

Supporting Volume

**The Sustainability Charter
for Queenborough and
Rushenden**

Ensuring a Sustainable Future

Adopted October 2010

The Sustainability Charter for Queenborough and Rushenden

THE SUSTAINABILITY CHARTER
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Rummey design



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The Sustainability Charter for Queenborough and Rushenden

Foreword

Foreword by the pupils of Queenborough First School, May, 2006

The regeneration at Queenborough and Rushenden is going to affect us a great deal and so we are really keen to make sure that anything that is built here is going to be the best for everyone.

We are worried about our environment because we have to live here, now and in the future. It is where we will grow up, and where we will have our own families. We would like it to be safe, clean, healthy and green, with lots of parks, no air pollution and buildings that will not harm the environment. More shops, cafes and leisure centres would make it a much more fun place to live. We would like lots of new jobs for all the people who live here, and for those people who will move here too.

We want to make sure all the wild animals have somewhere to live and planting lots of trees and building new parks would help this. Lots of people would then come to visit the island to see all the special animals and plants that are found here.

At the moment we feel that all the traffic in Queenborough and Rushenden make them quite dangerous places to live for young people. So this area needs to be made safer. We would like to have lots of

new cycling paths so people don't have to use cars, as well as roads for lorries that go around the town. These things would help a lot and make it a better place to live too!

We would like more things for older children to do, so we can play safely and more police to make sure people obey the law. More rubbish bins and places where we can recycle our rubbish would make the place a lot cleaner and greener.

We also need to teach people about the environment so that when the regeneration is finished, people will still look after Queenborough and Rushenden properly. We hope that this Charter will help to do that.

We have a long list of things we hope to see happening. These include solar panels, wind turbines, places to recycle, better and safer parks, clean beaches, bicycle tracks and other things which are good for the environment. This Sustainability Charter will help you to see what they are, and how you can help make a big difference. We have had a really good time talking, thinking and learning about all these things during the project. We would like to thank everyone involved in helping to make sure that we, the children of Queenborough and Rushenden, can look forward to enjoying our future in the new look Queenborough and Rushenden.

Introduction and Context



Jack Kingsnorth, Queenborough First School

The Sustainability Charter for Queenborough and Rushenden

Introduction

The South East region currently contains around 8 million people living in 3 million homes, and based on 2001 figures lies 15th out of 86 European Regions in terms of the size of its economy. However, it also has an ecological footprint 3 times greater than the resources currently available. This is a situation that clearly needs to be addressed as soon as possible.

Throughout its portfolio of development and regeneration projects, SEEDA leads the way in guaranteeing that all elements of sustainability are addressed as comprehensively as possible. In so doing it helps to ensure that all new developments far exceed existing development standards, creates communities that are truly sustainable and provides a high quality of life for residents.

The Queenborough and Rushenden regeneration is ideally positioned to demonstrate what is possible, and how we can work to exceed national and international targets, not in 50 years time, but now. It is vital that a high profile regeneration project such as this can act as an exemplar to the wider community, demonstrating best practice to the construction industry, regional and local government and future residents of the area.

The Queenborough and Rushenden Sustainability Charter (the 'Charter') has been designed as a document that should be used by all these parties, and forms part of the Masterplan for all future development within the regeneration area.

A number of targets have been developed that address all aspects of sustainability, and the initial target framework is included here. These targets are standards that all developers are expected to meet when bringing forward detailed development proposals. To make these targets applicable, relevant and achievable, each site released for development and controlled by SEEDA will be accompanied by individual site development criteria that will lay out more detailed and site-specific targets and will act as a condition of sale. The targets given here are shown in order to give a clear indication of the commitment of SEEDA, Swale Borough Council, the Department of Communities and Local Government (DCLG), and the local community to ensuring that Queenborough and Rushenden becomes a truly sustainable development.



Area context: The Thames Gateway and the Isle of Sheppey

Introduction

Context

The DCLG states that a sustainable community is one where:

"... people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all."

(<http://www.odpm.gov.uk>)

Sustainable developments embody the principles of sustainable development in that they:

- balance and integrate the social, economic and environmental components of their community;
- meet the needs of existing and future generations; and
- respect the needs of other communities in the wider region or internationally also to make their communities sustainable.

(<http://www.odpm.gov.uk>)

Queenborough and Rushenden must fall into all these categories to be a truly sustainable community. The Sustainability Charter for Queenborough and Rushenden creates an ethos for the regeneration area with which all involved parties must engage, and at every level. It is part of a wider suite of documents that make up the Masterplan for the regeneration area, and as such must be used in conjunction with, and in the context of, the wider development strategy.

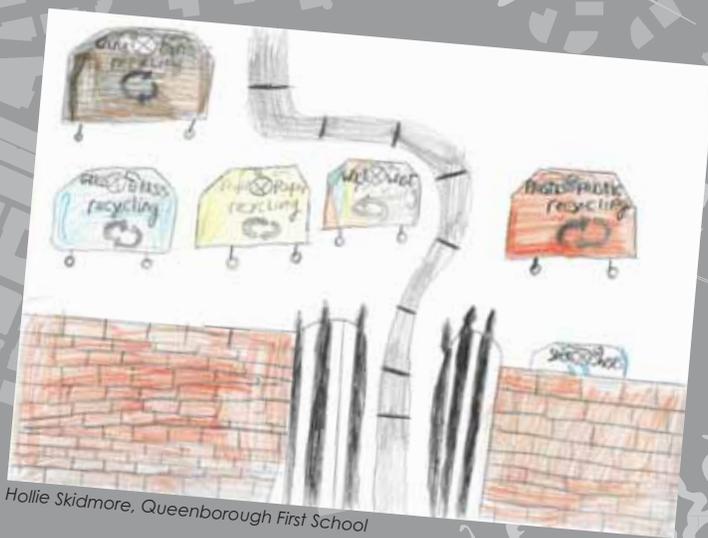
Since the initiation of the project in 2003, a vast amount of community consultation has taken place, including the creation of a Sustainability Steering Group which has driven this Sustainability Charter to completion. The existing community has been heavily involved at all stages of the masterplan, and will continue to be involved over the whole life of the regeneration. This consultation process, supported by a number of independently commissioned technical studies, clearly indicates the desire of the existing community to ensure that any development delivered on their patch is as environmentally friendly as possible, and ensures lasting economic and social benefits for all.

