new areas of natural (as opposed to more formal) greenspace created as part of the 40 per cent area allocation indicated above should be provided in alignment with the Natural England Accessible Natural Greenspace Standard (ANGSt), which would require

the provision of a natural greenspace (as opposed to a more formal park) of at least 2 hectares in size, no more than 300 metres from the houses it is intended to serve, and new statutory Local Nature Reserves at a minimum level of one hectare per thousand population. If, after the project-level Appropriate Assessment for the eco-town, it is considered that the ANGSt level of provision will be inadequate to reduce the recreational pressure on a European site then a higher level of provision should be made, in line with the conclusions of the project assessment.

- Where the eco-town proponents intend to include existing areas of publically accessible semi-natural greenspace within their allocation in order to meet these standards, they would need to demonstrate that sufficient capacity remained within these sites to absorb the new population from the eco-town.
- The relevant greenspace would need to be provided in advance of occupation of the eco-town and will need to serve a similar recreational function to the European sites from which it is intended to draw recreational users (eg dog-walking and appreciation of nature).
- It is acknowledged that there are some European sites which have an intrinsic appeal that is sufficiently great that the provision of alternative greenspace is unlikely to result in a material reduction in recreational pressure. In these cases the developer would need to liaise with stakeholders in the European site to assist in the development and long-term delivery of an appropriate Site Management Plan, particularly addressing any changes in management that would be necessary to respond to increased visitor numbers or to constrain or manage such an increase. Precise details of measures to be implemented and the actual scale of any contribution would need to be agreed with Natural England and other stakeholders at the project-level Appropriate Assessment but these may need to include car park closures, fencing and moving of footpaths informed by data on visitor behaviour patterns on the European site in question.

Water resources

3.4.4 It has not been possible to conclude with confidence that the Coltishall eco-town would not lead to adverse effects on European sites as a result of additional demands on water resources, when considered in combination with all other developments across the area promoted by the Regional Spatial Strategies, without additional measures being included within the Policy Statement.

3.4.5 Avoiding an adverse effect is largely in the hands of the Water Companies (through their resource planning) and the Environment Agency (through their abstraction licensing process). However, there are actions that can be taken by local authorities and central government through the Planning Policy Statement. The water efficiency & drainage policy in the Draft PPS

does include two robust measure to maximise water efficiencies and these will contribute considerably to minimising water consumption and therefore mitigating adverse effects on European sites from the eco-towns:

- *"Eco-towns in areas of serious water stress should aspire to achieve water neutrality, ie achieving development without increasing overall water use across a wider area... And set out how...*
  - *New homes will be equiped to meet the water consumption requirement of level 5 of the Code for Sustainable Homes"*

3.4.6 However, it is recommended that the following additions to this Policy are incorporated in order for it to be additionally robust:

- Specific reference should be made to the fact that the eco-town development should only take place once any new water supply infrastructure necessary to service the development while avoiding an adverse effect on European sites is in place. The Draft PPS should also indicate how this need will be determined and delivered through interaction with other authorities (Water Companies, the Environment Agency etc) ie through a Water Cycle Strategy.

Water quality

3.4.7 It has not been possible to conclude with confidence that the Coltishall eco-town would not lead to adverse effects on the Broadlands SPA as a result of deteriorating water quality from increased volumes of treated sewage effluent, when considered in combination with all other developments across the area promoted by the Regional Spatial Strategies, without additional measures being included within the Policy Statement. These measures are given below.

3.4.8 Avoiding an adverse effect is largely in the hands of the Water Companies (through their resource planning) and the Environment Agency (through their abstraction licencing process). However, there are actions that can be taken by local authorities and central government through the Planning Policy Statement. The water efficiency & drainage policy in the Eco-towns Planning Policy Statement does not contain any specific measures relating to water quality and it is therefore recommended that the following additions to this Policy are incorporated in order for it to be additionally robust:

- specific reference should be made to the fact that the eco-town development should only take place once any new wastewater treatment infrastructure necessary to service the development while avoiding an adverse effect on European sites is in place. The Policy Statement should also indicate how this need will be determined and delivered through interaction with other authorities (Water Companies, the Environment Agency etc) ie through a Water Cycle Strategy

4 Habitats Regulations Assessment – Rackheath

4.1 Introduction

4.1.1 This section sets out the draft Habitats Regulations Assessment (HRA) of the alternative shortlisted eco-town location and associated development proposal at Rackheath. Part 1 should be referred to for details of the assumptions and principles underlying this assessment.

4.1.2 European sites were scooped into each Appropriate Assessment using the distance criteria set out in the introduction, particularly when considering water pathway linking the eco-town with a European site.

4.1.3 The European sites that have been scoped into consideration for the two locations are:

- Broadland SPA and Ramsar site and The Broads SAC, approximately 5km to the east (the Smallburgh Fen SSSI being the closest part)
- Norfolk Valley Fens SAC, approximately 7km to the west (the Buxton Heath SSSI being the closest part)
- Paston Great Barn SAC, approximately 10km to the north
- and River Wensum SAC, approximately 12km to the south west.

4.2 Assessment

Urbanisation

4.2.1 Given that the Rackheath site lies 4km from the nearest European site, it can be said that the settlement will not lead to adverse effects upon European sites as a result of the general 'urbanisation' impacts (eg arson, fly-tipping, car dumping etc) that can be suffered by those sites that lie very close to substantial settlements.

Recreational pressure

4.2.2 Paston Great Barn SAC is not accessible to the public. However, we have not been able to obtain accurate data on the recreational catchment for the Norfolk Valley Fens SAC, Broadlands SPA and Ramsar site or the River Wensum SAC. For example, our understanding is that the Broads Authority only collect data for certain parts of the Broads and generally only for boat users; they do not collect data on the majority of recreational activities that take place and have not calculated recreational catchments. Although a Recreation Technical Report was produced for the HRA of the Regional

Spatial Strategy, the authors of that report were also unable to source recreational catchment data for these European sites and made use of the England Day Visits data as a proxy. The most recent Day Visits survey indicated that recreational users would typically travel 17.2km to visit a 'countryside' site for the day. All three Natura 2000 sites are within 17.2kms of Rackheath.

4.2.3 Given this, it is possible that the new settlement will contribute cumulatively with the 8,000 homes to be delivered in Norfolk under the RSS to an overall increase in visitor pressure on these sites that will make delivery of site management plans that much more challenging.

Local air quality

4.2.4 As discussed in the Introduction to the SRA/HRA of the Programme, this section confines itself to a consideration of local air quality effects on European sites that lie within 200m of those local roads (defined for the purposes of this assessment as those within 2km of the eco-town) that can reasonably be expected to experience substantial increase in regular vehicle movements). Since the nearest European site is 5km from the eco-town, it can be concluded that there will be no such issues associated with Rackheath. The cumulative contribution of the eco-towns to diffuse pollution and local deposition on European sites elsewhere in the region/country are dealt with as a separate issue within the Introduction to the SA/HRA of the Programme.

Water resources

4.2.5 According to Anglian Water's latest Water Resource Management Plan (April 2008), most of the area around Norwich (which lies within the Norwich & The Broads Water Resource Zone) is currently serviced either by abstraction from the River Wensum or from boreholes in the chalk aquifer. The Water Resource Zone is hydrologically linked to a number of Natura 2000 sites including The Broads SAC, Broadlands SPA and the lower part of the River Wensum SAC.

4.2.6 This seems to be supported by Stage 3 of the Environment Agency's Review of Consents process, which has identified 13 surface and 10 groundwater abstraction licences that could not be shown they were not adverse affecting the Bure Broads and Marshes SSSI (part of The Broads SAC/Broadlands SPA). In addition five licences were believed to impacting the site 'alone'. At this early stage in the Stage 4 process it appears that existing licences will need to be modified so as to reduce their hydrological impact during drought years. While existing problems with damaging abstraction from this CAMS area will be resolved through the implementation of the Review of Consents conclusions, these clearly indicate a water resource problem for the Rackheath eco-town.

4.2.7 As such, it seems likely that a new approach to water supply will be required for the eco-town. It is possible that if abstraction was restricted to the confined chalk aquifer no hydrological impacts on European sites would result, but this would require further investigation since although the aquifer is described in the Environment Agency's Broadland Rivers CAMS document at having 'water available', there is nonetheless a hydraulic link to the Broadlands SPA & Ramsar site and Broads SAC.

4.2.8 Since the exact water supply mechanism for this site is not known at this stage, it is not currently possible to definitively conclude that the process of supplying the development with water will not involve levels of abstraction that would inadvertently lead to an adverse effect on European sites.

Water quality

4.2.9 The nearest sewage treatment works (STW) to which the Rackheath development is most likely to be connected ultimately discharge treated effluent to tributaries of the River Bure, which is in hydraulic continuity with the Broads SAC and Broadlands SPA/Ramsar via the Bure Broads & Marshes SSSI, much of which is currently in an unfavourable condition as a result of poor water quality.

4.2.10 The Bure Broads & Marshes SSSI is currently exceeding its nutrient targets: 42 per cent of the nutrients impacting the SSSI site are from point sources, while 58 per cent are from diffuse pollution. The Environment Agency has calculated that their points sources should not exceed 0.023 to 0.027 mg/l ortho-phosphate. Currently fully consented discharges allow 0.029 mg/l ortho-phosphate (exceeding the Natura 2000 targets), however current 'real' concentrations are running between 0.024 and 0.026 mg/l ortho-phosphate. Moreover, it is understood that all the major STWs in the Bure valley are already at the limits of Best Available Technology, such that it is possible that a new STW and alternative discharge locations (potentially a considerable distance away) would need to be sought to service the Rackheath development.

4.2.11 It is therefore not possible to conclude that the Rackheath development will not lead to an adverse effect on European sites as a result of deteriorating water quality.

Coastal squeeze

4.2.12 Not applicable, since the site is 20km from the nearest coastal European site (Winterton-Horsey Dunes SAC).

4.3 Conclusion

4.3.1 It has not proven possible to say that the development that may be delivered at Rackheath under the Draft PPS will not lead to material adverse effects on Norfolk Valley Fens SAC, Broadlands SPA & Ramsar site or the River Wensum SAC as a result of recreational pressure, without further amendments to the Policy Statement. It was also not possible to rule out adverse effects upon European sites as a result of increased abstraction or on the Broadlands SPA as a result of deteriorating water quality.

4.3.2 Additional measures are therefore required in the PPS to provide sufficient direction, in terms of both scope and detail, to ensure the site-specific measures needed to avoid or mitigate an adverse effect. These measures relate to a national policy statement and must therefore be sufficiently general to cover all the eco-towns and any future eco-towns.

4.4 How can we mitigate effects?

Recreational pressure

4.4.1 It has not been possible (largely due to an absence of accurate data on recreational catchments) to conclude with confidence that the Rackheath eco-town would not lead to adverse effects on Norfolk Valley Fens SAC, Broadlands SPA & Ramsar site or the River Wensum SAC as a result of recreational pressure, when considered in combination with all other developments promoted by the Regional Spatial Strategies and other initiatiaves without additional measures being included within the Draft PPS. These measures are given below.

4.4.2 There is a policy in the Draft PPS that states:

"Forty per cent of the eco-town's total area should be allocated to green space, of which at least half should be public and consist of a network of well managed, high quality green/open spaces which are linked to the wider countryside. Planning applications should demonstrate a range of types of green space, for example community forests, wetland areas and town squares. The space should be multifunctional, eg accessible for play and recreation by residents walking or cycling safely and easily, and to support wildlife, urban cooling and flood management. Particular attention should be given to land to allow the local production of food from community, allotment and/or commercial gardens."

4.4.3 The scale of greenspace provision required (40 per cent of the total area) and the reference to habitats of potential biodiversity value (eg community forests) could reduce the extent to which residents are likely to visit European sites and thereby minimise any potential increase in visitor pressure.

- Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each Eco-town that will be making use of the European sites in question and what proportion of the total cumulative load this represents), coupled with the need for any standards within the Draft PPS to be generally applicable, it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided for individual Eco-towns in order to absorb recreational visitors to such an extent that they will not materially contribute towards recreational pressure on the European sites in question.
- While specific standards for the provision of open space have been developed for the Thames Basin Heaths SPA (known as Suitable Accessible Natural Greenspace or SANGs), it is acknowledged that they are not necessarily universally applicable. However, Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.
- In many cases natural greenspace provision to the ANG Standard should serve to minimise the need for recreational resources further afield (ie European sites) to receive an unsustainably large influx of visitors provided that they are delivered within a timescale linked to that of the development and will fulfil a function similar to that of the European site in question (ie dog walking and appreciation of nature rather than more formal recreational activities). For these reasons, we have selected the Natural England ANG standards as the criterion for semi-natural greenspace provision that the Draft PPS should require eco-towns to meet in order to ensure that sufficient recreational space is provided to minimise adverse effects on the identified European sites.
- It is therefore recommended that the following additions to the recreation Policy are incorporated in order for it to provide a more detailed specification.
- As a minimum, new areas of natural (as opposed to more formal) greenspace created as part of the 40 per cent area allocation indicated above should be provided in alignment with the Natural England Accessible Natural Greenspace Standard (ANGSt), which would require the provision of a natural greenspace (as opposed to a more formal park) of at least 2 hectares in size, no more than 300 metres from the houses it is intended to serve, and new statutory Local Nature Reserves at a minimum level of one hectare per thousand population. If, after the

project-level Appropriate Assessment for the eco-town, it is considered that the ANGSt level of provision will be inadequate to reduce the recreational pressure on a European site then a higher level of provision should be made, in line with the conclusions of the project assessment.

