Swale Landscape Character and Biodiversity Appraisal

Supplementary Planning Document September 2011

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Swale BOROUGH COUNCIL

Jacobs Engineering U.K. Limited

Contents

Introduction

In June 2009 Swale Borough Council appointed Jacobs to review Swale's Landscape Character Assessment of 2005 and incorporate within this appraisal biodiversity opportunities for the borough. A draft of the appraisal was used for a technical consultation from 18th November to 6th January. The results of that technical consultation have been fed into this version of the document and presented to the LDF Panel on 25th March 2010. The panel recommended that the draft document be amended to reflect their comments and then put forward for consultation as a Draft Supplementary Planning Document (SPD).

The Council's Local Development Framework Panel agreed to adopt this SPD on 24th February 2011 and adopted it on 30th September 2011. Once the Core Strategy is adopted, this SPD will be adopted against the relevant policy contained within it. The purpose of this appraisal has been twofold: to incorporate both landscape and biodiversity elements within one study. It should be noted that Jacobs were also appointed by Swale Borough Council to assess the landscape capacity to accommodate change around Swale Borough's principal urban areas to help inform the emerging Local Development Framework (LDF). Refer to Swale Urban Extension Landscape Capacity Study, June 2010, for details.

Landscape

The first element of this appraisal is to inform the emerging LDF, and to provide a framework for Development Control decisions on matters of landscape character. A key element of Swale Borough Council's Core Strategy is the protection and enhancement of landscape and biodiversity resources.

This appraisal aims to provide a robust evidence base to protect highly valued local areas of landscape within Swale Borough, through identification of the diversity and local distinctiveness of the landscape. Swale Borough Council will use this evidence base to develop criteria – based polices to ensure that all development respects and enhances local character and to secure appropriate mitigation where damage to local landscape character cannot be avoided. This report will be a useful tool for a variety of people including planners, land managers, developers and conservation bodies.

The current policy framework for countryside protection is provided by national Planning Policy Statements and the Swale Borough Local Plan. The Government published the draft National Planning Policy Framework for consultation in July 2011 and, once agreed, this will form part of the Development Plan.

Planning Policy Statement (PPS) 7 'Sustainable Development in Rural Areas', the consultation draft Planning Policy Statement 'Planning for a Natural and Healthy Environment' encourages a criteria–based approach to protecting highly valued local areas of countryside which fall outside nationally designated areas.

The existing Swale Borough Local Plan adopts a hybrid approach to protecting key landscapes. The plan contains policies to protect the nationally recognised Kent Downs Area of Outstanding Natural Beauty (AONB), along with additional policies to protect important landscapes such as Special Landscape Areas (which are landscapes of county importance) and Areas of High Landscape Value (which are landscapes of local importance). Alongside the protection of designated areas the Local Plan is also supported by the Landscape Character Assessment (Jacobs Babtie, March 2005), which appraises landscapes throughout the borough and offers guidelines on how development over all of these areas should be managed in landscape terms.

Swale Borough Council is currently preparing its Core Strategy which will guide development in the borough up to 2031. As outlined above national and regional policy encourages the use of criteria-based policies informed by landscape character assessment over the retention of local landscape designations. The status of the Special Landscape Area and Area of High Landscape Value are therefore being reviewed as part of the Core Strategy/ LDF process and have therefore not been included in this appraisal.

It is intended that the Core Strategy, to be adopted in 2013, will contain criteria-based policies on landscape. Until that time the Swale Borough Local Plan 2008 policies that this Draft Supplementary Planning Guidance supports include: policies E6 (The Countryside), E9 (Protecting the Quality and Character of the Borough's Landscapes), E10 (Trees and Hedges), E11 (Protecting and enhancing the Borough's Biodiversity and Geological Interests), E12 (Sites designated for their importance to biodiversity or geological conservation), E13 (The Coastal Zone and Undeveloped Coast).

Biodiversity

The second element of the appraisal is to protect and enhance biodiversity within the LDF and in Development Control decisions. PPS 9 (Biodiversity and Geological Conservation) maintains the long-standing approach of protecting our most valued habitats through recognising various biodiversity designations. However, this document also recognises the need to extend and link networks of priority habitats and the species they support in order for them to become more resilient to environmental change. Priority habitats and species are those identified under the UK and local Biodiversity Action Plans.

PPS 9 specifically advises that LDF's should 'identify any areas or sites for the restoration or creation of new priority habitats which contribute to regional targets'.

This appraisal aims to incorporate and interpret the latest biodiversity opportunity mapping studies to guide spatial planning towards the development of a robust regional network of habitats, in the places where it may be most effective. Such a network will provide essential protection for the region's biodiversity resource and facilitate the adaptive processes that can sustain it in the face of future change.

Summary

The Swale LDF is not yet finalised and a decision on the appropriate policy framework for countryside protection has yet to be made. However, it is intended that this Landscape Character and Biodiversity Appraisal has been adopted as a Supplementary Planning Document. It therefore takes a robust approach which will be used to underpin the LDF and can be used as a tool to support a criteria-based approach.

Glossary of Terms

AOD

Above Ordnance Datum. Mean sea level is calculated from observation taken at Newlyn, Cornwall and used as the official basis for height calculation on British maps.

Biodiversity Action Plan (BAP)

Since 1992 the UK has developed a framework for the conservation of biodiversity known as the UK Biodiversity Action Plan (BAP). This plan identifies priority species and habitats that are most under threat and develops measures for their conservation. Local authorities now have a clear duty to have regard to the conservation of these species and habitats under Section 40 of the Natural Environment and Rural Communities Act 2006 (known as the 'Biodiversity Duty').

Biodiversity Opportunity Areas (BOA)

BOAs represent a strategic network of BAP habitats across Kent.

Borrow Pits

Depressions within the landscape where material has been removed.

BRANCH

In 2004-2007 Kent County Council, Natural England and other local and European partners undertook a major study to model how wildlife and ecological networks might respond to climate change known as BRANCH.

Character

A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.

Characteristics

Elements, or combinations of elements, which make a particular contribution to distinctive character.

Characterisation

The process of identifying areas of similar character, classifying and mapping them and describing their character.

Condition

The assessment of condition evaluates the pattern of the landscape and the presence of incongruous features on the unity of the landscape. It also evaluates how well the landscape functions as a habitat for flora and fauna and the condition of cultural or 'man-made' elements such as enclosure, built elements and roads.

Conservation Area

Local authorities designate Conservation Areas in any area of 'special architectural or historic interest' whose character or appearance is worth protecting or enhancing.