The framework for this Charter addresses these economic, social and environmental aims, aims that run throughout the Masterplan, by examining a number of different themes that weave their way throughout the development, and it is to these that we now turn.

It must be kept in mind that although the various elements examined here are separated into different sections, they all interact very closely, and one should not be examined independently of any other. The Charter should also be used within the wider framework for the regeneration programme, and, specifically, be used in conjunction with the Sustainability Appraisal and its further recommendations for the regeneration area.



General Sustainability Issues



The Sustainability Charter for Queenborough and Rushenden

Energy

Background

Each person in the UK produces around 12 tonnes of carbon dioxide (CO₂) emissions annually, a third of which is from household energy consumption through the use of both electricity and heat. There are a number of ways to reduce energy consumption, including education and raising the awareness of members of the community so that behavioural change can be encouraged. However, this needs to be matched by high quality development in the regeneration area. This is a core focus for Q&R: any new development whether residential, commercial, retail or leisure focused, will have to demonstrate best practice in design and build.

The prudent and efficient use of imported energy, coupled with the generation of renewable energy within any new development or regeneration is key to exceeding existing carbon emissions targets. A number of policies encourage more efficient energy performance in buildings, and such statutory minimums will become more rigorous in the future. Massively improved energy efficiency in buildings, coupled with the use of localised renewable energy generation to produce both heat and electricity, will be key to meeting the stringent targets on carbon emissions in place at Queenborough and Rushenden

Queenborough and Rushenden

Detailed feasibility studies, options appraisals and resource assessments have already been carried out to examine the possibility of integrating sustainable energy into the new development.

Residential

The Masterplan for Queenborough and Rushenden proposes a number of high density developments coupled with a number of lower density, 'individual' dwellings. It was found that large carbon savings (upwards of 25% compared to Building Regulations Part L) could be achieved on the low density dwellings through good design, integrated micro-renewable technologies, and significant improvements in energy efficiency in buildings.

An even greater saving could be achieved for the high density units through good design, energy efficiency and the development of a community heating network using biomass or heat and power network using (biomass or gas CHP). It is an additional requirement that all white goods installed within developments will be A rated. Further reductions may be required as development briefs are created. The targets for carbon emissions are set out in the Sustainability Charter Table. It is also recognised that retro fitting existing buildings represents the biggest opportunity to reduce energy consumption for the wider area. This opportunity should be explored with the Local Authority, local Registered Social Landlords and Government Agencies such as the Carbon Trust, as part of the Section 106 Strategy.

Non-residential

It is predicted that carbon savings of anywhere between 4% and 50% could be achieved for non-residential development, depending on the type and use of the buildings proposed. It is planned that each individual non-residential plot will have carbon emission targets and these will be developed as the phasing of the regeneration progresses.

Developers will use a wide range of measures, design specifications and technologies that will encourage both low and efficient use of energy coupled with the on site generation of renewable energy to meet these stringent carbon emission reduction targets, stated in the Sustainability Charter Table. This will involve a micro approach at the level of individual housing that could include the use of ground sourced heating, and solar panels, coupled with a macro approach that may, for example, include connection to a community heat and/ or power network running on biomass. Good design and natural ventilation systems will ensure that air-conditioning systems are not required, reducing energy demand. Where cooling requirements are unavoidable, alternative methods of cooling should be investigated in order to keep energy consumption to a minimum.

Reducing energy consumption in the public realm, whilst lowering the overall electricity consumption of the area, will visibly demonstrate of the sustainability credentials of the site. Examples of this include LED street lighting and the use of solar panels to power information systems.



General Sustainability Issues

Water

Background

In 2003/4, the average daily consumption of water per person in the SE was 165 litres. There are two key reasons why this has to be reduced in the coming decades. Firstly, the existing water resource will become increasingly scarce (and therefore more expensive) due to the expected population growth across the region. Secondly, as changes in the climate progress, it is highly likely that summer rainfall levels will decline and temperatures will rise, causing a reduction in supply during the periods of highest demand.

As a result, it is vital that developers address this issue as being integral to new developments whilst fully addressing the impact increased water demand can have on water supplies, wildlife habitats and the existing ecosystem as a whole.

Queenborough and Rushenden

The regeneration area has a long and distinguished water heritage, located as it is in such close proximity to both the River Medway and the sea. It is also based in close proximity to a number of sensitive ecological sites, which feature protected marsh and wetland areas. The Isle of Sheppey is also unusual in that the majority of rainfall leaves the island through evaporation and evapotranspiration, rather than through the river system.

A water management strategy that encourages the holding of surface water and reduces water run off is a key part of the regeneration. This has been examined at a number of scales, from domestic, (with the use of water efficient devices and appliances, rainwater recycling systems and the installation of green roofs) through to site wide impact and the use of Sustainable Urban Drainage Systems (SuDS), and beyond. Looking at the Isle of Sheppey on a larger scale, account has to be taken of the impact of drainage and water levels across a large, low lying and ecologically sensitive area.

Developers, where possible, will use SuDS as standard. This is important because:

- it allows the management of environmental impacts at source, rather than downstream
- water run off rates are controlled, helping to reduce urban impacts on flooding
- it protects the quality of water
- it can provide improved habitats for local flora and fauna

Water usage can be decreased through a number of water efficiency measures which are effective and easy to install. Good examples include low flow showers and taps, dual flush toilets, water butts in gardens and rainwater harvesting. The Sustainability Charter Table provides further details of what developers will be expected to integrate into their schemes.

The Kent Design Guide's Technical Appendix for Water Efficiency provides comprehensive guidance on the issues for consideration. The importance of water for everyday living is reflected in the Charter's framework targets, where it is expected that all residential development will be built and designed such that a minimum reduction of 30% in water consumption, based on average 2003/4 levels, is achieved.



The Sustainability Charter for Queenborough and Rushenden

Waste and Recycling

Background

The way in which we use resources today will determine whether we create a sustainable society that ensures resources are available for future generations. Not only does the average person in the UK use 10 tonnes of materials per annum, the construction industry gets through 420 million tonnes of materials every year and produces 90 million tonnes waste, of which only half is recycled. There is considerable potential to vastly increase the recovery and reuse of construction materials.

Coupled with this, we currently throw away nearly half a tonne of waste per person every year, and the amount is increasing at a steady annual rate of 3%. Of this, only 10% is recycled. At the construction level, around 50 cubic metres of waste is produced per residential dwelling.