- Where the eco-town proponents intend to include existing areas of publicly accessible semi-natural greenspace within their allocation in order to meet these standards, they would need to demonstrate that sufficient capacity remained within these sites to absorb the new population from the eco-town.
- The relevant greenspace would need to be provided in advance of occupation of the eco-town and will need to serve a similar recreational function to the European sites from which it is intended to draw recreational users (eg dog-walking and appreciation of nature).
- It is acknowledged that there are some European sites which have an intrinsic appeal that is sufficiently great that the provision of alternative greenspace is unlikely to result in a material reduction in recreational pressure. In these cases the developer would need to liaise with stakeholders in the European site to assist in the development and long-term delivery of an appropriate Site Management Plan, particularly addressing any changes in management that would be necessary to respond to increased visitor numbers or to constrain or manage such an increase. Precise details of measures to be implemented and the actual scale of any contribution would need to be agreed with Natural England and other stakeholders at the project-level Appropriate Assessment but these may need to include car park closures, fencing and moving of footpaths informed by data on visitor behaviour patterns on the European site in question.

Water resources

4.4.4 It has not been possible to conclude with confidence that the Rackheath eco-town would not lead to adverse effects on European sites as a result of additional demands on water resources, when considered in combination with all other developments across the area promoted by the Regional Spatial Strategies, without additional measures being included within the Policy Statement.

4.4.5 Avoiding an adverse effect is largely in the hands of the Water Companies (through their resource planning) and the Environment Agency (through their abstraction licencing process). However, there are actions that can be taken by local authorities and central government through the Planning Policy Statement. The water efficiency & drainage policy in the Draft PPS does include two robust measure to maximise water efficiencies and these will contribute considerably to minimising water consumption and therefore mitigating adverse effects on European sites from the eco-towns:

- *"Eco-towns in areas of serious water stress should aspire to achieve water neutrality, ie achieving development without increasing overall water use across a wider area... And set out how...*
  - *New homes will be equipped to meet the water consumption requirement of level 5 of the Code for Sustainable Homes"*

4.4.6 However, it is recommended that the following additions to this Policy are incorporated in order for it to be additionally robust:

- Specific reference should be made to the fact that the eco-town development should only take place once any new water supply infrastructure necessary to service the development while avoiding an adverse effect on European sites is in place. The Draft PPS should also indicate how this need will be determined and delivered through interaction with other authorities (Water Companies, the Environment Agency etc) ie through a Water Cycle Strategy.

Water quality

4.4.7 It has not been possible to conclude with confidence that the Rackheath eco-town would not lead to adverse effects on the Broadlands SPA as a result of deteriorating water quality from increased volumes of treated sewage effluent, when considered in combination with all other developments across the area promoted by the Regional Spatial Strategies, without additional measures being included within the Policy Statement. These measures are given below.

4.4.8 Avoiding an adverse effect is largely in the hands of the Water Companies (through their resource planning) and the Environment Agency (through their abstraction licencing process). However, there are actions that can be taken by local authorities and central government through the Planning Policy Statement. The water efficiency and drainage policy in the eco-towns Policy Statement does not contain any specific measures relating to water quality and it is therefore recommended that the following additions to this Policy are incorporated in order for it to be additionally robust.

4.4.9 Specific reference should be made to the fact that the eco-town development should only take place once any new wastewater treatment infrastructure necessary to service the development while avoiding an adverse effect on European sites is in place. The Policy Statement should also indicate how this need will be determined and delivered through interaction with other authorities (Water Companies, the Environment Agency etc) ie through a Water Cycle Strategy.

The Draft Eco-towns PPS

4.4.10 The Draft PPS sets the standards for eco-towns at a strategic level; as such, it is important that it incorporates those mitigation and avoidance measures identified as being necessary for all the potential eco-towns. Incorporating these measures within the PPS will help ensure their implementation as the eco-town proposals develop. With this in mind, the recommended mitigation and avoidance measures identified in this section are reproduced within the HRA of the Draft PPS itself (even though the need for the measures arises from the specific eco-town rather than the Draft PPS).

Further HRA/AA

4.4.11 This HRA/AA has been undertaken at a strategic level and is therefore necessarily broad in its assessment, conclusions and recommendations. It constitutes the first of a series of successive assessments that will be undertaken for each of the eco-towns that are taken forward. As each tier of the planning system is negotiated and the eco-town proposals are further developed, a new and more detailed HRA/AA will be required. For example, where the eco-town is included in a Local Development Framework, the proposal will be subject to HRA/AA and reappraised in the light of more detailed information that may be available and further mitigation or avoidance measures may also be suggested. Planning applications for eco-towns will also need to include a detailed HRA/AA which will demonstrate how the necessary mitigation measures will be delivered on the ground.

Glossary

Abbreviation

AA	Appropriate Assessment
AD	Anaerobic Digestion
AMR	Annual Monitoring Report
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
AWCS	Automated Waste Collection Systems
CAMS	Catchment Abstraction Management Strategies
CHP	Combined Heat and Power
CNP	Campaign for National Parks
CPRE	Campaign to Protect Rural England
CRP	Community Reference Point
DEFRA	Department for the Environment, Food and Rural Affairs
DPA	Dwellings Per Annum
DPD	Development Plan Document
EIA	Environmental Impact Assessment
EiP	Examination in Public
EP	English Partnerships
FEH	Flood Estimation Handbook
GWMU	Chalk Groundwater Management Unit
HRA	Habitats Regulations Assessment
IMD	Index of Multiple Deprivation
ISET	Institute of Sustainable Energy Technology
LCAs	Landscape Character Areas
LDF	Local Development Framework
LNR	Local Nature Reserve
LoWS	Local Wildlife Site
LPA	Local Planning Authority

MBC	Metropolitan Borough Council
MRF	Material Recycling Facility
MUSCO	Multi-Utility Supply Company
NNR	National Nature Reserve
ONS	Office of National Statistics
PDL	Previously Developed Land
PUA	Principal Urban Area
RDF	Refuse Derived Fuel
RPB	Regional Planning Body
RTR	Rapid Transit Route
SA	Sustainability Appraisal
SAC	Special Areas of Conservation
SAPs	Species Action Plans
SEA	Strategic Environmental Assessment
SEEDA	The South East England Development Agency
SFRA	Strategic Flood Risk Assessment
SINCs	Sites of Importance for Nature Conservation
SLA	Special Landscape Area
SNCI	Sites of Nature Conservation Importance
SOAs	Super Output Areas
SPA	Special Protection Areas
SRS	Sub-Regional Strategy
SSSI	Site of Special Scientific Interest
STW	Sewerage Treatment Works
SUDS	Sustainable Drainage Systems
SUE	Sustainable Urban Extension
UKCIP	UK Climate Impacts Programme
WRAP	Waste & Resources Action Programme
WRMU	Water Resource Management Units
WRZ	Water Resource Zone

Communities and Local Government

Building a Greener Future: policy statement

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Communities and Local Government

Building a Greener Future: policy statement

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Contents

Introduction

There is now an overwhelming body of scientific evidence that indicates that climate change is a serious and urgent issue. And whilst there are some remaining uncertainties about the eventual impacts, the evidence is now sufficient to give clear and strong guidance to policy-makers about the pressing need for action.

Emissions of greenhouse gases, particularly carbon dioxide, are the main cause of climate change. The UK emitted more than 550 million tonnes of carbon dioxide ($MtCO_2$) in 2005. Energy use in buildings accounted for nearly half these emissions, and more than a quarter came from the energy we use to heat, light and run our homes.

Energy security is also an important challenge. We became a net importer of oil in 2006, and are dependent on imported gas at a time when global demand and prices are increasing. Many of the measures needed to cut carbon emissions to address climate change also contribute to creating a healthy diversity of energy supply, and address fuel poverty through lower bills for householders.

Against this backdrop, we need to address the issue of housing supply. Evidence indicates that too few homes have been built to meet demand over the last three decades of the 20th century. As Kate Barker's report into housing supply[1] made clear, we need additional housing provision. Rising house prices make it even harder for those trying to buy their first home. If we do not increase house building above previous plans, the percentage of 30-34 year old couples able to afford to buy will worsen significantly in the long term, falling from over half today to around 35 per cent in 2026.

If we build the houses we need, then by 2050, as much as one-third of the total housing stock will have been built between now and then. So we need to build in a way that helps our strategy to cut carbon emissions – both through reducing emissions of new homes and by changing technology and the markets so as to cut emissions from existing homes too. We want to see a volume of new development which will deliver economies of scale and bring down costs of environmental technologies that could apply not only to new homes but to existing homes too.

We therefore consulted in December last year on proposals progressively to improve energy/carbon performance set in Building Regulations to achieve zero carbon housing within 10 years. These proposals were set out in the consultation document *Building a Greener Future*.[2]

In summary, we proposed to achieve a zero carbon goal in three steps: moving first, in 2010 to a 25 per cent improvement in the energy/carbon performance set in Building Regulations; then second, in 2013, to a 44 per cent improvement; then, finally in 2016, to zero carbon. We said that zero carbon means that, over a year, the net carbon emissions from all energy use in the home would be zero.

[1] Review of Housing Supply (2004) – Delivering Stability: Securing our Future Housing Needs (Kate Barker, March 2004) http://www.hm-treasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm.

[2] *Building a Greener Future Consultation* http://www.communities.gov.uk/index.asp?id=1505157

At the same time, we also published proposals for a *Planning Policy Statement on Climate Change*[3], which would help support the achievement of zero carbon homes through the planning system. And we published the final version of the *Code for Sustainable Homes*[4]. This is currently a voluntary code, intended to promote higher environmental standards in housing ahead of implementation of regulatory standards. It considers not just energy/carbon but a range of sustainability issues such as water, waste and materials.

Finally, to further support our aim of zero carbon homes and kick-start deployment of these technologies, the government will introduce a time-limited stamp duty land tax relief with effect from 1 October 2007 for new homes built to a zero carbon standard to be set in Her Majesty's Treasury (HMT) regulations. A high level overview of the details are set out on HMT's website[5].

On 6 June 2007 we published a summary of the consultation responses received, prepared for Communities and Local Government by consultants Faber Maunsell[6].

Overall the response to the consultation was positive, and a large majority of respondents felt that the timetable to zero carbon by 2016 was achievable. However, there were a range of responses, and a number of issues and concerns raised, which we take extremely seriously, and which this document will consider in more detail below.

After the launch of the consultation, Communities and Local Government and the Home Builders Federation established the 2016 Taskforce, jointly chaired by Yvette Cooper, Minister of Housing and Planning and Stewart Baseley, Executive Chairman of the Home Builders Federation.

The Taskforce also includes members from local government, the energy supply industry, the construction industry and non-governmental organisations. The purpose of the Taskforce is to identify the barriers to implementation of the 2016 zero carbon target, and put in place measures to address them.

The analysis in *Building a Greener Future Regulatory Impact Assessment*[7] shows that while the implementation of our approach will increase construction costs, there are also benefits in terms of reduced energy bills and reduced carbon dioxide emissions. Overall, building to higher standards is likely to increase costs. These costs are more predictable in the short term, but are harder to assess over the longer term as these will be dependent on substantial changes in technology and the market response. Our approach, moreover, should stimulate the market to innovate and adapt to low carbon technologies.

The work of the Taskforce, the positive response to our consultation, and the additional analysis commissioned by this Department into the costs and benefits of the zero carbon homes target, enable us to confirm in this policy statement the Government's commitment to a zero carbon target in 2016, and the proposed steps along the way.

[3] *Planning Policy Statement: Planning and Climate Change* http://www.communities.gov.uk/index.asp?id=1505140

[4] *Code for Sustainable Homes* http://www.communities.gov.uk/index.asp?id=1506120

[5] See Budget Note 26: www.hmrc.gov.uk/budget2007/bn26.htm

[6] The summary documents can be found at: www.communities.gov.uk/index.asp?id=151113

[7] *Building a Greener Future Regulatory Impact Assessment* www.communities.gov.uk/index.asp?id=1505157

We believe that the achievement of this target will make a significant contribution to addressing climate change – saving at least 15 $MtCO_2$ per year by 2050. And these developments will benefit consumers, who could gain through lower fuel bills and warmer homes in the winter. This strategy document sets out in more detail the thinking behind this conclusion, and some of the significant issues that are raised by the zero carbon target.

Our strategy for delivering the targets will involve changes to the Building Regulations to strengthen the requirements in relation to insulation, ventilation, air tightness, heating and light fittings. Planning policy will be developed to set a framework for development to deliver zero carbon outcomes. We will be working with industry and organisations such as English Partnerships to encourage exemplar developments. We will work with the Taskforce on issues like skills, research and the development and dissemination of good practice.

We are publishing a Forward Look[8] to give more detail about our proposals for changes to Part L of the Building Regulations in 2010 and 2013. We hope this will provide greater clarity to industry on the changes that will be required to meet the 2010 and 2013 regulations.

We also take the wider issues of sustainability very seriously. In the consultation document we proposed to make rating against the *Code for Sustainable Homes* mandatory. This would mean that all new homes would be required to have a mandatory Code rating indicating whether they had been assessed and, if they had, the performance of the home against the Code. The response to the consultation was extremely positive and today we are also publishing a further consultation on the specifics of how a mandatory rating against the Code might work[9] and how it will build on Energy Performance Certificates.

The final *Planning Policy Statement: Planning and Climate Change* will be published later in the year, together with a good practice guide on how planning authorities can tackle the issues of climate change.

Next steps

We welcome the serious and sustained commitment from stakeholders and want to continue working with them as we move forward to implementation. The Taskforce will also continue to meet on a regular basis to take forward this work. The Taskforce terms of reference can be found on the Communities and Local Government website[10].