The Department for Environment, Food and Rural Affairs (DEFRA)

DEFRA is a Government Department in the UK. The primary objective for Defra is to secure a healthy environment in the UK.

Elements

Individual components that make up the landscape, such as trees and hedges.

Environment Agency

The environment Agency is an Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs and an Assembly Sponsored Public Body responsible to the National Assembly for Wales. The primary aims are to protect and improve the environment, and to promote sustainable development.

European Sites

European site comprise a collective term for sites designated under the Conservation (Natural Habitats &c) Regulations 1994 such as **Special Areas of Conservation (SACs)** and **Special Protection Areas (SPAs)**. Often wetland sites designated under the international **Ramsar** Convention are also included with these in practice. These international sites are almost always covered by the SSSI designation as well.

Features

Particularly prominent or eye catching elements, like tree clumps, church towers, or wooded skylines.

Functional Integrity

Functional Integrity is an assessment of how the landscape functions and considers both the influence of man (Cultural Integrity) and nature (Ecological Integrity).

Geographic Information System (GIS)

GIS is a system that captures, stores, analyses, manages, and presents data that is linked to location.

Guidelines

These actions should be applied to each character area to ensure that its unique character is maintained. Often more than one option may be the appropriate solution to achieving the ultimate objective. For example a degraded urban edge where the landscape objective is identified as create, the improvement could be through the creation of new woodland to screen the poor edge or to create a new urban edge through appropriate development. As most landscape character areas experience local variations in their condition and sensitivity, many of the policy objectives will involve a combination of the objectives.

Hulks

Prison ships.

Kent County Council (KCC)

In terms of planning, KCC manages development control, strategic planning and monitoring and enforcement with regards to county matters.

Kent Downs Area of Outstanding Natural Beauty (AONB)

The Kent Downs AONB is a nationally protected landscape afforded the same planning protection and landscape quality as the National Parks. AONBs are part of a family of protected areas recognised and classified by the International Union for the Conservation of Nature and Natural Resources (IUCN) throughout the world. The primary purpose of the AONB designation is, 'to conserve and enhance natural beauty'.

Kent Landscape Information System (KLIS)

KLIS is a geographic information system that allows the user to map various layers of landscape and habitat data for Kent in various combinations.

Kent Wildlife Trust (KWT)

KWT is the leading conservation charity for Kent and Medway

Listed Buildings

Listed Buildings are buildings or other structures in the UK officially designated as being of special architectural, historical or cultural significance. Recommendations are made by English Heritage to the Secretary of State for Culture, Media and Sport who decides whether to place the building on the statutory list.

Living Landscapes

The Living Landscapes project is an initiative led by KWT to identify opportunities for county-wide strategic habitat networks in response to past degradation and future threats such as climate change and development. The project makes use of the KLIS's habitat opportunity data and the location of existing habitat from the 2003 Habitat Survey.

Local Nature Reserves (LNRs)

LNRs are designated by local authorities for both people and wildlife. They are semi-natural places that are of special interest locally and can be managed as such. They offer people opportunities for nature study or informal enjoyment. They may include sites that have one of the other designations.

Local Wildlife Sites (LWSs)

LWSs are a non-statutory County designation, administered in Kent by the Kent Wildlife Trust and ratified by the Kent BAP Partnership. Central Government's 'New Performance Framework for Local Authorities' (2007) contains a number of National Indicators (NIs) by which local authorities' performance is measured. NI 197 (Improved Local Biodiversity) is based on the proportion of Local Wildlife Sites where positive conservation management has been or is being implemented. In addition to LWSs the Kent Wildlife Trust has also identified **Roadside Nature Reserves** which recognise the important linkages provided by species-rich road verges.

Ministry of Agriculture Fisheries and Food (MAFF)

MAFF is a former department of UK government, which has been overseen by DEFRA since 2001.

Native Species

Native species are those which are generally considered to have grown in England since before Roman times. Native planting is often recommended to encourage wildlife, but in certain circumstances such as agricultural shelter belts, parkland landscapes and within villages and domestic gardens, selective non-native planting may be appropriate to reinforce existing landscape character. For instance, it may be appropriate to replant a village green planted with Horse Chestnut with the same species to conserve its distinctive character.

National Nature Reserves (NNRs)

NNRs are almost always SSSIs thus receiving statutory protection, but are also either owned or controlled specifically for wildlife conservation by Natural England or held by approved bodies such as Wildlife Trusts.

Natural England

Natural England is an independent public body whose purpose is to protect and improve England's natural environment and encourage people to enjoy and get involved in their surroundings.

Planning Policy Statement 7: Sustainable Development in Rural Areas (2004)

PPS 7 sets out the Government's planning policies for rural areas, including country towns and villages and the wider, largely undeveloped countryside up to the fringes of larger urban areas.

Register of Historic Parks and Gardens of Special Historic Interest

This record, known as the Register of Parks and Gardens of special historic interest in England, was established, and is maintained by, English Heritage.

Scheduled Monuments

Scheduled Monuments are nationally important sites and monuments which are given legal protection. English Heritage identifies sites in England which should be placed on the schedule by the Secretary of State for Culture, Media and Sport.

Sense of Place

Sense of place is the term used to describe the individuality and distinctiveness of a particular place or area. It is about the common identity and perception of a particular place to groups or individuals.

Sensitivity

This is a measure of the ability of a landscape to accept change without causing irreparable damage to the essential fabric and distinctiveness of that landscape. The term change refers to both beneficial changes such as a new woodland as well as change that may be brought about by new land uses. Landscape assessment considers sensitivity on an area's sense of place and its visibility.

Shelterbelts

A shelterbelt is a linear row of densely planted trees or shrubs which have been established to give shelter to livestock or vegetation within open fields. Throughout Swale Borough, poplar and alder shelterbelts have been planted to provide protection to fruit orchards.

Sites of Special Scientific Interest (SSSIs)

SSSIs are a statutory UK designation under the Wildlife & Countryside Act 1981. Designated by Natural England, these represent the very best wildlife sites in the country.

Swale Borough Council (SBC)

SBC are the local planning authority for Swale.

Time depth

Time depth reflects how long that landscape has taken to establish. Ancient landscapes are uncommon in Kent but include those that have had very little intervention by man or contain ancient or prehistoric features. Historic landscapes are generally from the medieval period onwards. This is when the pattern of most landscapes in Kent was established and is generally discernible today (although overlain with modern features). Recent landscapes are those where historic elements have been replaced with new elements or land management. They include reclaimed landscapes.