The best way to deal with waste is not to produce it in the first place. There are some situations where this may be possible, but for all other situations the Government has introduced a Waste Hierarchy which gives, in order of preference, a list options for managing waste:

- Reduce
- Reuse
- Recover (Recycle, Compost, Recover Energy)
- Disposal

The issues on waste and recycling must also be considered with respect to those on Materials and Procurement in Section 2, below.

Queenborough and Rushenden

The Queenborough and Rushenden Regeneration area must be designed with this hierarchy in mind. There are very limited facilities for landfill on the Isle of Sheppey. As the Kent Design Guide points out, "The amount of material wasted on site can be reduced by introducing regular audits to monitor and control site activities. Detailed attention to the quantity of materials purchased and the way that these are stored and handled, can significantly reduce waste." A comprehensive Site Waste

Management Plan will be a requirement of any development, and guidance can be found from the DTI (see the Appendix) on how this can be drawn up. It is expected that any development will therefore have to ensure that a maximum of 25 cubic metres of construction waste per domestic unit is produced – the current average is around 50 cubic metres. Similarly challenging targets will have to be met for non-domestic development.

Developers and architects will also have to ensure that either storage space for segregated waste within dwellings or convenient neighbourhood collection facilities and recycling points (or both) will be designed into the site. This will enable a massive improvement in the current recycling standards in the Borough of Swale, and set the standards for elsewhere in the Borough. It is intended that more than 70% of domestic waste will be recycled as a result. Composting facilities should also be provided where possible. The Kent Design Guide's Technical Appendix 'Designing for Waste Management' provides further guidance on how to approach this issue. The individual site development criteria should also specify individual targets and facilities for non-domestic buildings.



General Sustainability Issues

Transport

Background

"...we must balance the increasing demand for travel against our goal of protecting the environment effectively and improving the quality of life for everyone - whether they are travelling or not." – DfT The Future of Transport White Paper, 2004

Transport in the United Kingdom is currently responsible for 22% of carbon emissions, with road traffic currently increasing by around 2% annually. Not only does congestion cost the UK economy around £20 billion every year but 30,000 deaths or serious injuries also result from traffic accidents and airborne pollutants cause severe health and respiratory problems. Yet again, fundamental changes are required in the way we approach transport and travel in new developments.

Queenborough and Rushenden

Transport is both a convenience and a necessity, and the greatest possible number of choices will satisfy the greatest number of needs. At present the existing community is underserved, requiring an improved bus service that is synchronised with train times, a more regular train service (Swale Rail will be a high priority), more walking and biking trails, and better access to Sheerness, Sittingbourne and London. Queenborough and Rushenden currently rely solely on 'Main Road' Queenborough to provide access to and from the Regional Highway Network. It is currently substandard, with over capacity, high air and noise pollution coupled with heavy use by pedestrians and cyclists.

The area will benefit considerably from the new relief road being built as part of the regeneration programme that opens up 180,000 sq metres of employment floor space and provides access to as many as 2000 new homes. This will enable an initial and substantial economic growth for the area, and combined with well-designed development, this growth should be maintained for many years to come. Good transport infrastructure is also seen as key to ensuring social inclusion through improved access to facilities and services, and hence will help deliver a socially thriving community.



The Masterplan also promotes the use of pathways and cycleways throughout the development area, in line with the Framework Travel Plan that includes key recommendations about the measures and systems required throughout the regeneration area.

It is a requirement of any new development that these recommendations are fully integrated into the sites being taken forward, the detail of which should be included in individual site development criteria. Examples of requirements include the provision of cycle storage in accordance with Swale Borough Council guidelines, and the provision of car parking in accordance with maximum standards adopted by Kent County Council. Car-pooling/car club facilities will be used where feasible by developers, and HomeZone standards will be adopted in all new residential developments, restricting speeds to 20mph. The overall aim is to help reduce the dependence on travel by car, whilst creating increased capacity in the public transport network to cope with the higher anticipated levels of demand in the future.



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Biodiversity

Background

The natural world is highly complex, and the relationships and interactions between species and habitats are crucial to ensuring the health of the planet as a whole. Human interference in this biological diversity reduces our own quality of life, whilst impacting on the natural resources available and severely impacting on the ability of future generations to survive.

The UK Government is a signatory to the Convention on Biological Diversity, committing it to a reduction in the current rate of biodiversity loss at the national level by 2010. Statutory support exists for the protection of biodiversity in the form of the CROW Act (2000), NERC Act (2006) and Planning Policy Statement 9 – Biodiversity and Geological Conservation. This commitment is recognised and reinforced by policy and strategy documents, including the England Biodiversity Strategy and local Biodiversity Action Plans (BAPs).

Queenborough and Rushenden

The area surrounding the regeneration site (as well as some within the regeneration) is particularly sensitive in biodiversity terms, having Sites of Special Scientific Interest (SSSI) and RAMSAR protected status. The Queenborough and Rushenden Regeneration as a whole will make a positive net contribution to green space, wildlife habitats, and biodiversity in general. Individual developers, therefore, have a responsibility to make sure their contribution satisfies the requirements for their given site area.

Development within the Queenborough and Rushenden regeneration will ensure that adverse effects to existing biodiversity are minimised and that opportunities for enhancing biodiversity, providing new green space and wildlife habitats are sought within each of the development areas across the site. In line with the Masterplan, these habitats should not become isolated and should be linked by a network of wildlife corridors, including areas of landscaping and watercourses within and between the respective development areas. This will help promote a better quality of life through a more visually appealing environment, as well as more opportunities for leisure activities and improved health, which itself will help create an economically thriving and socially inclusive community.

Any planning submission will be assessed against the policies and strategy documents outlined above, as well as any future amendments or additions that will undoubtedly occur. Furthermore, it is expected that, especially in light of any Environmental Impact Assessments (EIAs) carried out in connection with any part of the development, developers will adhere strongly to the principles and strategies outlined in the Technical Appendix on Biodiversity in the Kent Design Guide. This will include, but not be limited to, features and techniques such as:

- the use of native species of local genetic provenance in re-population / planting;
- the use of natural regeneration of habitat rather than artificial recreation; and
- living/green roofs and soft landscaping.