Help with queries

Questions about the policy issues raised in the document can be addressed to:

Chloe Meacher
2/J5 Eland House
Bressenden Place
London SW1E 5DU

[8] Building Regulations Forward Look www.planningportal.gov.uk

[9] *The future for the Code for Sustainable Homes – Making a rating mandatory* www.communities.gov.uk/index.asp?id=1511885

[10] 2016 Taskforce terms of reference www.communities.gov.uk/index.asp?id=1508822

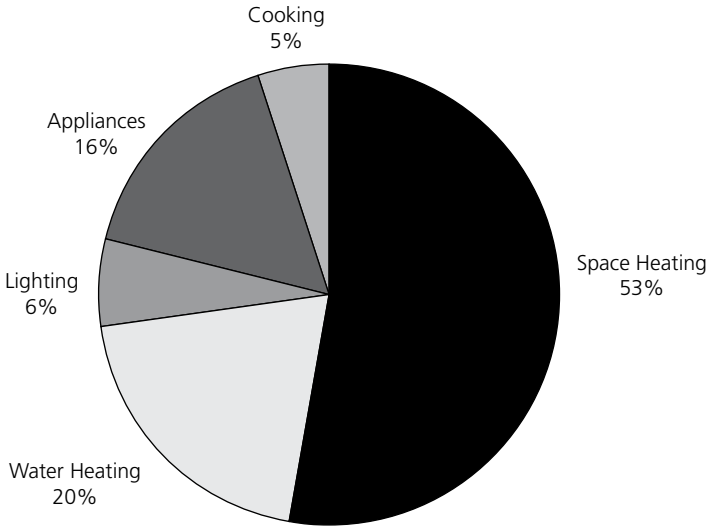
Section 1: The importance of housing in delivering real emissions reductions

A significant proportion of energy is used to heat and run our homes

1.1 In 2005 the UK's total carbon dioxide emissions were 556 $MtCO_2$. Emissions from the domestic housing sector represent around 27 per cent of this figure – these emissions come from energy use in the home for heating, hot water, lighting and appliances. The chart below shows that the overwhelming use of energy in homes goes to heating and hot water. Nearly three-quarters of the emissions come from heating and hot water, and around one-fifth is from lighting and appliances. Recent trends in the domestic sector have shown an increase in use of energy for lighting and appliances, whilst energy use for cooking and hot water has been declining.

1.2 There is likely to be a continuation of these trends through, for example, the growth in the market for home entertainment equipment such as large-screen plasma televisions and home computers. Moreover, climate change itself may lead to further developments, for example, a growth in demand for home air conditioning.

2005
Domestic carbon emissions by source
Average household emissions 5.64 tonnes CO_2 per year



We already have a significant programme of measures in place to tackle domestic energy use

1.3 Government has in place a strong programme to secure reductions in emissions from the domestic sector through promoting energy efficiency and conservation. This programme includes: action to promote achievement of greater domestic energy efficiency by electricity and gas suppliers through the Energy Efficiency Commitment (EEC), and its successor, the Carbon Emissions Reduction Target (CERT); promotion of voluntary schemes in the retail sector to encourage take-up of more energy-efficient consumer electronics products; engagement with citizens, retailers and suppliers via the Energy Savings Trust (EST); and action via the Warm Front programme and Decent Homes Standard to tackle fuel poverty and energy wastage through improved home insulation and heating.

1.4 In addition, the introduction of Energy Performance Certificates, which are being phased in from August this year, will provide home-buyers with detailed information about the energy performance of their home, and will be accompanied by a report on the action they can take to reduce carbon emissions and reduce their fuel bills.

1.5 The total investment by Government and energy companies in energy efficiency in the existing housing stock now totals over £1 billion per year.

1.6 These schemes have produced significant results to date. In 2005 (the most recent year for which figures are available), emissions in the domestic sector fell by 3.8 $MtCO_2$. This represents a 2.5 per cent reduction on the previous year. Part of this is likely to be due to higher energy prices and the warm winter temperatures we experienced that year, but some is explained by better levels of insulation, improved heating systems, and behavioural change. EEC, Warm Front and other measures to improve energy efficiency and cut fuel poverty are expected together to deliver reductions in emissions of about 44 $MtCO_2$ by 2020.

New homes will need to make a significant contribution too

1.7 The Climate Change Bill sets out the Government target to reduce carbon emissions to 60 per cent of 1990 levels by 2050. If the domestic sector took a proportionate share of this target, carbon emissions in the domestic sector would need to fall from around 154 $MtCO_2$ to around 62 $MtCO_2$. This requires a reduction of about 92 $MtCO_2$ from existing levels. However, as this is set against a background of rising pressures on energy demand due to growing household numbers and appliance use, the gap between 1990 levels and the 2050 target may be higher, at around 110 $MtCO_2$, as indicated by long-term government projections. Current policies aimed at the domestic sector are projected to bring carbon emissions down by around 43 $MtCO_2$ by 2020 but we need to go further to reach 60 per cent and prevent emissions rising again in the long term.

1.8 In addition, although new homes make up less than one per cent of the stock every year, we estimate that by 2050, as much as a third of the housing stock could have been built between now and then.

1.9 That is why, in the consultation paper *Building a Greener Future* published on 13 December 2006, we set out proposals for how we might achieve progressive environmental improvements in new homes as well, in order to minimise further increases in carbon emissions.

Section 2: New development

We need to tackle housing affordability by delivering more homes

2.1 As we set out in the consultation *Building a Greener Future*, the availability of new homes is an important policy issue. The housing market has not responded sufficiently to meet the needs of the country's ageing and growing population, leading to a significant gap between housing supply and demand. Over the last 30 years of the 20th century, housebuilding rates halved while the number of households increased by 30 per cent. As a result, many people cannot afford a suitable standard of accommodation, and families are finding that it is increasingly difficult to get onto the housing ladder.

2.2 This pressure is likely to grow. The latest household projections show that the number of households in England will grow by 223,000 per year up to 2026, of which 70 per cent will be single person households. In 2005–06, around 185,000 net additional new homes were delivered. This is a significant increase from the low of 131,000 in 2001–02, but still leaves an unsustainable gap. If we do not increase the supply of homes above previous plans, the percentage of 30-34 year old couples able to afford to buy will worsen significantly in the long term, falling from over half today to around 35 per cent by 2026.

And we have consulted on proposals to reduce the carbon footprint of new homes….

2.3 But, as we set out in *Building a Greener Future*, we believe that these new homes offer a real opportunity to assist our strategy to cut carbon emissions and reduce fuel poverty.

2.4 That is why the Government set out proposals for consultation on how we move towards zero carbon homes over time. We proposed that we progressively improve the energy/carbon performance set in Building Regulations in three steps: the first step would improve the carbon performance standard of Building Regulations by 25 per cent (compared to 2006 Part L Building Regulations); the second step would improve them by 44 per cent; and the third step would be to move to zero carbon.

2.5 The table below summarises the three steps and also shows the equivalent levels of carbon in the *Code for Sustainable Homes*. However, the Code covers a range of environmental issues, such as water, waste and materials, whilst the mandatory Building Regulations standards we are proposing relate only to carbon performance.

Table 1: proposed carbon improvements over time

Date	2010	2013	2016
Carbon improvement as compared to Part L (BRs 2006)	25%	44%	zero carbon
Equivalent energy/carbon standard in the Code	Code level 3	Code level 4	Code level 6

2.6 We published a full summary of the responses to our consultation on 6 June 2007, prepared for us by the consultants Faber Maunsell.[11]

…which received a largely positive response

2.7 The response to our proposals was largely positive. Two-thirds of respondents said they agreed that new housing should lead the way in delivering low and zero carbon housing (Q1A). 39 per cent thought that the targets we had set out were achievable within the timescale; with 13 per cent saying they were not achievable; and 16 per cent saying they were not stringent enough (Q8). A full breakdown of responses is available in the summary report.

2.8 Opinion was divided on the issue of the costs of achieving the targets, with a large number of respondents feeling that there was insufficient evidence presented on costs. This is an issue that we have attempted to rectify in the Regulatory Impact Assessment accompanying this policy statement, which sets out in more detail the costs and benefits of the measures we have proposed.

2.9 There was strong support for our proposal to make rating against the *Code for Sustainable Homes* mandatory for all new homes (Q7). 61 per cent of respondents agreed that it should be mandatory, with eight per cent disagreeing, and the remainder unsure. We also said in *Building a Greener Future* that we would consult in full on proposals for making rating against the Code mandatory for all new homes, and this is published today alongside this policy statement.

The consultation also threw up a number of policy issues

2.10 In addition, three central themes emerged from the responses to our consultation. In summary, these were:

- In focussing on new homes, we should not lose sight of the need to improve energy efficiency further in the existing stock, and in the non-residential sector;
- That the way in which we define zero carbon will have a big impact on the achievability and cost of meeting the target;
- That there is a policy choice to be made about the extent to which there is a national standard for Building Regulations, compared with a system of local standard setting.

[11] This can be found at: www.communities.gov.uk/index.asp?id=1511113

2.11 We discuss these three issues in more detail below.

2.12 Immediately after the consultation was published, the 2016 Taskforce on zero carbon homes was established, jointly chaired by Yvette Cooper, Minister of State for Housing and Planning and Stewart Baseley, Executive Chairman of the Home Builders Federation.

2.13 The Taskforce also includes members from local government, the energy supply industry, the construction industry and non-governmental organisations. The purpose of the Taskforce is to identify the barriers to implementation of the zero carbon 2016 target, and put in place measures to address them. It has considered several policy issues in relation to the consultation, and where appropriate the views of its members are referred to in this document.

Section 3: Policy issues raised in the consultation

Many respondents wanted to see a similar level of ambition on existing homes and the non-residential sector, as for new homes

3.1 A number of respondents in their answers to several questions (Q3, Q4 and Q5 in particular) said that they did not want to see the focus on new homes come at the expense of action on the existing housing stock and the non-residential sector. This appeared to be driven by a combination of a belief that other sectors could offer greater scope for emissions reductions and a feeling that new homes (or housing developers) were being unfairly targeted over other sectors.

3.2 This reaction is understandable, given that the focus of the consultation paper was on the scope for carbon reductions in the new housing stock. However, this does not mean that the government is taking less action in other sectors.

3.3 We have already set out in paragraphs 1.3 to 1.6 above the action the Government is taking on the existing housing stock. There is also a great deal of continuing work, including the introduction of Energy Performance Certificates later this year. Budget 2007 has set out our intention that by the end of the decade all households will have been offered help with energy efficiency measures.[12]

3.4 It is also vitally important that new commercial development addresses the challenges posed by climate change. We believe that it should be technologically and economically possible for all new non-domestic buildings to achieve substantial reductions in carbon emissions over the next decade and anticipate that many such buildings may be able to achieve zero carbon on non-process related emissions. Buildings outside dense urban areas and those with low appliance energy requirements, such as warehouses, distribution centres and some retail outlets, should be able to be built to a zero carbon specification in a shorter time scale than other building types.

3.5 To this end, we are working closely with industry to learn the lessons from existing exemplar developments and houses that individual organisations have built, so we can fully understand the costs involved and the barriers to progress. We will use this knowledge to set in place a clear timetable and action plan to deliver substantial reductions in carbon emissions from new commercial buildings within the next 10 years.

3.6 We are also conducting a review of the sustainability of the existing non-domestic stock to identify the measures that can be taken to improve their performance, the barriers that prevent owners and occupiers taking action, and the most effective policy instruments that could be used to overcome these barriers.

3.7 In the meantime, we will be progressively introducing Energy Performance Certificates on completion and on sale of non-domestic buildings, from 6 April 2008. Also from that date a display energy certificate showing annual operational ratings, based on energy consumption, must be displayed in large public buildings.

[12] Budget 2007, *Protecting the Environment* chapter http://www.hm-treasury.gov.uk/media/F/D/bud07_chapter7_273.pdf

3.8 It was also announced in the Energy White Paper[13] that the government would introduce a mandatory UK cap and trade scheme, the Carbon Reduction Commitment (CRC), focused on large commercial and public sector organisations, to secure further savings of 4.4 $MtCO_2$ per year in 2020. Although applying to organisations rather than specifically to buildings, the CRC should give large non energy intensive organisations an incentive to reduce carbon emissions from their own built estate.

Another issue raised was around the coverage and definition of zero carbon

3.9 In the consultation paper *Building a Greener Future* we said that zero carbon means that a home should be zero carbon (net over the year) for all energy use in the home. This would include energy use from cooking, washing and electronic entertainment appliances as well as space heating, cooling, ventilation, lighting and hot water.

3.10 Many respondents argued that the way in which zero carbon is defined will have a major impact on the costs and deliverability of zero carbon homes within the timetable specified. This came across principally in responses to question 10, but related issues were also raised in the responses to questions 4, 8 and 11.

3.11 Several issues were raised by respondents. Some argued for a wider definition of zero carbon. It was suggested that we should seek to cover such issues as lifetime carbon impact of technologies (ie any carbon emissions associated with manufacture as well as use), transport emissions, and behaviour of households.

3.12 We do not believe a full consideration of embodied carbon is practical or realistic in the short-to-medium term. Evidence on the lifetime carbon costs of particular technologies is weak, and varies considerably depending on where and how they are manufactured.

3.13 Assumptions about household behaviour will be factored into the calculations we make – for example, the Code technical guidance[14] sets out how we would seek to estimate the likely carbon emissions from appliance use in the home. This is based on data we have on average energy use by households.

3.14 However, we do not think it is practical to measure actual appliance use in new homes once they are built for purposes of assessing compliance with the zero carbon standard. It is also something that is likely to change over time along with the size and age of the household. And measuring actual household energy use is likely to be considered both bureaucratic and intrusive. We believe it is more important that we ensure that, on average, the actual carbon emissions from new homes is zero in net terms over the year, taking account of typical behaviour, and couple this with policies to try to influence the actual behaviour of consumers and bring down the average energy use of appliances, as set out in the Energy White Paper.