Visibility

Visibility addresses the issues of Landform and the intercepting feature of Tree cover. For example an open hilltop landscape has a higher visibility than an enclosed lowland landscape.

Visual Unity

Visual Unity is the result of an analysis of the Pattern of Elements, for example the pattern of vegetation, enclosure, settlement and the relationship of these to the landform etc., weighed against the number of Detracting Features in the landscape.

Wing Fencing

Sloping fencing, down towards dykes for example.

Landscape

Swale lies within the south eastern portion of the Thames Gateway the largest single regeneration initiative in North West Europe. Swale has already experienced major regeneration projects with the construction of the second Swale crossing and other key projects currently being developed include the regeneration of Queenborough, Rushenden, Sheerness and Sittingbourne town centre, the development of Kent Science Park and Milton Creek Landscape Enhancement.

Jacobs were commissioned by Swale Borough Council (SBC) in June 2009 to carry out a Landscape and Biodiversity Appraisal of Swale Borough. The appraisal aims to update the Swale Landscape Character Assessment and Guidelines March 2005 (SBC and Jacobs Babtie) in terms of content, landscape analysis and guidelines, and to incorporate biodiversity. Swale Landscape Character Assessment and Guidelines March 2005 was produced in order to support landscape and other policies contained within the Swale Borough Local Plan Review. The landscape character assessment, which included guidelines for appropriate landscape actions throughout the borough, was adopted by SBC as a Supplementary Planning Document (SPD).

Approximately 23% of Swale Borough falls within the nationally designated Kent Downs AONB. The Kent Downs AONB Management Plan 2009 – 2014 (First Revision 2009) contains Swale Borough Council's policies for landscape and landscape management for the areas of the Borough which fall within the wider AONB. The Management Plan (First Revision) has been adopted as a SPD by Swale Borough Council following public consultation, as upheld in a Planning Inspector's decision.

The objective is to ensure that the decision making process of the local authority is underpinned by a robust evidence base in the form of an assessment of the landscape character. The challenge is to find ways of identifying the importance of the landscape within Swale Borough which assists the process of accommodating change, where this is both desirable and practicable, whilst maintaining the links with the past and the natural environment. There is a need to retain pattern and diversity in the landscape to ensure that character and local distinctiveness are maintained. This is not necessarily about keeping the landscape as it is but is more about preventing everywhere becoming the same. We need to also ensure that landscapes are visually satisfying, and give enjoyment to those who visit them and those who live and work in them.

Many of the judgements regarding landscapes are subjective, which means that they are open to equally valid but different individual interpretations. The process of landscape character assessment has to resolve this matter and has evolved so that current practice is now based on a logical and well thought-out procedure. This procedure breaks down the analysis into the component parts which collectively make up the landscape as we know it. This logical process enables decisions to be revisited over time as well as enabling different assessors to understand and contribute to the process.

Biodiversity

Wild species and semi-natural habitats exist within the landscape and help to define it. Indeed in one sense, our landscapes largely consist of 'habitats', both for wildlife and for people. However, it is widely recognised that suitable spaces for a diverse wildlife community ('biodiversity') within our landscapes have diminished over the centuries, and continue to be threatened by a multitude of human activities. Since 1992 the UK has developed a framework for the conservation of biodiversity known as the UK Biodiversity Action Plan (BAP). This plan identifies priority species and habitats that are most under threat and develops measures for their conservation. Local authorities now have a clear duty to have regard to the conservation of these species and habitats under Section 40 of the Natural Environment and Rural Communities Act 2006 (known as the 'Biodiversity Duty').

Amongst the pressures on biodiversity, the loss and fragmentation of habitat has been particularly marked, and has additional consequences in the face of climate change. In order to survive and adapt to change, species need enough accessible habitat to sustain viable populations. The requirement will differ between species, but loss of habitat area or quality normally means reduction in population size and, if excessive, local extinction. In a changing environment, and to ensure genetic mixing, species also need to be able to disperse or migrate safely between areas of habitat as some areas becomes less suitable and others more so.

Under climate change, southern England's climate is likely to experience warmer, wetter winters and hotter, drier summers. In addition, rainfall intensity will probably increase. Extremes such as heat waves and storms are predicted to increase in frequency and severity. Species which are not well adapted to the coming climate will need to be able to gradually colonise areas which are more like their current setting. This will generally entail moving their distribution northwards and, at the local scale, moving higher up slopes and onto north-facing aspects in order to find the temperature to which they are adapted. Clearly this shift in distribution requires a continuity of habitat between where those species currently exist and where they may need to go to survive. Therefore habitat fragmentation and barriers posed by inhospitable land cover are serious threats to species' survival.

In 2004-2007 Kent County Council, Natural England and other local and European partners undertook a major study to model how wildlife and ecological networks might respond to climate change known as BRANCH (Biodiversity Requires Adaptation in Northwest Europe under a Changing climate www.branchproject.org). Within this, the Kent case study assessed existing connectivity of terrestrial habitats through scientific modelling of certain species' dispersal behaviour across the landscape. The species chosen were those believed to be indicative of, and dependant on, certain characteristic habitat types. Examples include the Adonis blue butterfly (chalk grassland), Bechstein's bat (woodland), Cetti's warbler (wetland) and great crested newt (ponds). From this, certain existing habitat networks could be identified. In addition, the sustainability of these networks could also be assessed in terms of their ability to retain a viable population of the indicator species over time.

Once the current distribution and sustainability of habitat networks in Kent was determined, these species' responses to climate change over a sequence of 'time-slices' could be assessed, based on future climate predictions. Climate change is represented in the BRANCH model as an increase or decrease in the quality of each habitat patch for a particular species (i.e. its 'carrying capacity'), with higher quality habitats assumed to contain more individuals and therefore more potential 'dispersers'.

In the Swale Borough, the BRANCH modelling shows that habitat networks for some species may have the potential to expand under climate change, whilst others will contract. For instance the great crested newt, an amphibian species reliant on ponds for breeding, is likely to see a reduction in habitat quality, for example from hotter, dryer summers resulting in breeding ponds drying out early in the breeding season. The reduction in breeding pond carrying capacity may lead to a loss of the species' sustainable habitat network with most of its current pond network in the Swale Borough becoming unsustainable. To illustrate this, the worst-case BRANCH scenario for this species is mapped in Figures 1a and b. Figure 1a shows the current pond networks for this species (time-slice 1), and Figure 1b represents the time-slice 4 scenario (based on a ten-fold reduction in habitat carrying capacity due to climate change). Such a change in its habitat network sustainability is an indication of how sensitive that species is to climate change and its need for landscape-scale habitat conservation and creation.