General Sustainability Issues

Socially Inclusive Communities

Background

Socially sustainable communities are generally characterised as those where people can enjoy a quality of life which balances their needs for good housing, transportation, employment, health and leisure opportunities within the context of a quality physical environment. The creation and sustenance of a collective 'civic pride' and sense of belonging is arguably the glue which binds such individual well-being and physical space into a vibrant and sustainable community.

The Sustainable Communities Plan 2003 sets a very clear remit for government at all levels to consider the holistic needs of new and existing communities in the English growth areas. Indeed these aspirations are reflected in overarching planning policy guidance and filters down to the local development process - the requirement for planning authorities to prepare Statements of Community Involvement within the LDF process being a case in point.

Effective information exchange and partnership working amongst stakeholders and the community are powerful tools in developing inclusive communities. In particular a focus on empowering local people to access new skills training, employment, housing and community facilities arising from growth can help accrue the following benefits:

- creation of better chances and opportunities in life;
- strong communities that are safer and more able to tackle inequality;
- provision of more sustainable services and environments; and
- a healthier population.

Queenborough and Rushenden

Once an important seafaring town, the area of Queenborough and Rushenden has a rich economic history but has witnessed decline in its industrial base since the 1960s, in keeping with the wider economy of the Isle of Sheppey. As such the area is characterised by high levels of social exclusion.

According to the 2004 Index of Multiple Deprivation Swale Local authority is the 13th most deprived ward out of the 67 in the South East containing 13 Super Output Areas within the 20% most deprived nationally. 10 of these are on Sheppey of which four are in the worst 10% nationally. These areas score particularly poorly in terms of barriers to housing and service, health, income, employment and qualification levels. The Queenborough and Halfway SOA is ranked 82 out of the 5319 SOAs in the SE and Sheerness West SOA is the most deprived in North Kent. The education attainment and progression levels of Swale are amongst the worst in the SE (only 7.3% of the population is educated to degree level compared to Swale average of 12% and England and Wales average of 19.8%; 40.8% of the population have no qualifications compared to Swale average of 34.4% and England and Wales Average of 29.1%)

Although this is a relatively low statistical starting point the communities of Queenborough and Rushenden have significant potential for regeneration. The construction of the new Swale crossing presents a major opportunity for economic growth that can be the catalyst for environmental and social enhancements. Therefore a number of targets have been drawn up by partners and stakeholders to ensure that the Queenborough and Rushenden Regeneration project translates this opportunity into real benefits for local people:

A high proportion of the new dwellings will be affordable housing (minimum of 25% for sites of 25 or more units), and these will be integrated throughout the regeneration area, taking into account the commercial issues driving the development. In addition:

- A range of new community facilities will be provided as part of the overall Masterplan, and existing provision will be enhanced to meet the future needs.
- All new development will be required to investigate whether it is feasible to sign up, or otherwise contribute to, a local training programme related to construction, and targets may be set on the sourcing of local labour during the construction phase.

- A range of skills initiatives will be undertaken with local partners and businesses to improve lifelong learning and relevant employment skills in the community.
- An appropriate long term management plan and structure will be developed with the community to ensure ongoing governance and operation of facilities is in ownership of the community.



Sustainable Construction



Devon Dumont, Queenborough First School

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Urban Design and a Sense of Place

Background

Creating sustainable communities cannot be done without good urban design. The two are intrinsically linked. It is vitally important that the design of the regeneration creates both a high quality public realm coupled with the development of a real sense of place. A real sense of place is important in that it will not only help maintain the historical and cultural dimension of the area, but also create a sense of belonging and attract people and businesses, an important driver of economic and social development.

In line with the guidance set down in the Masterplan as a whole concerning the form of development and the local characteristics of the area, all phases of the development will be designed such that they address these factors and encompass the strong environmental design principles outlined throughout this Charter.

Queenborough and Rushenden

In order to address Urban Design considerations, any development design will be based on a well-founded and well-researched understanding of the local context and vernacular. Q&R has a renowned cultural and sea-faring heritage that must be retained and enhanced in any new development, and as such the urban and building design will be crucial in helping to rejuvenate a community that has been in decline for a number of years. Queenborough and Rushenden are characterised by some fine architecture and natural assets, such as the Swale, the marshes and the creek. A great deal of community consultation and research has been put into the Masterplan for the development, and it should be consulted regularly for guidance.

All elements of new development will have to comply with the principles of the Kent Design Guide and also with National Design key performance indicators. Open space must be provided in accordance with the Masterplan, other sections of this Charter, and with particular attention being paid to the Kent Design Technical Appendix on Biodiversity.

One of the key desires of the local population is to ensure that both the new development and its integration into the existing community helps to deliver a safe and secure environment for everyone. Developments must be planned such that they 'design out' crime. This will be coupled with the provision of facilities for existing and future residents, so that vandalism, intimidation and other anti-social behaviour is avoided.

The Masterplan outlines some key factors that must be applied in Queenborough and Rushenden:

Urban Design:

- A range of housing styles and different price levels will be delivered, and the regeneration will integrate both affordable and privately owned homes.
- In terms of the height of buildings, any development should respect existing heights, but those around the centre of the regeneration area will be taller to make a 'statement'.
- Existing building densities range from 22 (Rushenden) to 80 dwellings per hectare (in old Queenborough), and many better residential developments emulate historic qualities. The regeneration will aim for the upper end of this scale to create a vibrant, thriving community.
- Designing out crime to deliver a safer environment in which to live.
- Design which reduces the demand for energy consumption e.g. through applying the principles of passive solar design.



A Sense of Place:

- Development must protect and enhance the elements contributing to the character and distinctiveness of the area.
- The built heritage must be preserved and the development of new architecture must respect the local context.
- Environmental qualities adjacent to new and infill sites are to be protected and enhanced.
- The specification of local building materials and local indigenous plants.
- Enrichment of sense of place by working with landform, local landscape character, heritage and cultural assets.

Sustainable Construction

Climate Change Adaptation

Background

The legacy of past emissions and the complexity and inertia of the world's climate system mean that continuing climate change is now unavoidable for much of this century. While we need huge reductions in emissions to help avoid increasingly dangerous global warming in the second half of the century, these reductions will make no difference to the climate change we face over the next few decades. So we also need to adapt - using the knowledge we already have to improve our decisions and policies at local, regional, national and international levels.

