



Background and Scoping Work relating to Habitat Regulations Assessment of the Breckland Local Plan at Issues & Options, 2015.



Durwyn Liley



Habitats Regulations Assessment of Breckland Local Plan – Background and Review of Evidence

Date: 28th April 2015

Version: Final

Recommended Citation: Liley, D. (2015). Background and Scoping Work relating to Habitat Regulations Assessment of the Breckland Local Plan. Footprint Ecology, unpublished report for Breckland Council.

Summary

Habitats Regulations Assessment is required in accordance with the Conservation of Habitats and Species Regulations 2010, as amended, in order to ensure that plans and projects do not adversely affect any European wildlife sites. A local plan is the subject of Habitats Regulations Assessment, which is the responsibility of the plan making body to produce.

This report provides the background and review of evidence to support the commencement of the Habitats Regulations Assessment of the Plan Review of the Breckland Local Plan, being undertaken by the Breckland Council. This report considers the protection of European sites to date, as a result of the implementation of the current plan the Breckland Core Strategy.

This report considers all information relevant to the assessment of the emerging plan through the review of the current Core Strategy, providing the background and underpinning evidence, both that which is available and that which needs to be gathered. We draw together all available evidence and previous assessment work, to highlight potential concerns and opportunities relating to protection of European sites to inform the development of the new Local Plan.

This report is not a Habitat Regulations Assessment, and is simply a scoping document to help the development of Habitat Regulations Assessment work in the future. Progress to date on mitigation measures put in place for the Local Development Framework is reviewed, and the following recommendations are made to inform the Habitats Regulations Assessment:

- The 1500 zonation for the protection of breeding stone curlew remains a strong, evidence backed and essential mitigation mechanism, but that there may be scope to make improvements with regard to the interpretation and consistent application of the policy.
- The 1500m zone for birds nesting outside the SPA needs to be updated and mitigation options carefully considered.
- It is recommended that the 400m zone for project level Habitats Regulations Assessment remains within policy for the new Local Plan, because the two species are in decline and therefore more vulnerable to additional pressure.
- It is advised that there is an urgent need to progress an approach to manage and monitor recreational impacts for the District as a whole, and also the specific requirement to secure an evidence based, consistent and pre-agreed mitigation package for the Thetford urban heaths, in particular Barnham Cross Common.
- It will be necessary to gather evidence to identify what level and location of growth may trigger the need to new roads or road upgrades, and then how such needs could be alternatively accommodated without adverse effects on European site interest.
- An update to the previous situation with regard to water supply, waste water treatment and water infrastructure is necessary to understand what progress has been made to date, what

work is planned and what level of growth is still not accommodated by existing or planned work is necessary.

- Norfolk wide approach to assessing and mitigating for potential impacts arising from recreational pressure on European sites is in progress, with Breckland Council actively involved and contributing to this work. As the project develops it will inform the Habitats Regulations Assessment.

Initial checking of the Issues and Options presented by the consultation document raises the following points for further consideration by the Council. These points are not a Habitats Regulations Assessment; rather they give an initial steer for the Council's consideration of possible impacts on European sites and will inform the Habitats Regulations Assessment:

- Not all of the mitigation measures have been fully implemented and there is an urgent need to progress measures.
- Air pollution issues will remain a concern as the plan develops.
- Thetford remains a growth priority for Breckland, and therefore the proximity of the Breckland European sites boundary to the edge of the town in most directions remains a fundamental issue to overcome.
- Growth at Attleborough will need to be considered alongside the findings and further recommendations of the Water Cycle Study, and should have particular regard for the isolated site of the Norfolk Valley Fens SAC located to the south west of Attleborough.
- Specific options for allocations in the Issues and Options document will need to be checked against current mitigation measures including the zones, proximity to Thetford urban heaths etc.
- Tourism impacts will need to be adequately covered in the Habitats Regulations Assessment as well as those arising from new residential development. The currently progressing Norfolk wide work on recreational impacts should contribute to this.
- The emerging Local Plan should have regard for the need to maintain and restore European site interest, irrespective of new growth, seeking opportunities for a plan led approach to protecting and enhancing the natural environment, and particularly European sites.

Contents

1. Introduction	5
Habitats Regulations Assessment process	6
European sites	7
2. Previous Habitats Regulations Assessment Work	9
Breckland’s current planning policy documents	9
Evidence for the Habitats Regulations Assessment of current planning policy	10
Visitor surveys	10
Stone Curlews	10
Nightjar and Woodlark	11
The Habitats Regulations Assessment of current planning policy	11
Direct effects of built development	12
Indirect effects of disturbance	13
Other urban effects	13
Recreational pressure on the North Norfolk Coast	13
New and upgraded roads	14
Flood risk, water supply and water treatment	14
3. Current Status of Mitigation Measures	17
1500m/400m zones	17
Recreation management, monitoring and mitigation strategy	18
Developer funded approach to urban heaths management and the provision of alternative greenspaces	18
New roads and road improvements	19
Protection of water sensitive European site interest	19
Collaboration with partners for the North Norfolk Coast	19
4. Recommendations for Progressing Mitigation Measures	20

1500m/400m zones	20
Recreation management, monitoring and mitigation strategy	20
Developer funded approach to urban heaths management and the provision of alternative greenspaces	21
New roads and road improvements	21
Protection of water sensitive European site interest	21
Collaboration with partners for the North Norfolk Coast	22
5. The Issues and Options document for the Emerging Local Plan 23	
Points for further consideration as assessment of the plan progresses	23
6. Summary and Next Steps	25
7. References	26
8. Appendix 1 - The Habitats Regulations Assessment Process	28
9. Appendix 2 – European Site Conservation Objectives	32
10. Appendix 3: Conservation Interest of European Sites	34

Acknowledgements

This report was undertaken by Footprint Ecology as part of on-going work with Breckland Council. The work was supported by Li Feng, Iain Withington and Phil Mileham at Breckland Council.