It should be noted that BRANCH makes an important assumption: that the current distribution of each habitat type remains constant over time, and it is only the quality (carrying capacity) of the habitat that changes under a changing climate. The model does not take into consideration the removal of habitat or creation of new areas of habitat. As climate change progresses, human land use responses are likely to lead to some degree of change in each habitat's distribution as well as its quality. This may either exacerbate or moderate the quality-derived changes shown by the model.

A particularly important example of this in Swale Borough is the impact of climate change on sea levels and storm patterns. Recent figures from DEFRA indicate that annual rises in sea level will be 4mm per year until 2025 and then accelerate to 8.5 mm per year until 2055. Sea level rise coupled with changing weather patterns will have a very significant influence on the distribution of internationally important intertidal habitats such as saltmarsh and mudflats, and on coastal grazing marsh which has been historically reclaimed from the intertidal zone. Future shoreline management strategies in response to sea level rise and increased storminess will be a key determinant of coastal habitat change and opportunities.

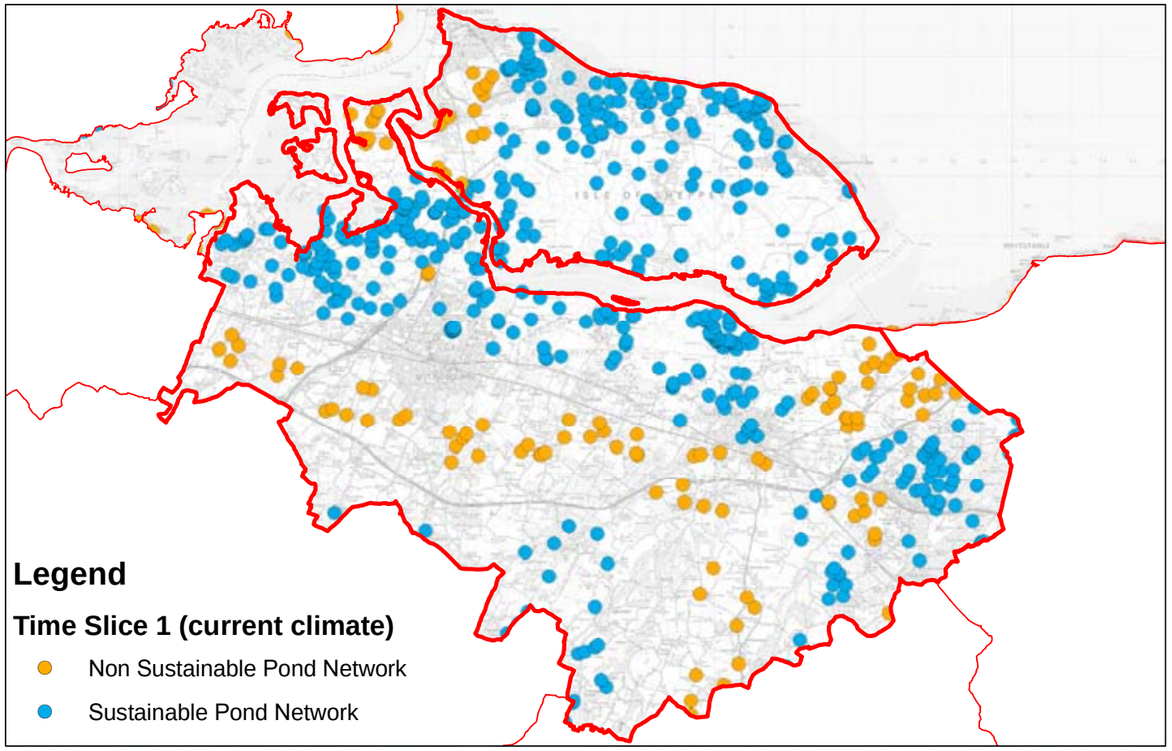

Figure 1a: BRANCH Habitat Network for Great Crested Newt (a pond indicator species)

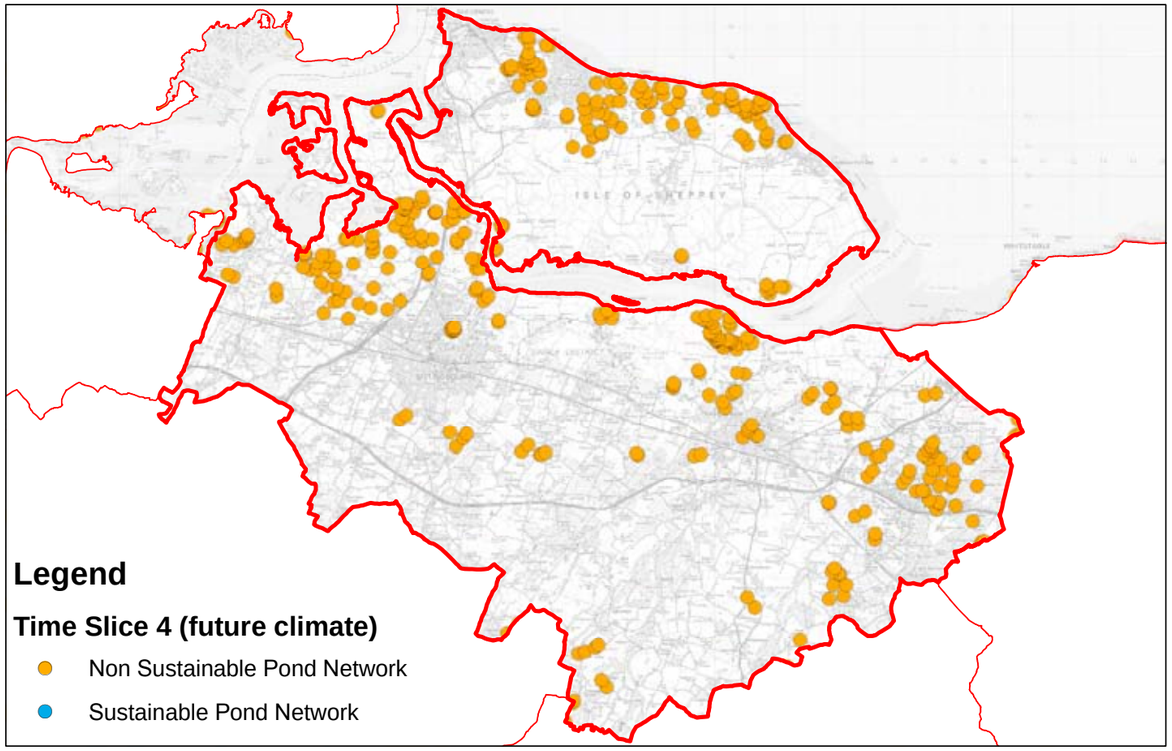

Figure 1b: BRANCH Habitat Network for Great Crested Newt
(a pond indicator species)

With terrestrial habitats it is difficult to predict what will happen under a changing climate. Natural England are currently undertaking a number of studies to examine how various regional habitats may change under the predicted scenarios (see: http://www.naturalengland.org.uk/regions/south_west/ourwork/climatechangeproject.aspx). Much of this has yet to be reported, however one notable conclusion is that habitats are likely to experience more direct change in their species composition rather than in their extent/distribution. This is because some species will benefit from the changing conditions and thus gain a competitive advantage over other species who's tolerance of the predicted climate is less.