Within the UK, climate change is projected to be more pronounced in south eastern regions. Adaptation and mitigation are the twin challenges for communities, businesses, NGOs and political leaders, and the implementation of measures that address adaptation on new developments and regeneration projects are key to securing a better future for us all.

Queenborough and Rushenden

The regeneration at Queenborough and Rushenden has been the subject of a pilot research project – the DEFRA Growth Areas Climate Change Adaptation Study. Land Use Consultants, in association with CAG Consultants, Oxford Brookes University and Gardiner & Theobald have undertaken this study into adaptation responses to climate change for new developments in the Growth Areas. The Three Regions Climate Change Group has also contributed to funding the research.

The research addressed the practical constraints faced by planners and developers in delivering growth in light of potential climate change impacts. The study culminated in the production of guidance into adaptation responses to climate change for new developments in the Government's Growth Areas.

A number of key climate changes have been identified and are expected for the Queenborough and Rushenden area, an area particularly vulnerable due to its low lying, coastal position:

- hotter summers and milder winters;
- more frequent extreme high temperatures;
- fewer frosts, long runs of snowless winters;
- wetter winters with drier summers, with more frequent extreme winter precipitation;
- increased storm frequency;
- reductions in the water content of the soil; and
- a net rise in the sea level with an increased storm surge height.

The result could be water shortages, severe impacts on biodiversity, flooding, storm damage to buildings and considerable impacts on energy, transport and telecommunications infrastructure. It is therefore vital that the potential of these impacts is taken into account in the design of buildings, in line with the Masterplan. Developers and architects should consult the document entitled 'Adapting to Climate Change: a Checklist for Developers', published by the Three Regions Climate Change Group, and which will help future proof any development against the negative impacts of climate change.



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Materials and Procurement

The procurement of building materials for any development will have a major impact on the extent to which it becomes sustainable. The sourcing of materials has an environmental impact in terms of affecting the natural resource base, the effect on existing biodiversity, the transport of those materials from source to final point of use as well as the embodied CO2 in their production.

However, and with a little thought and planning, negative impacts can be minimised and the economic impact maximised by using local companies, local and sustainable resources, local labour and materials with high levels of recycled content. It is a win-win situation that can be achieved with a simple tweaking of supply chains. The following hierarchy must be observed by all developers:

- Reclamation and recycling of materials from onsite demolition
- ↓
- Reclamation and recycling from other sites
- ↓
- The use of materials with high recycled content
- ↓
- The use of materials from sustainable sources
- ↓
- The use of materials with an A rating in BRE's Green Guide to Specification
- ↓
- The use of materials with low embodied energy content

During construction it will be imperative that developers adjust their supply chains to follow this hierarchy, and the buildings themselves should be designed such that they allow for the re-use of existing materials and for the use of materials with a high recycled content. It is expected that materials will be chosen on the basis of their lifetime environmental impact, including recycled content, as well as their aesthetic value.

The various guides and support provided by the Waste and Resources Action Programme (WRAP) indicate that many options for material with recycled content exist that are cost effective, available, meet industry technical standards and are environmentally sound.

The assessment of the environmental performance and life cycle impacts is a complex process. To facilitate this process, it is expected that developers make full use of BRE's Green Guide to Specification and Green Guide to Housing Specification, as well as the National Database of Environmental Profiles for Materials and Components. Details can be found in the Appendix.

A comprehensive plan for the transportation, management, storage and use of materials on site during construction will be a key element of any planning application and the achievement of these targets, and will also contribute to the reduction of costs through minimising waste transported to landfill. This would include the use of rail or sea to transport materials.

In line with the target framework outlined below, a minimum of 20% recycled content of materials by value must be achieved in all developments, and developers must also maximise the number of materials achieving an A Rating in BRE's Green Guides to Specification.



Sustainable Construction

Buildings and Building Performance

Background

As outlined above, the performance of buildings is key to reducing carbon emissions and to the creation of high quality homes and commercial space that adhere to the full range of sustainability criteria. A number of pieces of legislation and guidance exist that encourage better building techniques and encourage better building design. These are only going to get stronger, with more stringent targets applying to new developments.

Queenborough and Rushenden

The regeneration of Q&R will extend over a period of around 12-15 years. Any buildings built during that time will, in line with development briefs, far exceed building regulations existing during the regeneration period. On this basis, any new development will have to adhere to the most stringent of development standards, and this shall begin with the use of BREAAAM and The Code for Sustainable Homes ratings.

All new non-residential properties will have to meet BREAAAM Very Good or Excellent criteria, depending on whether they are connected to the biomass CHP system or not. All new residential properties will initially be required to meet a minimum of Level 3 from The Code for Sustainable Homes, with all developments being zero carbon by 2016. Again, specific individual site development criteria, accompanying the sale of development sites, will set applicable and challenging sustainability targets on a tailored basis.

Construction Impact

Background

A sustainable development is not just the end product or the completed building. It runs throughout the construction period as well, and it is important that any disruption to the existing community is kept to a minimum.

Queenborough and Rushenden

Any developers at Q&R will have to establish a construction charter, and in advance of the construction process (post consent) establish a Considerate Contractors Scheme, which details the means by which disturbances will be kept to a minimum. Part of this will be an obligation to provide a transport plan for the period of development that includes detail of how transportation of materials (coupled with efficient storage and stock management) will be managed.

The General Site Infrastructure

Site infrastructure is a key means to reach sustainable development ends. Well constructed and environmentally designed buildings would be rendered unsustainable without access to good quality infrastructure. Issues affecting transport, energy supply, water and flooding issues, as well as biodiversity are all interwoven, and all form part of the infrastructure of an area. They also all contribute to the social, economic and environmental aspects of sustainability.

High quality road systems, utility provision and access to services such as the latest ICT are all foundations of sustainable economic development of a region, helping to create employment and ultimately increase income in the area. Good quality services will also add to people's quality of life, increased opportunities and decent quality housing.

It is planned that the regeneration area, and where possible existing buildings, will benefit from far higher quality services than currently exist. With this in mind, all Civil Engineering projects are expected to attain an Excellent Rating under CEEQUAL (Civil Engineers Environmental Assessment Award Scheme). State of the art ICT will be made available to the area. The utilities themselves will be provided in line with the sections on Energy and Water given earlier, and in so doing help provide one of the most sustainable developments of this scale yet built.