3.15 Some respondents also argued that energy use from appliances should be entirely excluded from the definition of zero carbon. We believe this would equate to an unacceptable watering down of the proposals. Appliances make up a significant

[13] *Meeting the Energy Challenge: A White Paper on Energy* (May 2007) http://www.dti.gov.uk/energy/whitepaper/page39534.html

[14] *Code for Sustainable Homes* http://www.communities.gov.uk/index.asp?id=1506120

proportion of energy use in new homes – currently about 40 per cent to 50 per cent. We do, however, recognise that we need to encourage faster action in this area, to reduce the energy used by households for appliances. The Energy White Paper set out several areas where we will take stringent action, including driving higher energy standards for products and phasing out the use of energy inefficient light bulbs. As these measures can be demonstrated to reduce actual energy use in the home, the associated emissions will also fall.

3.16 However, even if we are successful in reducing the energy use in the home, we recognise that including energy use from appliances in the definition of zero carbon means that housebuilders will need to look into zero and low carbon sources of electricity supply, an area currently outside Building Regulations. This is a new area for most developers, both in terms of technical skills and the understanding of the regulatory system. It is also important that we consider the implications of zero carbon homes for wider energy policy. We will analyse the wider energy policy implications, including the impacts on the competitive market.

3.17 The Energy White Paper announced new arrangements intended to simplify the current regulatory system, arising from the joint Department for Business, Enterprise and Regulatory Reform (BERR)/Ofgem *Review of Distributed Generation*. And all six major energy suppliers have committed to publishing clear and transparent tariffs for exported electricity, so that households that generate their energy and export some to the grid, can be clear about the financial benefit. As announced in the December 2006 Pre-Budget Report, legislation in the Finance Bill 2007 will ensure that, where private householders install microgeneration technology in their home for the purpose of generating power for their personal use, any payments they receive from the sale of surplus power or Renewable Obligation Certificates to an energy company are not subject to income tax. BERR have also funded the development of an industry led scheme to certify installers and manufacturers of microgeneration equipment. BERR have also established a new Distributed Energy Unit to monitor the development of these technologies and identify and remove any further barriers to distributed energy.

3.18 Zero carbon homes will also require new partnership working between housebuilders and energy companies. As a member of the Taskforce, the UK Business Council for Sustainable Energy has set up a group that brings together the UK's major energy companies to assess how they can fully engage with the opportunities created for them by zero carbon homes, both directly and in partnership with the house building industry.

3.19 Furthermore, including emissions from energy use associated with domestic appliances in the home will require modification to the existing Standard Assessment Procedure (SAP) for measuring the energy performance of the home. SAP in its existing form does not adequately take account of these emissions, nor does it provide for proper accounting for the range of technologies that will reduce them.

3.20 However, SAP can be modified, and we think it is the right tool to assess these technologies, and we want to start now on a process which fully involves the development and construction industries to develop an approach to improving SAP which is fair, comprehensive and transparent. To this end, the Department, jointly with the Construction Products Association, has established a Technical Working Group on SAP Modification, which will report to Ministers early in 2008 on the modifications to SAP that are required.

3.21 Another issue that was raised by several respondents was whether zero carbon had to be achieved at the level of individual dwellings or at the development level. We are clear that solutions to zero carbon for the 2016 target are acceptable at the development level. Even the current version of SAP allows for development-wide solutions such as district heating. In the future modifications we make to SAP we want to ensure that it allows for all appropriate development-wide solutions. So for example, if a development was served by a wind turbine that provided renewable energy to the whole development, that should be an acceptable way to achieve zero carbon, and SAP should reflect that. We think these types of solutions are acceptable for any type of technology (approved by SAP) that has a physical connection to the development, even if the technology is partly or wholly located away from the development site itself, as is often the case for district heating/combined heat and power (CHP).

A key issue in this context is whether zero carbon energy needs to be connected to the development

3.22 A more difficult issue that has been raised by consultees is whether solutions that deliver zero or low carbon energy away from the development should also be allowed to score towards meeting the zero carbon target. This can be referred to as 'carbon offsetting'.

3.23 A majority of respondents (around 70 per cent of those who responded to Q10) felt that offsetting should be allowed in some circumstances. Reasons given for this include arguments that it would bring down the cost of achieving zero carbon, and could allow carbon reductions to be achieved more cost-effectively across the economy as a whole. However, a small number of respondents (around 20 per cent of those who responded to Q10) felt that these types of more flexible solutions should not be allowed, and that zero carbon should only be achieved through measures located on the housing development site, or with a direct physical connection to it.

3.24 Of those respondents who supported flexible solutions, many argued that it should only be allowed in certain restrictive circumstances, for example where a development was below a certain size. Others suggested that it might only be used for emissions associated with appliance use in the home – so that everything possible should have been done to improve the fabric and heating/hot water systems of the home, before any offsetting of residual emissions was allowed. Another suggestion was that offsetting should be limited to a particular geographical area, national or regional, or particular technologies, eg renewables.

3.25 A related issue raised was that of additionality. There were concerns expressed that any zero carbon solution should result in carbon reductions that were genuinely additional, ie not replacing measures that were likely to have occurred anyway. For example, hypothetical wind turbines located away from a housing development but built to 'offset' its emissions might have been built regardless, because of incentives offered by other government policies (such as the Renewables Obligation).

3.26 The issue of the definition of zero carbon has also been discussed in the 2016 Taskforce. Like the consultation responses, opinions were divided as to the extent to which offsetting should be an acceptable solution to achieving zero carbon. However, most members agreed that it should be allowed under restrictive circumstances, provided it is possible to devise a method of accurately assessing additionality.

3.27 We have carefully considered the views of respondents and of the Taskforce on the issue of definition of zero carbon. We have reached the conclusions set out below:

3.28 We believe that emissions from all energy use – including from appliances and cooking - in the home should be considered. We also believe that emissions from energy use should be zero in net terms across the year. This means that some use of fossil fuels or electricity from the grid should be permitted, provided this is offset by an equivalent 'export' of low or zero carbon energy.

3.29 We believe that the zero carbon standard should be applied at the development level, rather than on every individual home, so developers are able to use a range of technologies, such as district heating, or wind turbines, that can provide for low or zero carbon energy to a whole development.

3.30 We have listened carefully to views expressed about allowing for alternative energy or emissions reduction solutions not connected directly to the development in the way we define zero carbon. The costs and benefits of different options for allowing or excluding offsetting, outlined in the regulatory impact assessment, need to be carefully considered. We accept also that there may be certain circumstances or particular sites where it may be difficult for developers to achieve zero carbon. We recognise the challenges that small urban infill sites can pose, where it might be more effective or necessary to support offsetting elsewhere, and where rigid application of on-site zero carbon could potentially create perverse incentives for small infill sites to be left vacant. However, evidence is already showing that the range of appropriate technologies is growing over time, and the costs falling. We expect much better evidence to emerge over the next few years about what can be achieved, and at what cost. We think, therefore, it is right to return to the issue of offsetting when we have more evidence to determine the right approach.

3.31 Our policy of a time-limited stamp duty land tax (SDLT) relief for new zero-carbon homes will provide a way of stimulating the innovation needed to develop what is currently a niche market into the mass market. The Code technical guidance[15] and the regulations which provide for the circumstances in which SDLT relief can be claimed, will set out our first detailed definition of zero carbon. HMT have published their draft regulations for informal consultation and have said they will review the definition of zero carbon contained within them, in the light of representations made. In October 2007 HMT will publish the final regulations, and the Code technical guidance will be revised to reflect that.

3.32 These definitions will be invaluable in laying the groundwork and building up the evidence base to inform our approach to determining the definition of zero carbon that will be used for Building Regulations in 2016. As new evidence emerges about costs and practicalities, and as technologies develop, we will develop the definition of zero carbon for the purposes of Building Regulations, after full consultation and

[15] *Code for Sustainable Homes* http://www.communities.gov.uk/index.asp?id=1506120

within a sensible time-frame that will allow the industry to adjust before the planned changes in 2016. In that context, we will examine whether, and to what extent, there is a case for offsetting as a mechanism to meet the carbon standard. We will also consider the implications of different options for allowing or excluding offsetting for wider energy policy, including impacts on energy security and the competitive market.

Many respondents raised concerns about whether building standards should be set at the national or local level

3.33 Many respondents had strong views about the appropriate level at which Building Regulations should be set. At the moment, Building Regulations set national building standards for energy efficiency. But local authorities have planning powers, and they are increasingly using these planning powers to set more environmentally demanding building standards at the local level.

3.34 Views were sought in the *Building a Greener Future* consultation paper about the most appropriate level at which building standards should be set. Respondents expressed views in their responses to questions 3, 5, 6 12 and 13. On the whole, respondents favoured – by about 5 to 1 of those who answered – a system whereby building standards were set at the national level, but where local authorities were free to promote low and zero carbon energy supply at the local level.

3.35 Respondents also agreed – by a majority of around 2 to 1 of those who answered – that national standards were a more effective way to achieve our goals of delivering new homes and reducing emissions from the housing stock. 11 per cent said they believed that a combination of local and national standards was the best way forward. Local authorities made up a more than a third of respondents overall, so were well represented.

3.36 Some respondents felt that the proliferation of different local standards would mean that tougher national standards were more difficult to meet, as it prevented developers realising the full economies of scale associated with a single national standard. Concerns about local authorities' ability to develop, assess and enforce their own standards were also raised. A particular concern was raised about local authorities that were seeking to promote technology-specific standards, rather than specifying an environmental outcome and allowing developers to find the best way to meet it.

3.37 Others felt strongly that preventing local authorities from setting their own standards would stifle innovation, and prevent local authorities from responding to local circumstances.

3.38 In *Building a Greener Future* and the draft *Planning Policy Statement: Planning and Climate Change* that was published alongside it, we set out a proposed compromise. This suggested that where there are demonstrable and locally specific opportunities for requiring particular levels of building performance through the planning system these should be set out in advance in a development plan document. In so doing, local authorities would need to have regard to a number of considerations, including whether the proposed approach is consistent with securing the expected supply and pace of housing development shown in the housing trajectory required by *Planning Policy Statement 3*.

3.39 The consultation process, and the deliberations of the Taskforce, have resulted in a great variety of different reactions to this compromise proposal. We have listened carefully to views expressed. Most respondents wanted clear national standards with little local variation, however a significant minority wanted flexibility for local authorities to set their own standards.

3.40 We believe that there is considerable value in a strong national framework but that this needs to be balanced with appropriate local flexibility. And we are setting a high set of national standards to cut carbon emissions through our Code for Sustainable Homes, reinforced by our ambitious timetable to tighten the standards in 2010, 2013 and 2016. Indeed we are the first country to set such an ambitious target. Setting these standards, and the timetable, gives us a real opportunity to drive innovation and technological development.

3.41 Opportunities for local flexibility need to be balanced against our objectives for increasing housing supply, affordable homes, and the infrastructure needed to support communities. As this is an important area to get right we are setting out our conclusions in this document so far on the consultation responses. However, we intend to discuss this approach further with stakeholders in advance of publishing later this year the final *Planning Policy Statement: Planning and Climate Change* which will set out the detailed position. We recognise also that our approach may need to be tailored to suit the circumstances in London, given the Mayor's powers in relation to planning and the status of the London Plan, and this will be considered with the Mayor as we finalise the Planning Policy Statement.

3.42 We think that national standards for reducing carbon emissions from homes should be set through building regulations, supported through the planning system We do not believe that local authorities should each set separate building standards, with different preferred technologies or environmental measures. Nor do we think each local authority should set its own ad hoc timetable through the planning system to reach zero carbon emissions for new homes, especially given the level of ambition built into the national framework. This would make it harder for industry to invest in supply chains with confidence or get the economies of scale to make new technologies cost effective. It would also jeopardise our parallel commitment to increase the level of house building and deliver the affordable homes the country needs.

3.43 However, there are circumstances in which we do believe local authorities could drive things further and faster, in particular where local authorities can demonstrate that there are clear local opportunities to use renewable or low carbon energy, perhaps through decentralised systems. Indeed local councils can themselves play a critical role in establishing such opportunities. For example, local authorities like Woking are working to support local decentralised energy schemes which can help deliver real reductions in carbon emissions at an earlier stage.

3.44 We want local authorities to take a proactive, strategic role in identifying local opportunities to promote renewable, low carbon and decentralised energy systems, consistent with ensuring a competitive market and affordable energy. They have an important role in bringing together interested parties and facilitating the establishment of decentralised energy systems. By innovating and helping deliver local sources of energy generation, local government can make a vital contribution to getting to our shared ambition of zero carbon.

3.45 Local authorities should have a strategy for securing decentralised and renewable or low carbon energy in new development. Where there are specific sites or development opportunities, local authorities should specify the proportion of renewable or low carbon energy, taking account of feasibility, viability and deliverability. They could also expect new developments to connect up with existing schemes where feasible and viable, or be developed with connection in mind where there is a clear strategy to develop new schemes. However, they need to demonstrate this through the planning system. Policies also must not prevent owners and occupiers befitting from the competitive energy market. We are looking further in the light of the consultation of the particular arrangements needed for eco-towns and new growth points, and also for areas where there are high levels of land value uplift and how this might interact with our proposals for capturing planning gain.

3.46 Any such higher standards for homes, however, need to be set using the Code for Sustainable Homes rather than any other criteria. It may be that a local authority could focus on the energy efficiency standards in the Code, or the whole Code.