A principal aim of this study is to highlight opportunity for habitat creation and restoration and identify those areas where it will have the most impact in terms of habitat connectivity. As part of our assessment of landscape, this document sets out to examine current distribution of BAP priority habitats at the landscape scale, and opportunities for linking these areas to form a more coherent and healthy network to better cope with future environmental change. To do this, geographic information systems (GIS) developed by Kent County Council (KCC), the Kent Wildlife Trust (KWT) and other Kent BAP Partnership organisations have been used. Like any data systems, these are constantly being refined and updated with new data and revised parameters, so this document can only reflect the data and analysis generated to date by professional ecologists. For future updates to this information, the reader is referred to the Kent Landscape Information System (KLIS http://extranet7.kent.gov.uk/klis/home.htm) and to the KWT.

It should be noted that such spatial models are designed to provide broad, strategic target areas at the county and regional level. At the local level, care needs to be taken with any detailed use of such mapping, and the appropriateness of habitat boundaries and opportunities should always be ground-truthed through environmental surveys during the development of proposals for individual sites. It should be stressed that those areas not covered by the habitat opportunity network are not devoid of biodiversity opportunity. In fact, substantial gains for biodiversity can be made in these areas where opportunities arise for habitat creation or better management. Their omission from the opportunity network only indicates that they are not as great a strategic priority for improving district- and county-wide habitat connectivity

A Combined Approach

In the past, landscape character assessment has been conducted somewhat separately from strategic biodiversity planning. It is increasingly recognised that this rather artificial division of approaches does not lend itself to a fully integrated strategy for managing our countryside and the essential environmental services it provides. This reflects current international thinking such as the 'ecosystems approach' to environmental management and sustainable development (www.cbd.int/ecosystem). It recognizes that humans, with their cultural diversity, are an integral component of ecosystems. This document attempts to bring both analyses together in one document so that the recommendations incorporate both landscape character and habitat networks.

Consultation

The ultimate value and accuracy of the Landscape and Biodiversity Appraisal is dependent upon technical consultation. The following parties were asked to comment on the Draft Landscape and Biodiversity Appraisal in November 2009, and the Third Draft addresses the comments received from the consultation process:

- Kent Wildlife Trust
- Kent County Council
- Kent Downs Area of Outstanding Natural Beauty Unit
- Greening the Gateway
- Natural England
- Medway Council
- Canterbury City Council
- Ashford Borough Council
- Environment Agency
- Swale Borough Council

Following consultation with Swale Borough Council Members, and amendment to the Third Draft where suggested and appropriate, the Final Report will be adopted as a Supplementary Planning Document to Swale Borough Council's Local Development Framework.

Landscape Character

The methodology used to undertake the landscape assessment is based on up to date guidance-Scottish Natural Heritage and The Countryside Agency's (now Natural England) *'Landscape Character Assessment Guidance for England and Scotland 2002'*. There are essentially two elements to the Landscape Appraisal. Firstly the characterisation of the landscape where the landscape character areas are defined, and secondly the analysis of these areas where judgements are made about these character areas.

In the first instance the assessor interrogates the geological, soil and topographical information as well as accumulating as much information as is readily available regarding historic and cultural influences, nature conservation interests and land use. Aerial photographs of the area assist with the identification of the landscape character areas as well as assisting with the appreciation of the conclusions subsequently reached.

Having initiated the desk based research, the field work commences. Two landscape assessors working together in the field debate and define the broad character distinctions using `Field Assessment Sheets' (refer to example in Appendix A) and taking photographic records as data. In this instance, no new Field Assessment Sheets have been produced for this appraisal. However, the findings and analysis based on the original assessment (2005) has been reviewed and updated.

The Field Assessment Sheets are designed to analyse the component factors of the landscape, to reach a series of decisions on the:

- Aesthetics
- Key characteristics
- Visual unity
- Ecological integrity
- Condition of heritage features
- Impact of built development

Having identified the character areas the data collected was analysed in terms of each area's **Condition** and **Sensitivity.** It should be noted that the analysis takes an average across each character area, and that condition and sensitivity may therefore vary within each area.

Each of these words is strictly defined to avoid as far as possible any subjective interpretation, which could not be justified. The objective is also to define a standard methodology that can be used by other assessors for other landscapes so that comparisons can be made and priorities set.

Condition is strongly influenced by the impact of external factors. The assessment of condition evaluates the pattern of the landscape and the presence of incongruous features on the unity of the landscape. It also evaluates how well the landscape functions as a habitat for flora and fauna and the condition of cultural or 'man-made' elements such as enclosure, built elements and roads. Urban fringe areas are often under pressure that can frustrate other land uses. This often means that these areas are described as being in a poor condition whilst other more remote areas may still have the same basic features but be in a better condition.

It is therefore practical to assume that condition may vary throughout a character area so that any conclusions should be regarded as a summary of the overall situation. **Condition** is defined by an analysis of *Visual Unity* and *Functional Integrity* and is classified as very poor, poor, moderate, good and very good.

> **Visual Unity** is the result of an analysis of the *Pattern of Elements*, for example the pattern of vegetation, enclosure, settlement and the relationship of these to the landform etc., weighed against the number of *Detracting Features* in the landscape.
>
> **Functional Integrity** is an assessment of how the landscape functions and considers both the influence of man (*Cultural Integrity)* and nature *(Ecological Integrity).*

Sensitivity is a measure of the ability of a landscape to accept change without causing irreparable damage to the essential fabric and distinctiveness of that landscape. The term change refers to both beneficial changes such as a new woodland as well as change that may be brought about by new land uses. **Sensitivity** is defined by an analysis of *Sense of Place* and *Visibility* and ranges from very low through low, moderate, high to very high.