Sustainability Targets and Monitoring



Matthew Rush, Queenborough First School

The Sustainability Charter for Queenborough and Rushenden

In line with the overall approach to the Queenborough and Rushenden Regeneration, a number of targets have been defined that will enable the delivery of a truly sustainable development. These are shown in the Sustainability Charter Table. The targets themselves have been developed in conjunction with all key stakeholders, and formed part of the ongoing consultation process leading up to the outline planning submission. These initial targets have been set with a number of issues in mind.

1. Timescales and Phasing

The regeneration will be taking place over a number of years, during which time policy and statutory requirements are likely to change, and become more rigorous. It is impossible to accurately anticipate these changes. Therefore, and as development progresses, individual targets for specific plots within the regeneration will be drawn up in more detail, ensuring that changes in policy over time are fully accounted for throughout and beyond the life time of the regeneration period. The targets set out in this document will be reviewed in 2011, the same year as the Building Regulations are next updated.

2. Complexity of development

The targets outlined cannot and do not extend to all aspects of every type of development. Each development brief will therefore take full account of the building type, its ongoing use and its location in determining a set of tailored targets that must be met.

3. Methods, Compliance and Monitoring

Achieving such challenging objectives will only

be possible if the support mechanisms, existing tools and required knowledge already exist. The Appendix outlines a number of support services, tools and reference documents which can be accessed by architects, developers and planners that will enable them to meet – and perhaps exceed – these targets, across the full range of sustainable issues. The framework below also indicates a number of methods that may be employed to ensure that any development that takes place will deliver on its sustainability objectives. In line with these targets, and to ensure effective compliance and monitoring, it will also be an obligation on behalf of developers to complete the Sustainability Checklist for Developments in the South East. This will be submitted with planning applications, and, practically, will be a self assessment against the targets outlined in the development briefs.

Sustainability Targets and Monitoring: Sustainability Charter Table

Sustainability Charter Table		2007 Performance Standards: Building Regulations/Local Policy	Q&R Targets to 2011 for Non-Residential Buildings	Q&R Targets to 2011 for Residential Buildings	Verification Process
Energy	Energy Efficiency	Building Regulations 2006 Part L	BER (Building Emissions Rate) to be a minimum of 10% below TER (Target Emissions Rate)	- DER (Dwellings Emissions Rate) to be at least 25% below TER	<i>Non-Residential:</i> SBEM <i>Residential:</i> SAP
	CO ₂ emissions	Building Regulations 2006 Part L	<i>For buildings connected to Biomass CHP:</i> 2007-2011: 50% improvement over TER <i>For buildings not connected to Biomass CHP:</i> 2007-2011: 20% improvement over TER, and provision of a feasibility study to reach 30% <i>For all buildings:</i> Sub-metering of energy use by tenancy/areas must be installed within the building. All buildings should be naturally ventilated. Air conditioning should be avoided.	<i>For units connected to Biomass CHP:</i> 2007-2011: 75% improvement over TER (CSH level 4). <i>For units not connected to Biomass CHP:</i> 2007-2011: 35% minimum improvement over TER (CSH level 3) and provision of a feasibility study to reach 44% (CSH level 4). <i>For all units:</i> Smart meters installed in all properties and made visible to occupiers.	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
	Renewable Energy	No compulsory policy in Swale but there is a national trend towards a minimum of 10% carbon reduction through on site renewables (e.g. Tunbridge Wells 10% carbon reduction policy).	<i>For buildings connected to Biomass CHP:</i> No additional requirement. <i>For buildings not connected:</i> Generate a minimum 10% of energy through on site renewable or low emissions energy sources, and provision of a feasibility study to reach 20%.	<i>For units connected to Biomass CHP:</i> No additional requirement. <i>For units not connected:</i> Generate a minimum 10% of energy through on site renewable energy sources, and provision of a feasibility study to reach 20%.	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
Design	Passive Solar Design		- Application of the principles of passive solar design with a view to reducing energy consumption.	- Application of the principles of passive solar design with a view to reducing energy consumption.	Assessment at the design stage.
	Daylight	No compulsory policy in Swale.	Minimum of 80% of net lettable office floor area is adequately daylight.	1.5% average in living areas (including home office) 2% in the kitchen	Code for Sustainable Homes (CSH) / BREEAM design and post construction review

The Sustainability Charter for Queenborough and Rushenden

Sustainability Charter Table		2007 Performance Standards: Building Regulations/Local Policy	Q&R Targets to 2011 for Non-Residential Buildings	Q&R Targets to 2011 for Residential Buildings	Verification Process
Water	Usage	No policy. The average use in the SE is 165 litres per person per day (Ofwat 2003/04)	<ul style="list-style-type: none"> - Maximum consumption to be 9 litres per person per day. - Low flow taps, toilets and showers in all buildings (compared against standard spec. in BREEAM). 	<ul style="list-style-type: none"> - 105 litres per person per day (Code Level 3/4). - Water meters in all units. - Water butts provided to all units with gardens, in accordance with CSH guidance. 	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
	Surface water runoff	No compulsory policy in Swale.	<ul style="list-style-type: none"> - All development, where possible, will include the use of SuDS. - On large buildings, evidence must be presented that Green Roofs have been considered. 	<ul style="list-style-type: none"> - All development, where possible, will include the use of SuDS. - On large buildings, evidence must be presented that Green Roofs have been considered. 	
Waste	Construction	50 m ³ per home	Site Waste Management Plan must include procedures and commitments to sort, reuse and recycle construction waste, either on site or through a licensed external contractor.	<ul style="list-style-type: none"> - 25m³ per home (50% improvement) - Site Waste Management Plan must include procedures and commitments to sort, reuse and recycle construction waste, either on site or through a licensed external contractor. 	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
	Domestic/Commercial	No policy for compulsory recycling in Swale or at the regional or national level.	Recycling facilities provided for all non-residential buildings in accordance with BREEAM guidance.	<ul style="list-style-type: none"> - Achieve maximum credits for household recycling facilities in CSH Was 1. - Composting facilities for units with gardens. 	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
Materials	General	SEEDAs checklist targets 80% of materials to be Green Guide 2007, A rated.	80% of materials to be Green Guide A rated.	80% of materials to be Green Guide A rated	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
	Recycled Content	DTI's site waste management plans (WRAP).	20% (by value) is recycled material	20% (by value) is recycled material	
	Responsible sourcing	<ul style="list-style-type: none"> - No compulsory policy in Swale. - The Government's timber procurement policy requires all Government departments and their agencies to actively seek to buy timber products from legal and sustainable sources. 	<ul style="list-style-type: none"> - Materials sourced in conjunction with the Materials Hierarchy (see the main body of the Green Charter) - All timber that is not recycled or reused must be legally sourced AND certified (refer to BREEAM for details). 	<ul style="list-style-type: none"> - Materials sourced in conjunction with the Materials Hierarchy. - All timber that is not recycled or reused must be legally sourced AND certified (refer to CSH for details). 	<ul style="list-style-type: none"> - Independent assessment of supply chain and procurement records. - Provision of certificates where appropriate.