3.47 They also need to be properly tested through the planning system rather than introduced on an ad hoc basis when individual planning applications come in. We will therefore expect the local approach to be set out in a development plan document, not a supplementary planning document, so as to allow full scrutiny including by an independent Inspector. We will want the most to be made of local development or site specific opportunities, but in a way that does not have any adverse impact on the development needs of communities, in particular on housing supply and affordability.

3.48 We will set out in the PPS, and supporting practice guidance, how these objectives can be achieved through the planning system. Local authorities and developers need to know what is expected of them and that everyone is playing to the same set of rules.

3.49 Where there is no plan in place, local authorities can negotiate with developers for higher standards or provision of renewable energy, but should not refuse planning permission solely on the grounds of failing to meet the higher standards or providing renewable or decentralised energy.

3.50 We also believe that local government has a key role in ensuring that communities and infrastructure are able to cope with the climate change already happening, and the impacts which can be anticipated over coming decades due to past emissions. This was a shared concern in many responses to our consultation, as was the need to sustain biodiversity. We agree, and in the final PPS we will reflect the central role of planning in shaping places that are resilient to climate change and habitats that sustain biodiversity.

We need to make sure we have the right skills to deliver…

3.51 Together with the Taskforce, we recognise that this agenda will require the development of new skills across the sectors involved, including housebuilders and local authorities.

3.52 The Local Government Association (LGA) has established a Climate Change Commission to advise on how local authorities could tackle and respond to climate change more effectively. It is clear that capacity and skills are a key element of the Commission's emerging framework for successful action, not least in relation to reducing carbon emissions from new and existing housing – two of the six areas where they are suggesting scope for immediate council action.

3.53 The Callcutt Review[16] is also working with Construction Skills, Home Builders Federation, Construction Products Association, National Centre for Excellence in Housing and BERR to highlight the skills needed in the housebuilding industry to make sure that housing supply targets are met whilst achieving the higher environmental standards set out in this document.

3.54 The Taskforce will bring this work together once it reaches its conclusions and decisions will be taken on the next steps needed to ensure that the right people have the necessary skills – and are working in the right ways – to deliver the required standards. Given its remit to deliver the skills and knowledge needed to make better places, the Academy for Sustainable Communities will have an important role to play in developing the necessary learning, awareness and shared understanding across the public and private sectors.

…and compliance and enforcement are key issues in this context

3.55 Respondents to the consultation raised the issue of ensuring Building Regulations are complied with, particularly Part L, which deals with the conservation of fuel and power. We recognise the need to improve compliance with Building Regulations as well as raising standards. We have been working with building control bodies and industry stakeholders since then to this end. There have been a number of training and dissemination initiatives, new publications, and new and more comprehensive competent person schemes that enable contractors to self-certify their work.

3.56 As part of the process of raising standards we are looking into how well the 2006 Part L amendments are bedding down. In November 2006 we held the first of a series of workshops with Building Control Officers and Approved Inspectors to understand their experience to date of compliance, and what further dissemination measures could be beneficial. We will continue this process and will be carrying out a survey of 2006 Part L implementation next year when a reasonable sample of buildings has been built following introduction of the new standards. This will inform the further amendments we know we need to make, and will complement the Review of Building Control where we are looking at a range of measures to help increase compliance with Building Regulations more generally.

[16] *Callcutt Review*, www.callcuttreview.co.uk/default.jsp

Section 4: Costs and benefits

We have examined the costs and benefits of this approach

4.1 Assuming that our new build rates provide 200,000[17] dwellings a year (based on the Government's previously expected build rates), the profile of improvements in the new stock is expected to deliver estimated savings of 2.7 $MtCO_2$ by 2020 over and above projections of current standards. By 2050 it would be expected to save at least 15 $MtCO_2$ per annum. Emissions need to be reduced by around 92 $MtCO_2$ if the domestic sector takes a proportionate share of our national 60 per cent emissions reduction target[18] and in fact we may need to save more, around 110 $MtCO_2$, as energy demand is expected to rise, due to growing household numbers and appliance use. Our expected emissions savings by 2050 therefore represent nearly one-sixth of the required total domestic saving.

4.2 We have commissioned work[19] to develop the previous research commissioned by the Housing Corporation and English Partnerships on the costs of delivering energy improvements. As there are a number of ways that zero carbon homes can be delivered, the research has added further detail to the costs and benefits of meeting the 2010 and 2013 standards and has generated scenarios to illustrate a range of zero carbon outcomes. A Regulatory Impact Assessment with more detailed costs and benefits is published alongside this policy statement.

4.3 The impact of achieving the 25 per cent and 44 per cent improvements above the current Part L standard in 2010 and 2013 is estimated to have a net impact on the economy up to 2016 of around £1.9bn. These costs are based on assuming that developers choose technologies on the basis of minimising the capital costs of construction. However, if the impact of on going costs and benefits is taken into account in technology choices, then the overall cost to the economy is reduced to £0.85bn, which is nearly half of the £1.9bn cost. Under this scenario there is a slightly higher capital outlay (the percentage increase in Part L above 2006 in 2013 is 6.2 per cent compared with 5.4 per cent when the capital costs are minimised), but the difference in size of the ongoing benefits is clear.

4.4 Initial modelling of the potential impacts of zero carbon scenarios illustrate a wide range of net impacts, indicating a possible cost of between £1.7bn to £12bn over the period to 2025. This cost depends on how the standard is achieved, and particularly the level of low or zero carbon energy provided at the development level, and how costs fall over time as markets develop and learn to adapt. This range highlights the uncertainties remaining in delivering zero carbon homes. Assessment of the full costs and benefits of achieving zero carbon homes will therefore be kept under review at each phase of the timetable to zero carbon in 2016, as the detailed process for delivery through Building Regulations progresses.

[17] The Government has announced an increase in housing supply to 240,000 dwellings a year by 2016. This revised trajectory has not been modelled.

[18] Based on latest projections of residential sector emissions to 2050 (*UK Energy and CO_2 Emissions Projections*, July 2006, DTI) against a target at 60 per cent of the 1990 level.

[19] To be published – *The costs and benefits of the government's proposals to reduce the carbon footprint of new housing development*, Cyril Sweett, Faber Maunsell & Europe Economics, July 2007

4.5 The increase in cost arises from the construction costs of meeting the higher energy standards. The additional costs of achieving the 2010 standard are estimated at around three per cent above current 2006 Part L costs. To achieve the 44 per cent improvement in 2013 is likely to increase construction costs by around five per cent above Part L 2006.

4.6 At higher levels of the future energy standards, newer technologies and construction methods are likely to be required that have uncertain and, at present, relatively high costs. But there is already evidence, both in the UK and internationally, of low and zero carbon homes being built. And, over time, we expect costs to decrease. Initial estimates of the costs from 2016 indicate that the additional costs of achieving zero carbon could range from 1 to 19 per cent, depending again on the amount of low or zero carbon energy required to be provided on-site. If learning rates continue beyond 2016, the upper limit of costs is likely to fall further over time, so for example the overall cost above Part L could fall to 13-16 per cent by 2025.

4.7 The incidence of these additional construction costs will be affected by the timescale of development and the ability of developers to pass through costs, either to consumers or through land prices.

4.8 The additional costs of supplying low and zero carbon energy may drive housebuilders, especially on larger sites, to look to attract Energy Service Companies (ESCOs) to manage the on-site low or zero energy supply and make the initial investment. ESCOs are more likely to take into account the on-going running costs as they will need to be competitive with existing energy supply. This means developers will only need to consider choices around fabric standards.

Impact on housing supply and prices is small and short term

4.9 We commissioned academic analysis[20] to simulate the potential impacts on the housing market, particularly on the number of new homes constructed and house prices. Results from the modelling suggest that there would be a limited impact in terms of new housing supply and house prices, assuming a steady state in the market. For example, a 20% increase in costs was modelled and the effect was a less than 1% fall in supply and an increase in price of around £170 per home. The analysis considered that this effect might be short-term, as the regulations change, with output and prices returning quickly to previous levels. However, shocks to the market, for example through sudden regulatory changes, could be expected to have a much more significant impact, instead of the phased and measured approach we are proposing.

4.10 This outcome could be explained because the price of new housing is determined primarily in the second hand market, which might inhibit the ability of developers to pass on costs to buyers through a premium on new house prices, although it is important to note that some purchasers may well be willing to pay a premium initially for a high quality green new house.

[20] To be published – *Carbon Reduction Housing Market Simulations*, Prof Glen Bramley (Heriot-Watt University) and Dr Chris Leishman (Glasgow University), May 2007, based on an established model described in *Urban Studies* Vol. 42, No. 12, 2213–2244, (2005)

4.11 The second explanation for the modelling results is that recent research shows that the price elasticity of supply is very low, so developers continue to build the same number of units even if costs rise. In practice this would mean that most of the additional costs could be passed back through a reduction in land prices. The ability of developers to pass costs back in terms of reduced prices for land might not, however, be easily achievable in reality in the short term and any reduction in land values could affect the supply of land.

Impact on households

4.12 Achieving higher energy standards will help households reduce their fuel bills through both reduced consumption as a result of energy efficiency improvements to the building and potentially through lower fuel prices associated with low and zero energy sources. We estimate that with the effect of the 25 per cent and 44 per cent improvements, households could make savings of between £25 and £105 per year in 2010 and £25 and £146 in 2013. If zero carbon homes from 2016 are achieved with on-site renewable energy, households could save up to £360 per year.

4.13 On-going operational and maintenance costs of energy supply at the highest standards will depend on how they are delivered and to what extent the household is responsible for the costs. It is possible that some of the estimated savings could be captured by ESCOs through fuel bills, in order to operate a viable service and make a return on the capital investment.

Section 5: Conclusions

5.1 Domestic carbon emissions represent over a quarter of the UK's carbon emissions. In the consultation *Building a Greener Future*, we proposed an ambitious target to achieve zero carbon new homes by 2016, as a significant contribution to our goal to reduce overall carbon emissions by 60 per cent by 2050. The consultation responses broadly endorsed our approach, while raising a number of important issues, to which we have responded in this policy statement.

5.2 In this statement, we confirm our intention to achieve the target and the interim steps through the progressive tightening of the Building Regulations in 2010, 2013 and 2016. The accompanying *Forward Look* clarifies the changes that are likely to be needed to Building Regulations to bring about the 25 per cent and 44 per cent improvements in energy efficiency in 2010 and 2013.

5.3 The challenge of climate change has to be tackled alongside increasing housing supply and we have to be ready to put in place ambitious programmes if we are to succeed in achieving the substantial reductions in carbon emissions needed. The strategy and timetable set out in this statement, together with our proposed *Planning Policy Statement: Planning and Climate Change*, are ambitious, but we believe realistic and achievable.

5.4 But this is not simply a matter of government regulation. House builders, local authorities, the construction products industry, energy suppliers, non-governmental organisations and others all have to work together in partnership if the twin ambitions of increasing housing supply and raising environmental standards in housing are to be successfully achieved. We will be working with the 2016 Taskforce to ensure that our ambitious programme is now translated into action.

Communities and Local Government

New Growth Points

Partnership for Growth with Government

Norwich

"To deliver our ambitious jobs and housing targets in a sustainable way, our vision for Greater Norwich is to capture the benefits of growth for all our communities and businesses, and protect and enhance the first-class qualities that make the area a special place to live and work".

Anna Graves, Strategic Director Regeneration and Development, Norwich City Council

Norwich is the main centre for East Anglia and the built-up area has a population of 200,000. As the economic driver of Norfolk, Greater Norwich supports 43% of the county's jobs, and commuting increases the daytime population by 133%. Norwich is ranked 8th as a UK shopping destination and has the largest regional business clusters for finance and creative industries, as well as Europe's largest single-site concentration of research and development in key health and life sciences. At the same time, Norwich is the most deprived local authority district in the Eastern region, and has Neighbourhood Renewal Fund status. Norwich is at the gateway to the Broads, which adds to a high quality of life, the recreation offer and nature conservation.

The Greater Norwich Development Partnership brings together Norwich City Council, Broadland District Council, South Norfolk Council, and Norfolk County Council, with the support of the Broads Authority and the East of England Development Agency. The partnership will plan and co-ordinate ambitious regional growth targets for Greater Norwich.

The New Growth Point ambitions are to deliver essential physical, environmental, social and economic infrastructure to support housing growth and deliver high quality public transport, to support large-scale regeneration, and to create further

Norwich

high quality streets and spaces in the city centre. In supporting Norwich as a New Growth Point, the Government is entering into a long-term partnership with the authorities at Greater Norwich, recognising their ambitions for growth, subject to the statutory regional and local planning process

Local partners' ambitions for Greater Norwich include:

- An additional 33,000 new homes and 36,000 new jobs in the Greater Norwich area between 2001 and 2021
- Waterfront regeneration of 20 ha Deal Ground and Utilities Site for jobs and homes
- High quality bus infrastructure throughout Norwich, including linking large-scale new housing areas with the city centre
- Implementing the City Centre Spatial Strategy linking liveability, public realm and public transport improvements
- Regeneration of the northern city centre linking with high quality public transport infrastructure to a future urban extension

Levels of growth are subject to comprehensive testing and public consultation through the regional and local planning processes to ensure that individual proposals are sustainable, acceptable environmentally and realistic in terms of infrastructure. For Norwich future work will include: using the findings of a Strategic Flood Risk Assessment; Surface Water Management Plan and Water Cycle Study to inform decisions on levels and locations of growth; producing a Green Infrastructure Strategy to integrate green infrastructure into development and mitigate any adverse impacts; work with Anglian Water to deliver water efficiency savings; and working with the Department for Transport to assess the impacts of growth proposals on the transport network and to develop sustainable transport solutions.