> **Sense of Place** balances *Distinctiveness* with *Time depth.* Distinctiveness is defined by how much the key characteristics contribute to a sense of place. For example in a landscape where hedgerows are a key characteristic if the network is intact the landscape can be described as distinct or 'characteristic'. Some landscapes have features that may be considered unique or rare and these will obviously contribute to a strong sense of place. Time depth ranges from recent, through historic to ancient and reflects how long that landscape has taken to establish. Ancient landscapes are uncommon in Kent but include those that have had very little intervention by man or contain ancient or prehistoric features. Historic landscapes are generally from the medieval period onwards. This is when the pattern of most landscapes in Kent was established and is generally discernible today (although overlain with modern features). Recent landscapes are those where historic elements have been replaced with new elements or land management. They include reclaimed landscapes.
>
> **Visibility** addresses the issues of *Landform* and the intercepting feature of *Tree cover.* For example an open hilltop landscape has a higher visibility than an enclosed lowland landscape.

The conclusions reached regarding each of the character areas are expressed using a matrix that encompasses Condition and Sensitivity. This analysis gives a broad indication of each area's ability to accommodate a change in management or use without loss of overall integrity. The matrix helps to assist in the direction of any policy that might be applied to the land in question.

The combination of condition and sensitivity assessments has generated appropriate actions for each character area:

Although conclusions have been reached for each of the character areas, it is not the purpose of this study to rank one character area against another. Likewise this study is not intended to identify in detail areas suitable for development. It may however offer guidance to both the local planning authority and developers when deciding the type and scale of development that may be appropriate whilst respecting the character of the landscape.

Condition	low	moderate	high
good	**REINFORCE**	CONSERVE & REINFORCE	**CONSERVE**
moderate	CREATE & REINFORCE	CONSERVE & CREATE	CONSERVE & RESTORE
poor	**CREATE**	RESTORE & CREATE	**RESTORE**

Sensitivity

Conserve - actions that encourage the conservation of distinctive features and features in good condition.

Conserve and reinforce - actions that conserve distinctive features and features in good condition and strengthen and reinforce those features that may be vulnerable.

Reinforce - actions that strengthen or reinforce distinctive features and patterns in the landscape.

Conserve and restore - actions that encourage the conservation of distinctive features and features in good condition, whilst restoring elements or areas in poorer condition and removing or mitigating detracting features.

Conserve and create - actions that conserve distinctive features and features in good condition, whilst creating new features or areas where they have been lost or are in poor condition.

Restore - actions that encourage the restoration of distinctive landscape features and the removal or mitigation of detracting features.

Restore and create - actions that restore distinctive features and the removal or mitigation of detracting features, whilst creating new features or areas where they have been lost or are in poor condition.

Reinforce and create - actions that strengthen or reinforce distinctive features and patterns in the landscape, whilst creating new features or areas where they have been lost or are in poor condition.

Create - actions that create new features or areas where existing elements are lost or in poor condition

It has to be recognised that whilst the process adopts a complex but logical critique of the landscape many of the individual decisions are still based on the trained but subjective judgements of the assessors. However by simplifying the conclusions into a series of generic actions it is possible to reach informed and well supported judgements on the landscape character. Actions are offered that are locally appropriate to the character area and respond to the generic actions that have been identified for the broader landscape type. Many of the actions defined are not within the remit of the Local Authority to implement directly as they are not responsible for managing the land in most cases. Such references are included with the view to influencing opinions, generating support and guiding policy. In many instances certain forms of land management have a strong influence on the landscape character. These are often dependent on market forces and land management practices for their retention e.g. sheep grazing on marshland and fruit production.

Biodiversity Opportunity Networks

The identification of BAP priority habitats and key opportunities for the creation of effective habitat networks are based on recently-developed geographic information systems (GIS) such as the Kent Landscape Information System (KCC) and the Living Landscapes project (KWT and KCC). These are described below. The data that go into these mapping systems are based on sound scientific understanding of the physical landscape in Kent. However, whether a particular area of land is included in any habitat network is partly based on the species dispersal thresholds and environmental limits set by ecologists, using a degree of professional judgement. Thus, like any prioritisation process, these methods contain an element of subjectivity.

Kent Landscape Information System (KLIS)

KLIS is a geographic information system that allows the user to map various layers of landscape and habitat data for Kent in various combinations. A variety of layers are available. For this study, the most relevant data layers used has included:

- The Kent Habitat Survey 2003 – this is a systematic habitat mapping exercise carried out for the whole county based on the Integrated Habitat System methodology (www.ihs.somerc.co.uk).
- Habitat Opportunity mapping - which identifies the potential of land throughout Kent for creating or restoring BAP priority habitats based on physical parameters such as soil type, geology, topography and proximity to similar habitat.
- Aerial photography
- Ordnance Survey Maps

Living Landscapes and Biodiversity Opportunity Areas (BOAs)

The Swale Landscape and Biodiversity Appraisal makes extensive use of the Kent Living Landscapes project to identify existing habitat networks and areas of strategic biodiversity opportunity. The Living Landscapes project is an initiative led by KWT to identify opportunities for county-wide strategic habitat networks in response to past degradation and future threats such as climate change and development. The project makes use of the KLIS's habitat opportunity data and the location of existing habitat from the 2003 Habitat Survey (see above).

A full methodology is provided in Appendix B, but in summary this model looks at parcels of land identified by KLIS as having opportunity for creation of a particular habitat type in relation to their proximity to significant existing areas of that habitat. The areas of higher opportunity are filtered by setting a threshold distance from patches of existing similar habitat. Those parcels that are within the threshold distance (based on assumed dispersal distances for less mobile species typical of that habitat type) are included in the network, and those that are more isolated are filtered-out. This process is repeated for each BAP habitat type and then the resulting maps are combined to form a strategic network for all BAP habitats across Kent known as 'Biodiversity Opportunity Areas' (BOAs). In this way, the decision as to whether a particular field is in or out of each habitat network is not made subjectively at the individual site level. However, there is a degree of subjective judgement required in setting dispersal distance thresholds and the level of physical 'opportunity' that qualifies (see Appendix B).

It is important to note that by using this model, not all areas of existing BAP habitat or even designated sites will necessarily fall within the resulting strategic network. This is not because the quality or importance of that site is lower, but simply that it is too isolated from other areas of habitat or areas of high opportunity to qualify under the parameters set.