Sustainability Targets and Monitoring: Sustainability Charter Table

Sustainability Charter Table		2007 Performance Standards: Building Regulations/Local Policy	Q&R Targets to 2011 for Non-Residential Buildings	Q&R Targets to 2011 for Residential Buildings	Verification Process
Ecology/ Biodiversity		The Swale Local Plan and the Kent and Medway Structure Plan suggest as a minimum to conserve and to enhance biodiversity.	<ul style="list-style-type: none"> - Ecological features must be designed for positive enhancement in accordance with the recommendations of a suitably qualified ecologist. An ecological assessment is compulsory. - The Regeneration is to deliver a gain for biodiversity with reference to the Kent and Swale Biodiversity Action Plan. 	Ecological features must be designed for positive enhancement in accordance with the recommendations of a suitably qualified ecologist. An ecological assessment is compulsory. <ul style="list-style-type: none"> - The Regeneration is to deliver a gain for biodiversity with reference to the Kent and Swale Biodiversity Action Plan. 	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
Employment	Home Office	No compulsory policy in Swale.	N/A	<ul style="list-style-type: none"> - Sufficient space and services provided which allow the occupants to set up a home office in a suitable quiet room. - 2 double sockets and phone/broadband CAT6 data points. 	Code for Sustainable Homes (CSH) / BREEAM design and post construction review
	Local Employment Opportunities		<ul style="list-style-type: none"> - Establish a local training programme related to construction. - The minimum target for local labour (Sheppey residents) used during the construction phase should be 20%. 	<ul style="list-style-type: none"> - Establish a local training programme related to construction. - The minimum target for local labour (Sheppey residents) used during the construction phase should be 20%. 	Review of tender documents and provision of employment records.
Affordability		Swale Borough Local Plan encourages 25% of housing to be affordable, for sites which are over 1 hectare in size or have 25 or more units.	N/A	Minimum of 25% of housing to be affordable, for sites which are over 1 hectare in size or have 25 or more units.	Assessment at the design stage.
Additional requirements			<p><i>For buildings connected to the Biomass CHP:</i> 'Excellent' rating by BREEAM</p> <p><i>For units not connected</i> 'Very good' rating by BREEAM</p>	<p>All units must meet the following minimum overall standards:</p> <p><i>For units connected to the biomass CHP system:</i> 2007: Code Level 4 2010: Code Level 4 2013: Code Level 5 2016: Code Level 6</p> <p><i>For units not connected:</i> 2007: Code Level 3 2010: Code Level 4 2013: Code Level 5 2016: Code Level 6</p>	

N.B. Cyril Sweett have produced a report detailing the estimated costs of implementing measures associated with the Code for Sustainable Homes. Many of these will correspond with the targets set in the Sustainability Charter and may prove useful for developers. This report can be found at the following website address: <http://www.cyrilsweett.co.uk/pdfs/Code%20for%20sustainable%20homes%20cost%20analysis.pdf>

Appendix: Tools, Services and Reference Documents



Leah Chambers, Queenborough First School

The Sustainability Charter for Queenborough and Rushenden

Tools, Services and Reference Documents

The following is a reference list for architects, developers and planners concerning the sections outlined above. It provides references to existing policies, documents, tools and support services available to developers, architects and planners that will enable the delivery of the targets in this Charter. Some of the services listed incur a charge, whilst others are provided free of charge. It is by no means an exhaustive list, intended as guidance only, and it is the responsibility of the developer to research and engage with these organisations as appropriate.

Queenborough and Rushenden:

Documents and Information

www.qrregen.co.uk provides the latest information on the regeneration, and is updated regularly with project news, essential documents and press releases. It also contains a number of relevant case studies that demonstrate best practice in a number of different areas

Queenborough and Rushenden Masterplan, Rummey Design Associates, 2006 (available at www.qrregen.co.uk)

Sustainability Appraisal for Queenborough and Rushenden, Campbell Reith, 2006 (available at www.qrregen.co.uk)

Environmental Impact Assessment for Queenborough and Rushenden, Campbell Reith, 2006 (available at www.qrregen.co.uk)

Sustainable Communities:

Documents and Information

www.odpm.gov.uk provides details about government policy on sustainable communities, contact information and other relevant information on sustainable development

www.sd-commission.org.uk/ the Sustainable Development Commission is the government's watchdog on all issues sustainable, and provides all you need to know about sustainable development

Tools and Services

www.sustainability-checklist.co.uk – completing the Sustainability Checklist for Developments in the South East is a pre-requisite of planning submissions to Swale Borough Council. This website provides all the information developers need to complete the assessment. An online tool that has been developed by SEEDA and BRE. Devised specifically to guide the design of new developments by making sense of current policy, the Checklist highlights best practice, complementing Ecohomes and the new Code for Sustainable Homes.

General Planning Policy

Documents and Information

www.swale.gov.uk/index.cfm?articleid=3568 provides information about the Swale Local Plan, with links to information about local planning policy

www.kmsp.org.uk sets out the strategic planning framework for the protection of our environment, major transport priorities, and the scale, pattern and broad location of new development including provision for new housing and major economic development across Kent and Medway

Energy

Documents and Information

www.est.org.uk/housingbuildings/publications/ – the Energy Saving Trust – provides impartial advice and information about energy efficiency and renewable energy, with a number of publications including best practice guides for developments and building professionals

www.nef.org.uk/greenenergy/ - the National Energy Foundation – provides some comprehensive information about sustainable energy solutions for the UK

www.dti.gov.uk/renewables/ - the DTI provides in depth information about renewable energy technologies, with detailed information concerning energy policy in the UK

www.r-p-a.org.uk/ - the Renewable Energy Association provides information about technologies, conferences, policy and access to manufacturers and installers of technologies

www.carbontrust.co.uk - a government-funded, independent company that helps businesses and the public sector to cut carbon emissions.