Achieving these ambitions will depend on a range of public and private funding programmes, including developer contributions. Government is committing to work with local partners to achieve sustainable growth to get the best outcomes from this investment and to help overcome obstacles to delivery. In support of Norwich's growth ambitions Government is allocating around £2m in 2007/08 from the first year's funding pot, subject to detailed negotiation and appraisal. Future funding is dependent upon the outcome of the Comprehensive Spending Review in 2007.

For further information please contact Nikki Rotsos at Norwich City Council on 01603 212211 or by e-mail: NikkiRotsos@norwich.gov.uk

As a New Growth Point the Greater Norwich Development Partnership's aim is to build around 15,950 homes at Norwich by 2016.

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It is also believed that a Roman settlement used to be located on this site as highlighted in aerial photographs showing the outlines of such a settlement. We understand that English Heritage have voiced similar concerns.

OTHER STAKEHOLDERS CONSULTATION

We believe that other key stakeholders have not been consulted and the following in particular

- Norwich Airport has not been privy to the application ie radar returns from the turbine blades whatever the height may become confused with the radar return for helicopter blades. In addition any additional bird activity that may be attracted by the proposed standing water on the site will increase the risk of bird strike during take off and landing which is the critical time for such an incident. There is also a Non Directional Beacon on or near the site that is critical in terms of navigation aids for incoming aircraft. Any potential to interfere with the operation of this beacon could have disastrous implications.
- The railway line that is central to the transport plan is not owned and operated by "One" railway as stated in the planning application. The line is operated by The Bittern Line a joint operation between local councils and Network Rail. We have been unable to ascertain any consultation with the managing committee of the Bittern Line with regards to this development. In fact at their last AGM the committee were bemoaning the fact that as trains were operating at full capacity during peak hours the operator was unable to collect all the fares. It is beyond comprehension that no one from the developers has discussed the plans to increase passengers on this line particularly as extra passengers would require additional coaches which would not be able to use of the stations on the line due to the restricted length of a number of platforms.
- We see no evidence of any consultations with local businesses with regard to anchor tenants for the site. Indeed we note that there are two existing office developments in the area, one at Rackheath, which is empty, and one under construction in Plumsteads. The existing Rackheath Industrial Estate has a number of empty light industrial and office buildings. We therefore question the demand for this development in the first place particularly with the advanced plans for the industrial/office site in Salhouse Road.

AGRICULTURAL LAND CLASSIFICATION

There is no evidence about the land classification for the agricultural land that will be removed from food production should this application be successful. We believe that if the land is classified as either Grade 1 or 2 then developments on the land are not possible. We also have concerns around the classification of the site as a previously developed site as our research leads us to believe that agricultural buildings are not classified as developments.

PUBLIC CONSULTATION

It is noticeable that during the original application there were numerous public meetings and debates that were well attended and informative. In fact we are of the belief that the original developer, Building Partnerships on their own, used these meetings to inform the revised application that is now being considered.

However for this new application there have been no meetings and a distinct absence of glossy marketing brochures and plans. We strongly believe that the new developers are attempting to submit this application during a time when everyone's attention is being drawn to the plans for the Rackheath Eco Town proposal. Local residents are confused by this duplicity and want to know how these plans fit in with the plans for the Eco town. The plans for the latter highlight the Dakenham Hall Barns as an "employment site". Does this equate to these proposed offices or is it something else?

We have however consulted residents and 97% of those contacted, from a sample of 197 in around the Station Road conurbation, are against this development. We will continue canvassing and lobbying the remainder of Salhouse residents and those in Rackheath with an expectation that the sample size will be considerably larger whilst the percentage opposed will remain in the high 90's. We have included as a loose attachment to this submission a copy of the petition recording this opposition. The original remains with us in SNUB for presentation at any planning hearing.

Incidentally it is hardly equitable that large professional developers can take as long as they want to prepare large glossy brochures yet local Parish Councils and residents in particular only have 23 days to respond. It appears that this developer has flooded the process with so much information and tried to bamboozle people into not responding or not understanding the technicalities of this application.

BIODIVERSIITY

The present agricultural barns are the home of a bat colony. Indeed the revised application confirms the presence of two species of bats with one species in particular at risk from the wind turbine blades.

The lack of newts in the adjacent pond has not been proven beyond reasonable doubt and their presence needs to be thoroughly researched with site visits to the pond rather than a survey in the local vicinity. The local resident of the correct cottage assures us that there are newts resident in the pond.

BUSINESS USE

The two buildings will be divided into units suitable for small businesses in the B1 Business use class, which would include general office based uses and research and development functions which will have minimal environmental impacts. However the actual application also requests use for a B1 C usage, which is deemed to be light industrial use, which is never mentioned again in the DAS. In fact the applications also states that there will be no light vans using the site as the only vehicles parking there will be cars.

We surmise that the developers have no real plans for the occupancy of the site. However they are keeping their options open by applying for light industrial use and Saturday operations and once again trying to mislead local residents into the type of development ie "an office".

HERITAGE

It is a well documented that Rackheath airfield hosted a USAAF base during WWII. As such the site is adjacent to the award winning refurbished WWII Air Traffic Control Tower, which we believe is a rare example of such a building. The site itself contains many memories for both American relatives and local residents with memorials adjacent to the site commemorating the sacrifices of many American airmen. Whilst technically not a heritage site there are numerous site visits paid during the year and any development plans will need to carefully consider the importance of this site and the role it plays in Anglo/American relationships. We understand that there may well be a number of "war graves" in or adjacent to the site.

Another omission is any reference to the buy a bicycle scheme promoted by HM Government to allow employers to purchase bicycles without the VAT and allow employers to pay via a salary sacrifice.[15]

OTHER AREAS OF CONCERN

Due to the multiplicity of information presented by the developers and the restricted time to research and respond we are unable, at this stage, to present all of our concerns in a detailed way. We will however carry on with our research and present any new findings at the relevant planning meeting should this application be called in for review and decision.

We are however of the opinion that our detailed evidence presented in the first part of this report should preclude the application from proceeding any further and that the developers should withdraw their application due to their inability to substantiate the "green credentials" of this application.

Our other concerns are as follows.

MISREPRESENTATION

The facts as presented in the planning application have been misrepresented and contradicted several times as illustrated by the following points:

- There are references to five meetings held with Broadland District Council prior to the original application date yet a request under FoI only shows one meeting having taken place. It appears that the developers construe a telephone conversation as a meeting.
- A Freedom of Information request to Norfolk County Council submitted on the 11th April to substantiate the meetings held between the developers and the County Council has to date not been responded to by the council (due to Easter and May Bank Holidays the 20 day target for response is not due until Tuesday 20th May the day of submission of this paper to Broadland District Council).
- The measurements from the proposed wind turbines are not correct, as they do not measure up to the nearest cottage but the adjacent one. This invalidates all of their calculations.
- Para 2.39 of the DAS states that the environmental policies of the plan seek to protect environmental assets such as areas of special landscape value, nature conservation sites and protected species and areas of heritage value. It then goes on to state that there are no such sensitivities in the vicinity of the Dakenham site and the landscape and habitat creation and management proposals will help to deliver an enhancement to the environment. This is very confusing.
- If the eco town proposal is agreed then it appears that Salhouse Station will probably close and Rackheath station will emerge in Rackheath. Once again there appears to be a disconnection between the two planned developments, which do not seem to be mutually exclusive.
- In a similar vein the plans for the Eco town proposal show that the junction between Muck Lane and Wroxham Road to be closed. One would then envisage an increased amount of traffic along Station Road to gain access to the Dakenham Hall Barns site if the Eco town proposal were to go ahead. In the original application for this site the developer, at a public meeting, promised to ease the traffic along Station Road by making it into a cul-de-sac by closing the road under the railway bridge!
- Their assumptions around the use of this site is that everyone of the staff will travel in from Norwich, Wroxham or other villages and towns along the Bittern Line and therefore use the railway to travel to work. What happens if you live in Taverham or other similar locations across the county?
- We also challenge the following misleading comments contained in their Travel plan:
    - " …east of the railway bridge provides safe walking access to the residential areas of Rackheath" Wrong the residential areas adjacent to the station are in Salhouse!
    - "……there are many quiet lanes that provide for convenient and easy cycling" Not true.
    - "……Rackheath station lies approximately 130m to the north east of the proposed development." Since when has it been Rackheath Station?

[15] http://www.cyclescheme.co.uk/

site will be available however this has since been sold to a local community group and is not available as an overflow facility.

The 2001 Census[12] showed the following facts about how people travel to work:

- 55.2% driving a car
- 6.3% passenger in a car
- 7.4% bus or coach
- 7.1% train
- 2.8% cycle
- 10% on foot
- 9.2% working from home

Using the estimated 150/180 occupants in this development sees the following translation:

- 83/99 drive by car; assuming 70 car park spaces with 7 allocated to disabled and visitors means a minimum of 13 and a maximum of 29 cars to park in nearby narrow residential roads
- 10/11 passengers in a car
- 11/13 bus or coach
- 11/13 train
- 4/5 cycle
- 15/18 on foot
- 16/17 working from home

In their Travel Framework Travel Plan[13] document accompanying this application it is stated that there will be an "11% shift away from single occupancy vehicle travel in favour of 'greener' travel modes over a 5 year period"; Section 4 Page 7. **This equates to a reduction of 16/20 cars over 5 years**. This is hardly earth shattering and demonstrates the limit of the developer's ambition and ability to achieve the necessary behavioral changes needed to secure the radical changes in transport modes to make this proposed site anything but the norm.

This increase in traffic movements will also present a safety hazard as the road network around the proposed area is not suitable for a potential increase of at least 330 growing up to 396 (83/99 x 4; arriving, departing and lunchtime) traffic movements per day at peak hours and further movements with visitors, delivery vehicles and staff driving to amenities in Rackheath and Wroxham. They would have to do this as there are no amenities in Salhouse and the proposed development has no in house catering facilities.

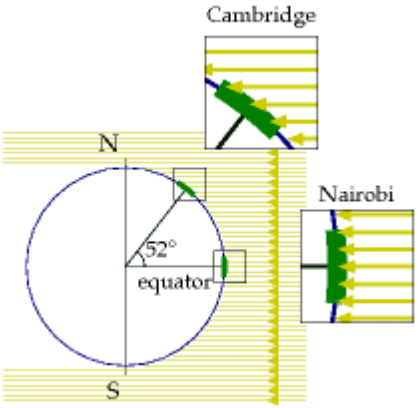
Taking that this application also covers Saturday working we are faced with a total weekly movement of 1,992 (Max 2,376) vehicular movements (83 x 4 x 6) which aggregates up to a minimum of **103,584 movements** per annum with a possibility that this could reach nearer **150,000 movements** as the site fills up and requires the support described earlier.

Indeed since the original withdrawn application we have seen two fatal road accidents in the vicinity of the Muck Lane/Wroxham Road junction over the last 6 months with the latest occurring a couple of months ago. Indeed in the aforementioned Travel Framework the developers state that "Car access to the site will be encouraged from Muck Lane"; a known accident black spot that faces the prospect of over 100 vehicles turning off of one of the major trunk roads (A1151) from Wroxham to Norwich. At the end of the day the prospect of 100 vehicles leaving the site at around the same time into a fast flowing trunk road beggars belief and is an accident waiting to happen particularly during the summer months as this road is a main connecting road to the Norfolk Broads.

It is also disappointing that the Travel Plan makes no mention of the potential use of the existing CarShare scheme run jointly by Norfolk County Council and Norwich City Council[14].

[12] www.statistics.gov.uk/census2001/census2001
[13] FRAMEWORK TRAVEL PLAN; Revision C, MARCH 2009, REPORT REFERENCE: 5306/PP/03-08/2163 Rev C
[14] http://www.carsharenorfolk.com/

There is no evidence that any of these are in the developer's plans and in fact two of these technologies are specifically excluded in the DAS; page 34 (Photovoltaic Solar Power Solar and Thermal Hot Water) due to the cost for the former and the lack of a need for hot water for the latter. We would suggest that if cost precludes the use of Photovoltaic's then it should preclude the use of hempcrete and that if showers are to be provided for the many cyclists that the developers suggest will be normal then there will be sufficient demand for hot water to support the use of solar thermal technology. Once again evidence of a lack of "joined up" thinking that is evident throughout the DAS.



Sunlight hitting the earth at midday on a spring or autumn day. The density of sunlight per unit land area in Cambridge (latitude 52.) is about 60% of that at the equator.

It is worth of note that new office buildings are often hyped up by the proposed developer as being amazingly environment friendly. The power of raw sunshine at midday on a cloudless day is 1000W per square metre. That's 1000 W per m^2 of area oriented towards the sun, not per m^2 of land area. To get the power per m^2 of *land area* in Britain, we must make several corrections. We need to compensate for the tilt between the sun and the land, which reduces the intensity of midday sun to about 60% of its value at the equator as illustrated in this figure. We also lose out because it is not midday all the time. On a cloud-free day in March or September, the ratio of the *average* intensity to the midday intensity is about 32%. Finally, we lose power because of cloud cover. In a typical UK location the sun shines during just 34% of daylight hours.

and the additional complication of the wobble of the seasons per square metre of south-facing roof in Britain is roughly 110 shine per square metre of flat ground is roughly 100 W/m^2. There is no allowance for these variations in the calculations used by the developers that try and justify their construction particularly of Building 2.

We therefore conclude that the main "green credentials" of this development are flawed and that the three main sustainability criteria ie wind power, ground heat source pumps and sustainable construction/design are not proven.

TRAVEL PLAN

Whilst it is commendable that a Travel Plan has been developed, as is common practice these days in most organisations, the standard of this plan leaves a lot to be desired. There are only 77 allocated car parking spaces for staff in this proposed development that will accommodate 150 to 180 occupants. The idea that occupants will take the train, use the bus or cycle is laudable but hardly practicable. The train service only runs each hour and does not stop every hour at Salhouse. The footpath from the station is non-existent and dark during the winter hours. Any staff using this route to work would then be faced with crossing a road on a double bend that is just not built for pedestrians crossing.