By using the Biodiversity Opportunity Areas as its basis, this study of the Swale Borough's biodiversity opportunity network fits neatly into the current county-wide and regional analyses for Kent and SE England. The Biodiversity Opportunity Area network was developed for Kent as a whole, and has been recently used to inform the new South East Biodiversity Strategy's 'Biodiversity Opportunity Areas Map' (www.sebiodiversity.org.uk). This map identifies regional priority areas for restoration and creation of BAP habitats in the South East of England, and so mirrors one of the key aims of this Swale study. The relationship between the local, county and regional draft maps is graphically illustrated in Figure 2 below.

It should be noted that the Living Landscapes/BOA project also forms the basis of the ecological network mapping for the Swale Green Grid Strategy, and therefore this study's methodology is consistent with, and compliments, the local Green Grid.

The following broad habitat categories, based on the UK BAP, have been used in this study to identify different habitat networks and are described briefly below:

- **Open water –** This category includes both rivers, streams and standing open water such as ditches, ponds and reservoirs. Such habitats are vital for aquatic and amphibious organisms and the terrestrial animals that feed on them. Notable pond species include great crested newts. Watercourses provide habitat for key species such as otters, water voles, fish, aquatic invertebrates and birds such as kingfishers.
- **Wetland –** This broad category includes most habitats that are found on permanently or seasonally waterlogged soils and which also often contain small bodies of open freshwater such as pools, ponds and ditches. These include reed swamp, fen, wet woodland, etc. often found in combination. They generally occur in low-lying areas within river floodplains and reclaimed coastal land where they can occur amongst and adjacent to grazing marsh (see below).
- **Grazing marsh -** periodically inundated pasture or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities. Often these areas of habitat would be intertidal (see below) if it weren't for historic reclamations and the on-going presence of sea defences.
- **Intertidal habitat -** this includes habitats found between the tidal limits such as mudflats, saltmarsh, saline lagoons, shingle and littoral chalk bedrock. They form an important transitional habitat between terrestrial and marine environments, and are important for a range of fauna, notably invertebrates and birds.
- **Species-rich neutral grassland -** unimproved neutral grassland habitat has undergone a remarkable decline in the 20th century, almost entirely due to changing agricultural practice. They form important habitats for a variety of plants and the range of notable invertebrates that depend on this floristic diversity. Lowland meadows and pastures are also important habitats for skylark, corncrake and a number of other farmland birds.
- **Acid grassland and heath -** Acid grassland and heath occur on acid rock types such as sandstones and superficial deposits such as sands and gravels. In the lowlands, acid grasslands are now rare and they provide an important reservoir of rare species. Lowland heathland contans vegetation dominated by species from the heath family or dwarf gorse species. The UK has an important proportion (about 20%) of the international total of this habitat which is important for many birds, reptiles, invertebrates, vascular plants, bryophytes and lichens.
- **Chalk grassland -** Chalk grasslands contain an exceptional diversity of rare plants, but are particularly characterised by a series of widespread grassland plants which are mainly restricted to lime-rich soils. Invertebrate diversity often reflects this floristic richness.
- **Woodland –** Although this study's woodland network is based around existing ancient woodland (land that has had continuous woodland cover since at least 1600 AD), new, native broadleaf woodland opportunities are also identified as part of the potential network. In pre-history, before any significant human impacts occurred, woodland was by far the dominant terrestrial habitat covering most of the British Isles. It is claimed that ancient woodland supports more species of conservation concern than any other habitat in the UK. It is also one of the most difficult to replace.

It has not been practical to include **species-rich hedgerows**, which are also a UK BAP habitat, within the network mapping due to the scale of this study in relation to such features, and the ubiquitous nature of hedgerows in lowland countryside. Hedgerows provide important refuges and conduits for wildlife through the landscape, and in particular may help to connect woodland blocks. However, Dutch Elm disease has had a devastating influence on hedgerows within East Kent and, along with arable intensification, has lead to a decline and loss of many hedgerows. Nonetheless where these features are particularly notable, their relevance is described in the text of this document.