Tools and Services

www.cen.org.uk - CEN provides impartial information and support services concerning all aspects of renewable energy and energy efficiency, options appraisals, feasibility studies, training programmes, energy consultancy, as well as support to planners and developers on sustainable energy

www.est.org.uk/housingbuildings/calculators/ provides access to a number of interactive tools to help implement sustainable energy measures

www.bre.co.uk/energy BRE provides consultancy on all energy aspects of new and existing buildings, manages the Code for Sustainable Homes and BREEAM ratings systems, and also administers the Low Carbon Buildings Programme

www.tcpa.org.uk/downloads/TCPA_SustEnergy.pdf - this is the TCPA 'Sustainable Energy by Design Guide'

Tools, Services, and Reference Documents

Water

Documents and Information

'Framework for Sustainable Drainage Systems SuDS in England and Wales', Environment Agency/National SuDS Working Group, 2003

Tools and Services

www.kent.gov.uk/council-and-democracy/priorities-policies-and-plans/priorities-and-plans/kent-design-guide/technical-appendices.htm - the Technical Appendix on Water Efficiency in the Kent Design guide can be found here

Waste, Materials and Recycling

Documents and Information

www.wrap.org.uk - the Waste and Resources Action Programme provides a wealth of information on waste, including specification of recycled products in house-building, estates management, highways and construction

www.wrap.org.uk/procurement/quickwins/index.html - WRAP has also published a number of documents concerning 'quick wins' for the construction industry, based around the procurement of materials

www.ciria.org/acatalog/SP135.html - CIRIA has also published guidance on waste minimisation and recycling in the construction industry

www.greenspec.co.uk/ - the National Green Specification has resources for all those parties involved in sustainable construction, including green design, products, procurement and specification

www.kent.gov.uk/environment/recycling-rubbish-and-waste/ - is a link to Recycling and Waste on the Kent County Council website

Tools and Services

www.wrap.org.uk/construction/index.html - WRAP also has a number of tools available to the construction industry that enable improvements in resource efficiency at every stage of the construction process

BRE's Green Guide to Specification can be found here, and contains information about the environmental impacts of over 250 elemental specifications, based on a life cycle assessment: www.bre.co.uk/greenguide/section.jsp?sid=435

www.dti.gov.uk/construction/sustain/site_waste_management.pdf - The DTI's Site Waste Management Plan Guidance, demonstrating how construction companies and developers can improve their operations at all stages, whilst increasing their environmental performance. The Guide is designed such that it can be used as practical tool as projects progress.

Transport

Documents and Information

www.dft.gov.uk/stellent/groups/dft_about/documents/divisionhomepage/031259.hcsp - provides details about the Future of Transport White Paper, 2004, Department of Transport

Framework Travel Plan for Queenborough and Rushenden, GC Partnership, 2006 (available at www.qrregen.co.uk)

'Making Travel Plans Work', Department of Transport, 2002

Tools and Services

www.carclubs.org.uk provides information about car use, car sharing, and car clubs as part of a sustainable transport strategy

www.homezones.org.uk provides guidance on legislation and policy, case studies, design guidelines and other tools to facilitate the integration of Home Zones in new developments

The Sustainability Charter for Queenborough and Rushenden

Biodiversity

Documents and Information

Planning Policy Statement 9 Biodiversity and Geological Conservation, available at www.odpm.gov.uk/index.asp?id=1143832, sets out policy for the protection of biodiversity through the planning system

www.kentbap.org.uk/ provides comprehensive information about the Kent Biodiversity Action Plan

Tools and Services

www.kentwildlife.org.uk Kent Wildlife Trust is the leading conservation charity for Kent and Medway, and can provide wide ranging and in-depth advice and information on biodiversity in the region. They also provide consultancy on biodiversity through their business Kent Wildlife Consultants.

www.kent.gov.uk/council-and-democracy/priorities-policies-and-plans/priorities-and-plans/kent-design-guide/technical-appendices.htm - the Technical Appendix on Biodiversity from the Kent Design Guide

Socially Inclusive Communities

Documents and Information

www.odpm.gov.uk - the ODPM has a great deal of information about the creation of socially inclusive communities

www.socialexclusion.gov.uk - the government's Social Exclusion unit examines all aspects of social exclusion and provides information on the policy in place to tackle the problem

Urban Design

Documents and Information

<http://www.kent.gov.uk/publications/council-and-democracy/kent-design-guide.htm> - the Kent Design Guide provides comprehensive information about the sustainable developments and their design,

www.english-heritage.org.uk - English Heritage have produced guidance on the impact of building in historic areas, through their publication 'Building in Context - New Building in Historic Areas', available on their website

Tools and Services

'Building in Context Toolkit - New Development in Historic Areas', English Heritage, CABE and the Kent Architecture Centre, www.cabe.org.uk/AssetLibrary/1799.pdf

Delivering Great Places to Live, CABE, 2005, provides a checklist of 20 questions that developers should consider when designing and building new developments. It can be downloaded here: <http://www.cabe.org.uk/AssetLibrary/1189.pdf>

Climate Change Adaptation

Tools and services

www.go-se.gov.uk/gose/docs/167059/AdaptingToClimateChange.pdf - 'Adapting to climate change - a checklist for development' is key to assessing the design of new developments in the face of a changing climate, and those developments at Queenborough and Rushenden must use this checklist

Building Performance

Documents and Information

Code for Sustainable Homes: The Code is the national standard for the sustainable design and construction of new homes. It can be found at <http://www.planningportal.gov.uk/england/professionals/en/1115314116927.html> Tools and Services

www.breeam.org is the website pertaining to the BREEAM assessment method for non-residential buildings. All non-residential buildings will have to reach either an Excellent or Very Good standard, and guidance is provided for offices, retail units, schools and industrial units, with bespoke versions available for other building uses

Construction Impact

Tools and Services

www.ccscheme.org.uk provides information and the means to join the Considerate Constructor's Scheme - a one-stop shop with everything you need to know

Site Infrastructure

Tools and Services

www.ceequal.com provides all you need to know about the CEEQUAL scheme for the environmental assessment of civil engineering projects

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