The bus route is a good 500 metres from the proposed site, which is outside of the Norfolk County Council recommended 400 metres for commuters to walk to work, and stops in Norwich Road at the junction with Station Road. Bus users would then be faced with a good 10-minute walk, not 2 minutes as detailed in the developer's application, along a road that has no footpaths and an ever-increasing amount of road traffic. Any cyclists would face the same dilemma in using a road with several blind bends and increasing road traffic and pedestrians in the form of schoolchildren walking down Station Road to catch the bus to school.

The majority of this traffic would be using a road that narrows to a single lane under the railway bridge or, if coming in from the Wroxham Road, use a single lane to access the remainder of Muck Lane which is only just about passable for two vehicles and then only if driving with extreme care.

We are faced with the reality that the staff will end up using their cars to travel to work thus increasing the overall carbon footprint and taking citizens away from what may be more environmentally friendly forms of transport to their current work location. The staff will also be unable to park on the site as the car park fills up and they will be forced to park in nearby residential streets thus increasing the hazard and danger. The developers have assumed that the car park in the Railway Station near the proposed

The effectiveness and efficiency of GSHP are measured by their coefficient of performance (COP). In their DAS, page 33, the developers claim that they will achieve a high COP of over 4. In practice the CoP of a standard heat pump across the winter season can fall from 4 to below 3 as the ground gets colder. As the ground gets colder the heat pump will have more work to do to deliver the output temperature required for heating. In these conditions the CoP of the heat pump will fall below the rule of thumb figure, often given as in this case, of 4.

The CoP is critical because, although a heat pump can be efficient, electricity is more expensive than gas. If a high CoP from the heat pump cannot be guaranteed all year round then it could be cheaper and less sustainable to use a gas boiler for heating.

In terms of carbon saving a heat pump releases no CO2 on site, but consideration should, when calculating environmental impacts, be given to the CO2 emitted at the power stations to create the electricity that is used during normal working and when the ground temperature falls below 10°C[10]

CONSTRUCTION

It is a proven fact that once a building is constructed any environmental savings are immediately reduced once the buildings are occupied. The idea that each occupant would have a carbon allowance, which would be monitored on a regular basis, is flawed particularly when it is considered that any activity that takes occupants over this limit would trigger an additional service charge payable to the landlord ie the developer. We have no evidence of this approach having worked in other locations and would suggest that all this appears to achieve is to increase rent and service charges to the developer.

Our research[11] also shows that the use of hempcrete in the construction of these buildings is not a proven or widely used building material. The prime reason for this is the cost of this material, circa £130 per sq meter, as opposed to the more traditional method of block and concrete at circa £5 per square metre. Whilst the environmental credential of hempcrete cannot be faulted there are some concerns about the life of the material as opposed to more traditional construction materials which appear to last a lot longer. As a consequence of this we believe that the rent charged to likely tenants would need to be higher than the current norm in order to show a positive net return for the developer. We are not sure if this will be attractive to potential tenants particularly in the current economic climate.

The construction includes the use of pre fabricated units and large blocks of hempcrete which due to their weight will require heavy lifting equipment on site and we are not sure that this will be possible due to the narrow points of access to the proposed site ie narrow end of Muck Lane and the low railway bridge at the end of Station Road.

The same research goes on to state that for an environmental build project one would expect to see a number or all the following technologies or materials in use:

- Organic paints and satins that do not emit unhealthy chemical gases will biodegrade on disposal and little energy goes into their production.
- Locally reclaimed timber has extremely low embodied energy.
- Use of polybutylene and polyethylene materials which have a much lower impact in terms of pollution during their manufacture and disposal than the more traditional PVC materials, which we believe will be used in this project.
- Reusing grey water (from sinks, showers and machinery).
- Rainwater harvesting.
- Photovoltaic Solar Power.
- Small hydro
- Solar Thermal hot water
- Air source heat pumps
- Bio-energy
- Renewable Combined Heat Power (CHP)
- Micro CHP
- Fuel cells

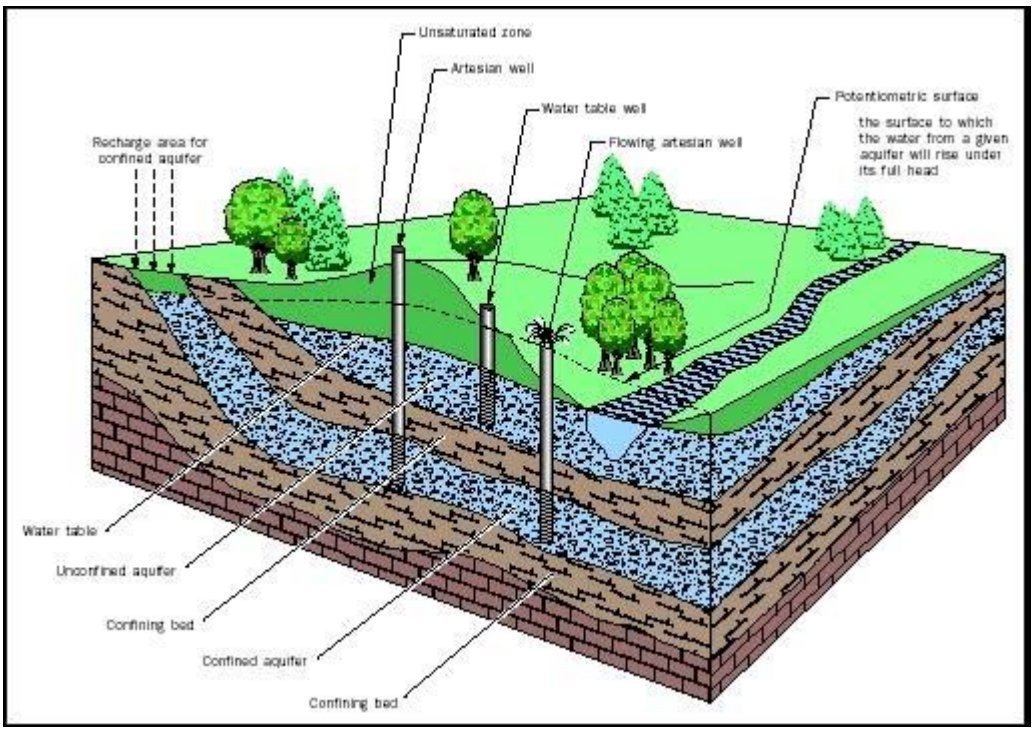
[10] Www.icax.co.uk/gshp.html
[11] Centre for Alternative Technology; www.cat.org.uk

illustrated on this table.

GROUND SOURCE HEAT PUMPS

Ground source heat pumps (GSHP) draw heat from under the ground using either a borehole or a series of pipes laid a few metres below the surface. In this case the developers are advocating the use of an existing aquifer with a close loop pump system (DAS; page 33).

There is however a limit to how much groundwater can be pumped out of an aquifer without causing depletion of the resource. If more groundwater is pumped out than is naturally recharged by precipitation, the amount of water stored in the aquifer will decline. In some areas, pumping has resulted in subsidence (sinking) of the land surface[9]. This represents a real danger due to the proximity of this site to a mains gas pipeline and the Bacton interchange pipe. Once again we believe there will be a need for the developers/landlord to ensure that there is sufficient public liability insurance to cover an incident caused by a fracture of these major pipelines due to subsidence.



Normally a GSHP starts with a ground temperature of about 10°C: this is the natural temperature of the ground at a depth of six meters'. This temperature of around 10°C will be found across Great Britain, summer or winter, unless unusual conditions apply. The reason is that heat only moves very slowly in the ground.

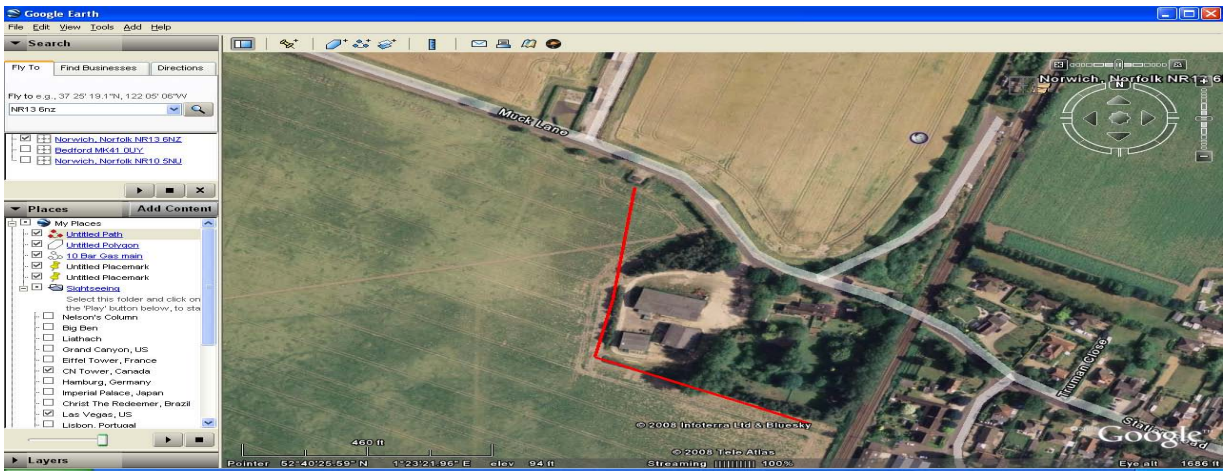
Unusual conditions will be found where a heat pump is in action: as a heat pump draws heat from the ground the ground temperature will fall from the natural level of 10°C to a lower level (which depends on the amount of heat drawn from the ground and the volume of ground from which it is extracted).

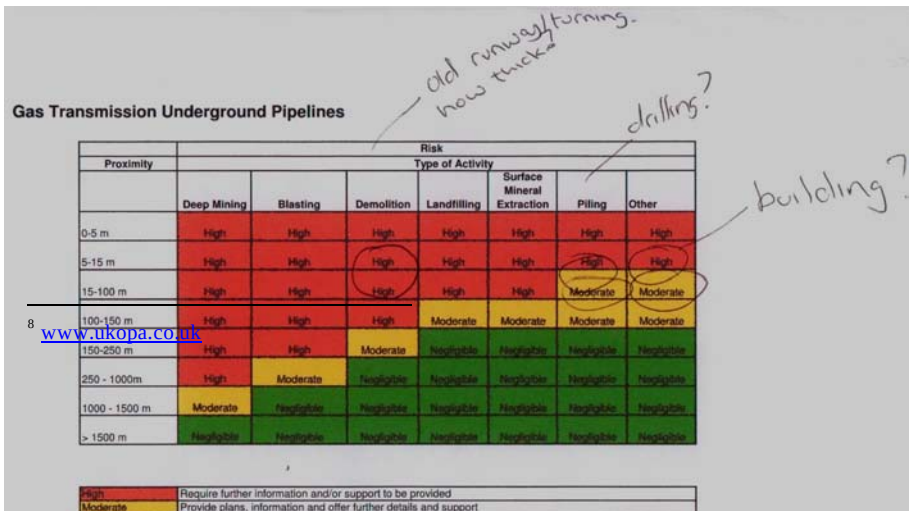
[9] www.waterencyclopedia.com/Ge-Hy/Groundwater.html

of the applicant, as well as of the residents, that a proper noise assessment should be undertaken to determine whether these wind turbines at this location could give rise to noise nuisance. It is entirely possible that Broadland District Council will be flooded with noise complaints post construction. We are led to believe that it is common practice that a viable noise measurement can only be obtained post construction. There is a real threat that these proposed turbines may have to be removed.

Professor Ffowcs-Williams, Emeritus Rank Professor of Engineering at the University of Cambridge, one of the UK's leading acoustical experts and an advisor to Renewable Energy Foundation, said: "*Van den Berg's paper adds weight to the criticisms frequently offered of UK regulations covering wind turbine noise, ETSU-R-97. The regulations are dated and in other ways inadequate. It is known that modern, very tall turbines do cause problems, and many think the current guidelines fail adequately to protect the public. This is a rapidly evolving field, and knowledge is growing fast. The Keele report, for example, is very important, and raises further questions with regard to the effect that modern wind turbines have on local residents. Sensitivity to lower frequency vibration varies considerably between individuals, and with Professor Styles providing clear evidence of detectable low frequency vibration at very large distances (10km), even from smaller turbines, it is entirely sensible to ask whether these cause problems for sensitive individuals living in much closer proximity. It really is time for the DTI to clear the air on this one, and institute a comprehensive and fully transparent study, obtaining data from the United States and Europe, as well as the United Kingdom.*"

We would also point out that the construction and operation of the proposed wind turbines seems to fall foul of the recommendations from the UK On Shore Pipeline Operators Association (UKOPA)[8], which clearly states that there must be sufficient clearance from any wind turbines. A recent study carried out by the UKOPA states that there should be an exclusion zone (distance from the base of the wind turbine mast to the edge of the pipeline) equivalent to 1.5 times the height of the mast. The proposed site at Dakenham Barns has a gas main running through it and is also quite close to the main gas interconnector pipeline from Bacton gas terminal to Norwich a can be seen on this Google Earth picture where the red line indicates a gas main pipe with the aforementioned Bacton pipe visible to the left.





The location of these pipes also precludes any demolition, piling and building within the proximity as

8 www.ukopa.co.uk

We would conclude that, using mathematical facts and calculations rather than emotive outpourings, the case for wind turbines as presented in this application is not proven. In this application the erection of wind turbines is nothing but a stunt to try and demonstrate to the ill informed that the whole development is sustainable. It is not and the complex physics of energy generation needs to be thoroughly understood by those making decisions that approve the erection of wind turbines of any sort but particularly micro generation as in this application.