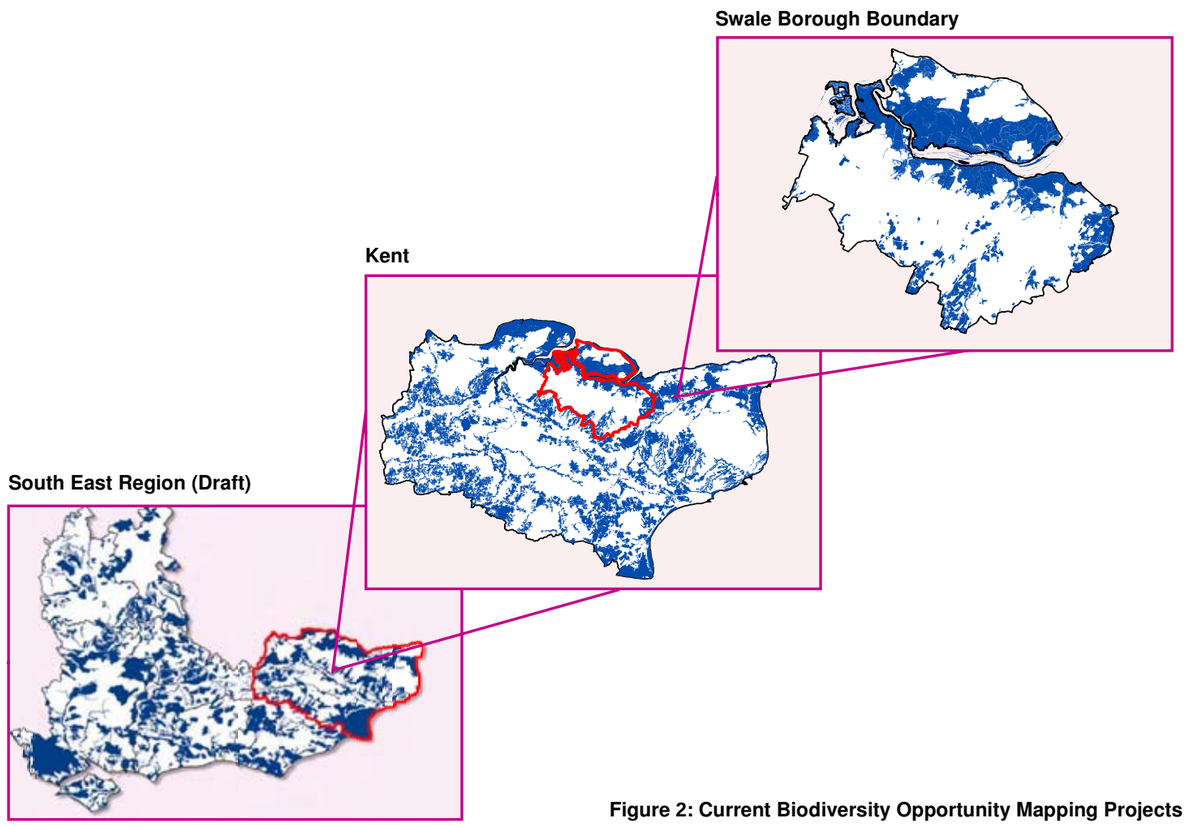

Figure 2: Current Biodiversity Opportunity Mapping Projects

Traditional old orchards and **wood pasture/parkland**, which are both UK BAP habitats and ecologically similar, are not included in the habitat network mapping because the Living Landscapes/BOA model does not include them in its network analysis and filtering. However, they are important components of the Swale Borough's habitat resource, supporting vulnerable species such as the noble chafer beetle, and traditionally managed orchards were mapped in 2003 as part of the Kent Habitat Survey. Therefore, where they are indicated as present within each character area, generic recommendations for their conservation are made.

Previously developed 'brownfield' land is also a habitat of importance in Swale. Its national importance has been recently recognised by its inclusion as the UK BAP habitat: 'Open Mosaic Habitats on Previously Developed Land (OMHPDL). Such sites provide ideal habitats for a diverse range of plants and invertebrates of open, low fertility ground. Again, these sites have not been mapped by the Living Landscape project, in part because they are a rapidly changing resource. However their biodiversity value, combined with their vulnerability to re-development make them a priority in Swale as evidenced in the Swale BAP under the broad category 'Built-up Areas'.

The habitat networks shown within each of the BOAs consist of two key elements:

- **Existing BAP Habitats –** The network only includes those BAP habitat patches that are relatively close to other, similar patches of significant size. Some of these areas are also covered by some form of designation and these represent the core parts of the network.
- **Potential BAP Habitats –** Those areas of land that have significant physical opportunity for BAP habitat creation and that are relatively close to existing habitat of similar type.

Such opportunity can be accounted for in a number of important ways. In some situations, land use proposals may facilitate immediate habitat creation. In other circumstances, careful planning can preserve the potential of the site for future realisation (i.e. by controlling the distribution of permanent built development).

It should be stressed that those areas not covered by the BOAs are not devoid of biodiversity opportunity. In fact, substantial gains for biodiversity can be made in such areas where opportunities arise for habitat creation or better management. Their omission from the BOAs only indicates that they are not as great a strategic priority for improving district- and county-wide habitat connectivity.

Ecological Designations

Many BAP priority habitats are also designated for their biodiversity interest. Such designations exist at the International, National and County level. These sites are often in some form of favourable management and have been subject to some degree of survey to identify and monitor their features of interest. They are also afforded protection in the planning process, either through legislation or through planning policy. Therefore they have been identified in this study as a core element of each BOA where they occur within the BOA network.

Limitations in interpretation

This study combines information from the above data-sets to identify the existing habitat resource and strategic network opportunities at the broad landscape scale for each landscape character area. It is important to note that while certain areas of opportunity of individual field size are demarcated through this process, any decision-making arising from this must be 'ground-truthed' through more detailed site-level surveys. Existing land use may have changed from when the habitats were mapped in 2003. This scale of this study prohibits identification of exact boundaries or every local opportunity for biodiversity conservation and enhancement, and local knowledge and survey will inevitably modify the scope and location of opportunity shown here. It should also be noted that the mapping may show habitat opportunity where recent development has already commenced due to the existing habitat data (KLIS) being based on a 2003 survey. However, as a broad strategic exercise, these methods are a unique and invaluable tool that compliments the wider landscape assessment.

The study is also limited in its treatment of marine and intertidal habitats (saltmarsh, mudflats, etc), which are important biodiversity features of Swale Borough. Around the coastline of Kent such habitats are relatively ubiquitous, and the intertidal habitat 'network' is, in effect, the whole coastline itself. However, the BOAs do include areas of opportunity for intertidal habitat creation where they are currently terrestrial/freshwater habitats, but this opportunity is combined with coastal grazing marsh as one opportunity category in the mapping. Again, this can be seen as appropriate, given that coastal grazing marsh land was once intertidal, and has the potential to revert back if sea defences are altered in future.

How to Use This Document

The primary aim of this document is to guide the process of accommodating change throughout Swale Borough, whilst maintaining the character and local distinctiveness of the landscape. In order to achieve this, the landscape character type and area within which any potential development area falls should be identified by referring to Figure 13 (Landscape Types) and Figure 14 (Landscape Character Areas).

Each landscape type is illustrated using a specific colour on Figure 13. Landscape character areas are grouped within their broader landscape types throughout the document, and the colour along the title bar of each landscape character area corresponds to the landscape type it falls within. For example, the Clay Farmlands landscape character type is coloured yellow on Figure 13 and all landscape character areas which fall within the Clay Farmlands landscape type are grouped together with yellow title bars.

Broad landscape and biodiversity descriptions and generic guidance which is relevant to individual landscape character areas throughout the broader landscape type can be found at the start of each landscape type section. This information should be reviewed to gain a broad understanding of the landscape character, landscape and biodiversity characteristics and generic guidelines. The landscape character area analysis within which any potential development area falls should be reviewed in order to gain a more detailed impression of the character of the landscape and its key characteristics. The landscape condition and sensitivity, specific landscape guidelines and habitat network opportunity information (with reference to Appendix C) should be analysed to gain an impression of whether development would be appropriate and, if so, how it might be accommodated within the landscape and mitigated sensitively. In addition, generic guidance on key man – made landscape elements and development types (located near the end of the document under 'Development Guidance') should be taken into account in creating and assessing development proposals.

Vegetation species recommended within many of the guidelines for individual landscape character areas are generally native species which are of greatest benefit to biodiversity. It should be noted that in the rare instances where this is not the case, species have been recommended because they have a long-standing presence within, and are characteristic of, the local landscape. There is often a balance to be struck between meeting landscape and biodiversity objectives, and the user should aim to achieve an appropriate balance within any proposals where actions may conflict slightly.

This document can therefore be used as a tool to help developers create appropriate proposals, and as a tool for development controllers to assess the appropriateness of proposals. Details regarding landscape capacity to accommodate change around Swale Borough's principal urban areas are set out within Swale Urban Extension Landscape Capacity Study (Jacobs and Swale Borough Council, June 2010).