We also believe that a number of similar developments have been stopped due to the lack of a guarantee, from manufactures of this type of wind turbine, regarding their safety. In particular no one, manufacturers or operating companies, can provide positive assurance that a turbine blade would not become detached from the mast and cause a major incident. There is therefore a need for Public Liability Insurance[5] to cover such an event which whilst we believe will be the responsibility of the developer and/or landlord we also believe that the local authority has duty of care to ensure that such insurance cover is adequate and appropriate.

There are also objections based on the fact that the noise pollution from the three proposed wind turbines has not been proven. We believe that the current design specification of the turbine blades will produce an unacceptable local noise and will also cause flicker as they rotate. These disruptions to the peace and tranquillity of a residential area are unacceptable and an infringement of basic human rights to be able to live in a peaceful area.

Preliminary recommendations from the Wind Turbine Noise Working Group established by the then DTI, are that turbine noise level should be kept to within 5 dB (A) of the average existing evening or nighttime background noise level[6]. This is in line with standard practice for assessment of most sources of noise except for transportation and some mineral extraction and construction sites when higher levels are usually permitted. A fixed low level of between 35 and 40 dB (A) may be specified when background noise is very low, ie less than 30 dB (A) as is typical in the countryside.

The report commissioned by the developers[7] is a poor quality report as it states "that as a worst case, at a wind speed of 4 m/s, the rating noise from the turbines is likely to be between 0 and 2.3 dBA above the existing background noise" yet we have already seen from the aforementioned government database that the average wind speed for this site, as provided by the Windspeed Database from www.berr.gov.uk shows, at 15m, as 5.3 m/s. The report does not give a rating noise for the average wind speed of the site and it is not impossible for the rating noise at 5.3m/s to be much closer to the limit of 5 dB (A).

To say that the worst case is 4m/s is misleading to say the least. The report also goes on to say "Unfortunately during the time available for our survey, weather conditions were such that wind speeds between 7 and 10 m/s did not occur at night, and during the daytime noise levels were affected by other sources." These inadequacies make this report inadmissible and its findings should be ignored.

The report highlights that, irrespective of planning consents, if a resident complains about noise from any source including wind turbines, the Local Authority has a statutory duty to investigate the complaint and, if a nuisance exists, to issue an abatement notice under the Environmental Protection Act. The local authority's EHO would assess noise nuisance subjectively, possibly supported by objective noise measurements and application of a methodology similar to a BS 4142 assessment. Neither a planning consent nor ETSU-R-97 has any status in the assessment of noise nuisance. If an abatement notice were to be issued in such a case, the applicant could only comply by stopping or removing the wind turbines. There is no other practicable form of mitigation and the defence of Best Practicable Means would only be applicable if the applicant could demonstrate that the continuing use of the development is not economically viable without the wind turbines. It is therefore in the interest

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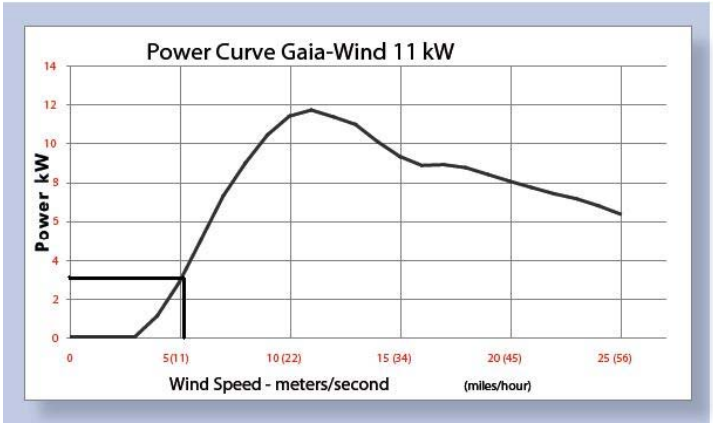
[5] Public liability insurance covers your legal liability to pay damages to members of the public for death, bodily injury or damage to their property, which occurs as a result of your business activities. It also covers legal fees, costs and expenses such as representation at any coroner's inquest, fatal accident enquiry or other court hearing because of an accident. When deciding on how much cover to buy, you should carefully consider the maximum claim that could be made against you. Awards for injury can exceed £1 million. Certain businesses, where there is a spreading fire or possibility of multiple personal injuries, could face claims for damages far exceeding this figure. The limit of indemnity will apply to claims arising from a single incident. http://www.abi.org.uk

[6] Assessment of noise from wind turbines adrian james acoustics limited

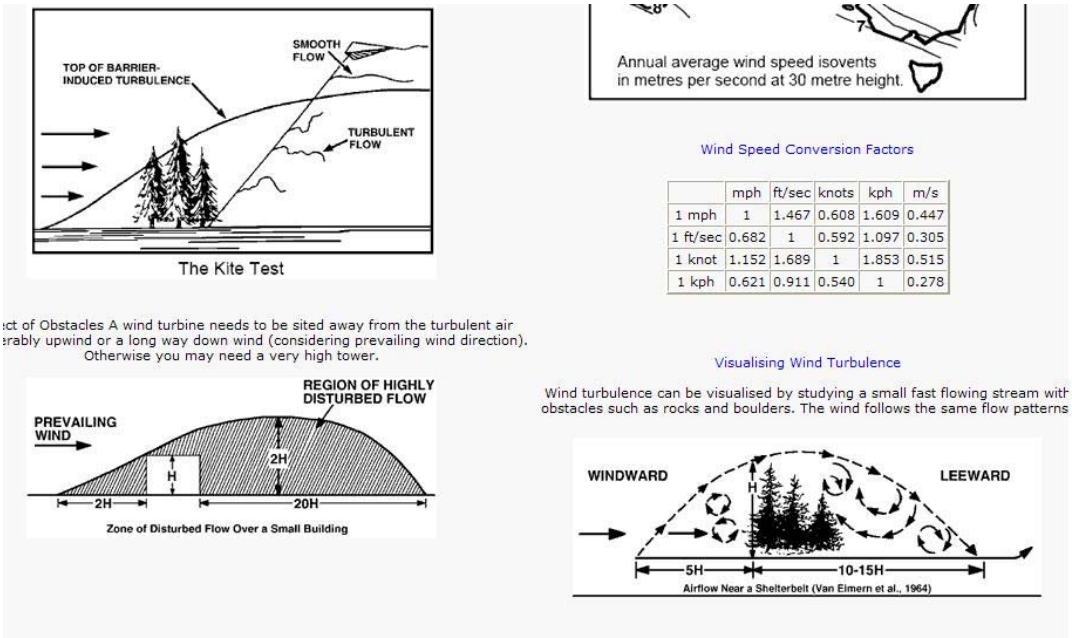
[7] Technical Report 10205/2; February 2009; Client: Building Partnerships Ltd DAKENHAM PROJECT, RACKHEATH

Therefore with the recorded and documented average wind speeds on this site the electricity production, whether they masts are 15 or 18 metres high, will be 2.8kwh per turbine at best as illustrated in the chart below.



Wind Speed (m/s)	Power kW
3	0.0
4	1.1
5	2.8
6	5.0
7	7.3
8	8.9
9	10.4
10	11.4

In addition by placing turbines so close to buildings and trees results in the effectiveness of the turbines being reduced drastically as illustrated below. Evidence suggests that due to locating the turbines next to a natural wind break (trees and building) they will only receive just over two thirds of the wind available.



Therefore the combined output from the three proposed turbines equates to much less than **9kwh**, which is enough to power a fan heater and certainly not enough to run ground heat pumps, which are explained later in this document.

In fact the whole viability of wind turbines on a small scale, as proposed in this application, is flawed as explained by Professor David MacKay in his publication entitled Sustainable Energy – without the hot air[4]. In this renowned publication he provides the necessary scientific evidence on how much wind power could plausible be generated onshore in the UK. His conclusions are that if we covered the windiest part of the UK with wind turbines, delivering 2W/m² we would be able to generate 20kWh/d per person that is half of the power used by driving an average fossil fuel car 50km per day. Even this calculation is generous as the number of wind turbines needed to generate 20kWh/d per person amounts to 50 times the entire wind turbines of Denmark, 7 times the wind turbines of Germany and double the entire fleet of wind turbines in the world.

[4] UIT Cambridge, 2008. ISBN 978-0-9544529-3-3; available at www.withouthotair.com

DAKENHAM HALL BARNS

BACKGROUND

The above planning application is similar, if not the same, as the original application last year (20080420), which was withdrawn in June 2008 due to the inability of the developer to satisfy a number of technical queries raised by Broadland District Council.

It is our understanding that whilst some of these original queries have been addressed a significant number have not been adequately addressed in this revised application. It is also worthy of note that over the last 12 months the economy has changed dramatically and real questions have to be asked about the funding for such a development as this. One has to question the appetite for developers and builders to enter into such an agreement without the security of anchor tenants; a point we expand on later in this document.

Since the original application the Eco town proposals for Rackheath, which borders this particular site have come to the fore. It is noticeable that during the public consultations for the Eco town no mention was made of these plans for Dakenham Hall Barns, indeed when the original application for Dakenham Hall Barns were discussed there was no mention of the proposed Eco town. This is surprising as Building Partnerships are implicit in both developments and has links to the Greater Norfolk Development Plan. This brings to the fore why the original application was withdrawn when it was. Was it due to the fact that the developers thought that if they let the Eco town development take all of the headlines this application could slip in under the wire without any queries from local residents? This type of approach is disingenuous to say the least and feels that the developer(s) are hedging their bets on which planning application gets approval.

In addition one has to question the timing of this application, which has been re-submitted after a relaxation in planning laws and we believe is attempting to take advantage of Central Governments encouragement to approve previous controversial developments in order to kick start the economy with local employment etc.

GREEN CREDENTIALS

The application for the development of Dakenham Hall Barns is based on the external view that this will be an environmental business site and that its green credentials are at the leading edge of technology and represents new thinking in the building of offices and business premises. We believe this to be a gimmick with no real substance as illustrated by the following **FACTS**, which are evidence based.

WIND TURBINES

The average wind speed for the Dakenham Hall Barns site, as provided by the Windspeed Database from the Department for Business Enterprise & Regulatory Reform[3], shows it to be, at **15 metres height**, as **5.3 m/sec**.

In their Design and Access Statement (DAS) on page 17 the developers state that in order to run wind turbines minimum wind speeds are required. They go on to say that this site provides winds mostly in excess of the national average set at **5 m/sec** at a **height 10 metres** above ground level.

The application has been amended several times as the developers seem to have wanted 18 metre turbines in order to achieve the necessary wind speed however when they realised that at 18 metres a full Environmental Impact Analysis would need to be carried out they reverted back to the lower height of 15 metres. In their DAS they make no mention of average wind speeds at either 18 or 15 metres.

The energy generation capacity seems to be a secondary consideration, which is probably due to the fact that for wind turbines to be commercially viable a minimum annual mean wind speed of **7.0 m/sec** is necessary. ***Only about 33% of UK land area has such speeds and none of these are in Norfolk.***

[3] www.berr.gov.uk

INTRODUCTION

Stop Norwich Urbanisation (SNUB) are a group of local residents[2] residing in Rackheath and Salhouse who are concerned about the creeping urbanisation of Norwich into the North Eastern suburbs and beyond particularly into the villages of Salhouse and Rackheath.

Whilst the Greater Norwich Development Plan and the Triangle Area Action Plan (AAP) developed under the Broadland District Local Development Framework may have denoted the North East segment as a development area we do not believe that this has the mandate of local residents.

Our local research shows that the majority of the residents are against any such urbanisation with real concerns that our locally elected councillors representing the District and at County, unlike our Parish Councillors, do not represent the wishes of the local electorate. These concerns are based on the lack of dialogue and appropriate consultation around this creeping urbanisation.

SNUB intend to listen carefully to all planning applications that proposes to support the Norwich Greater Development Plan and AAP and respond as appropriate based on facts and research rather than the hyperbole put forward by developers in glossy and professionally produced brochures.

We are not professional developers or have the resources available to counter corporate marketing campaigns. We do however have the voice of the local residents and the determination to represent facts to the local elected officials and officers in order for a balanced and reasoned discussion to be had before any planning application is lodged and voted on. We also possess among our members a high degree of professionalism in our chosen careers including some relevant experiences and qualifications as denoted in the footnote.

We find that whilst the developers have plenty of opportunity and time to state their proposition there is no real opportunity, other than the obligatory three minutes at a planning meeting, for residents to counter the proposal. SNUB intends to provide this opportunity by presenting the alternative view in documents such as this.

Our first opportunity to demonstrate this opportunity is to table a counter proposal objecting to the planning application for the development of the Dakenham Hall Barns that is presently being considered by Broadland District Council under planning application No. 20090416.

[2] SNUB members include; an ex Senior Civil Servant from HMT (Treasury) who was up until 6 months ago engaged in central governments work on Sustainable Procurement and has a Post Graduate certificate in Sustainable Business from Cambridge University as well as a MBA; a professionally qualified gas engineer, a long time served ex District Councillor, an experienced Project Manager and a lifetime resident of Salhouse.

DAKENHAM HALL BARNS PROJECT
AN ALTERNATIVE VIEW
FROM
SNUB[1]
(STOP NORWICH URBANISATION)

APPLICATION NUMBER 20090416

STOP NORWICH URBANISATION

[1] Stop Norwich Urbanisation is a local residents group who are concerned about the creeping urbanisation of Norwich into the countryside around the City. The residents are from Rackheath and Salhouse