1. Introduction

- 1.1 This report provides the initial stages and scoping of a Habitats Regulations Assessment of the new Breckland Local Plan, currently being prepared by Breckland Council. A Habitats Regulations Assessment considers the implications of a plan or project for European wildlife sites, in terms of any possible harm on wildlife interest that could occur as a result of the plan or project. Further explanation of the assessment process is provided below and in greater detail in Appendix 1.
- 1.2 At the present time, spatial planning and development management in the Breckland District is led by the Breckland Local Development Framework, which is a suite of planning documents adopted by the Council between 2009 and 2012, incorporating the Core Strategy, the Site Specific Policies and Proposals Document and the Thetford Area Action Plan. These documents began to be prepared in 2007, and Habitats Regulations Assessment work commenced shortly after, when it was recognised that new growth had the potential to affect European wildlife site interest and there was a need to properly assess those potential impacts in accordance with the duties placed upon the Council by the Habitats Regulations.
- 1.3 It is Government policy that local planning documents are continually reviewed in order to remain up to date and informed by current evidence on local economic, social and environmental needs, and national legislation and planning policy. In light of this, and recognising the need to revisit key issues such as housing targets since the cessation of a region led approach to planning through Regional Spatial Strategies, Breckland Council has embarked on the preparation of a new Local Plan, commencing with the production of an Issues and Options document for public consultation.
- 1.4 The new Local Plan will replace all documents within the Local Development Framework. Previous Habitats Regulations Assessment work has covered all of the documents that make up the Local Development Framework. It is that assessment work that is now revisited in order to start to inform the assessment of the emerging new Local Plan.
- 1.5 This Habitats Regulations Assessment is currently a report setting out the background to European site protection in the District, and a review of evidence. It considers the Habitats Regulations Assessment work to date, and how that previous work now provides the foundations for the assessment of the newly emerging Local Plan. It is important to take stock and consider how well the measures put in place to protect European site interest have worked, and what evidence there is available to support the continuation of such measures, or to indicate that they may need modification.
- 1.6 The Habitats Regulations Assessment report will be updated alongside the Local Plan as it is progressed by Breckland Council. The Habitats Regulations Assessment will be finalised when the new Local Plan is considered complete by the Council and is ready for submission for Examination, although any post Examination modifications will also need to be checked before the Local Plan is given effect.

- 1.7 The Council has recently conducted a public consultation on the Issues and Options document. This is an early stage in plan making where the key issues for a district are stated, and opportunities and the range of options for new growth, and for social, economic and environmental improvements are presented. This allows local residents to comment on the key issues for their local area, and the proposals for rectifying those issues and bringing forward sustainable growth.
- 1.8 This report starts to draw together available evidence relating to potential impacts on European sites and possible opportunities to prevent those impacts from occurring, to enable the Council to consider the level, type and locations for growth that could occur whilst maintaining adequate protection for European sites. This assessment will continue to be updated and expanded as the plan progresses and additional information and evidence is gathered.
- 1.9 This introductory section of the report provides the background and context for plan level Habitats Regulations Assessment.

Habitats Regulations Assessment process

- 1.10 A 'Habitats Regulations Assessment' is the step by step process of ensuring that a plan or project being undertaken by, or permitted by a public body, will not adversely affect the ecological integrity of a European wildlife site. Where it is deemed that adverse effects cannot be ruled out, a plan or project must not proceed, unless exceptional tests are met. This is because European legislation, which is transposed into domestic legislation and policy, affords European sites the highest levels of protection in the hierarchy of sites designated to protect important features of the natural environment.
- 1.11 The relevant European legislation is the Habitats Directive 1992¹ and the Wild Birds Directive 2009², which are transposed into domestic legislation through the Conservation of Habitats and Species Regulations 2010, as amended. These Regulations are normally referred to as the 'Habitats Regulations.' Legislation sets out a clear step by step approach for decision makers considering any plan or project. In England, those duties are also supplemented by national planning policy through the National Planning Policy Framework (NPPF). This national planning policy also refers to Ramsar sites, which are listed in accordance with the international Ramsar Convention. The NPPF requires decision makers to apply the same protection and process to Ramsar sites as that set out in legislation for European sites. Formally proposed sites, and those providing formal compensation for losses to European sites, are also given the same protection.
- 1.12 The duties set out within the Habitats Regulations apply to any public body or individual holding public office with a statutory remit and function, referred to as 'competent authorities.' The requirements are applicable in situations where the competent authority is undertaking or implementing a plan or project, or authorising others to do

¹ Council Directive 92/43/EEC

² Council Directive 2009/147/EC

so. A more detailed guide to the step by step process of Habitats Regulations Assessment is provided in this report at Appendix 1.

- 1.13 In assessing the implications of any plan or project, in this case a local plan, for European sites in close proximity, it is essential to fully understand the sites in question, their interest features, current condition, sensitivities and any other on-going matters that are influencing each of the sites. Every European site has a set of ‘interest features,’ which are the ecological features for which the site is designated or classified, and the features for which Member States should ensure the site is maintained or, where necessary restored. Each European site has a set of ‘conservation objectives’ that set out the objectives for the site interest, i.e. what the site should be achieving in terms of restoring or maintaining the special ecological interest of European importance.
- 1.14 The site conservation objectives are relevant to any Habitats Regulations Assessment, because they identify what should be achieved for the site, and a Habitats Regulations Assessment may therefore consider whether any plan or project may compromise the achievement of those objectives. Further information on European site conservation objectives can be found at Appendix 2 of this report.

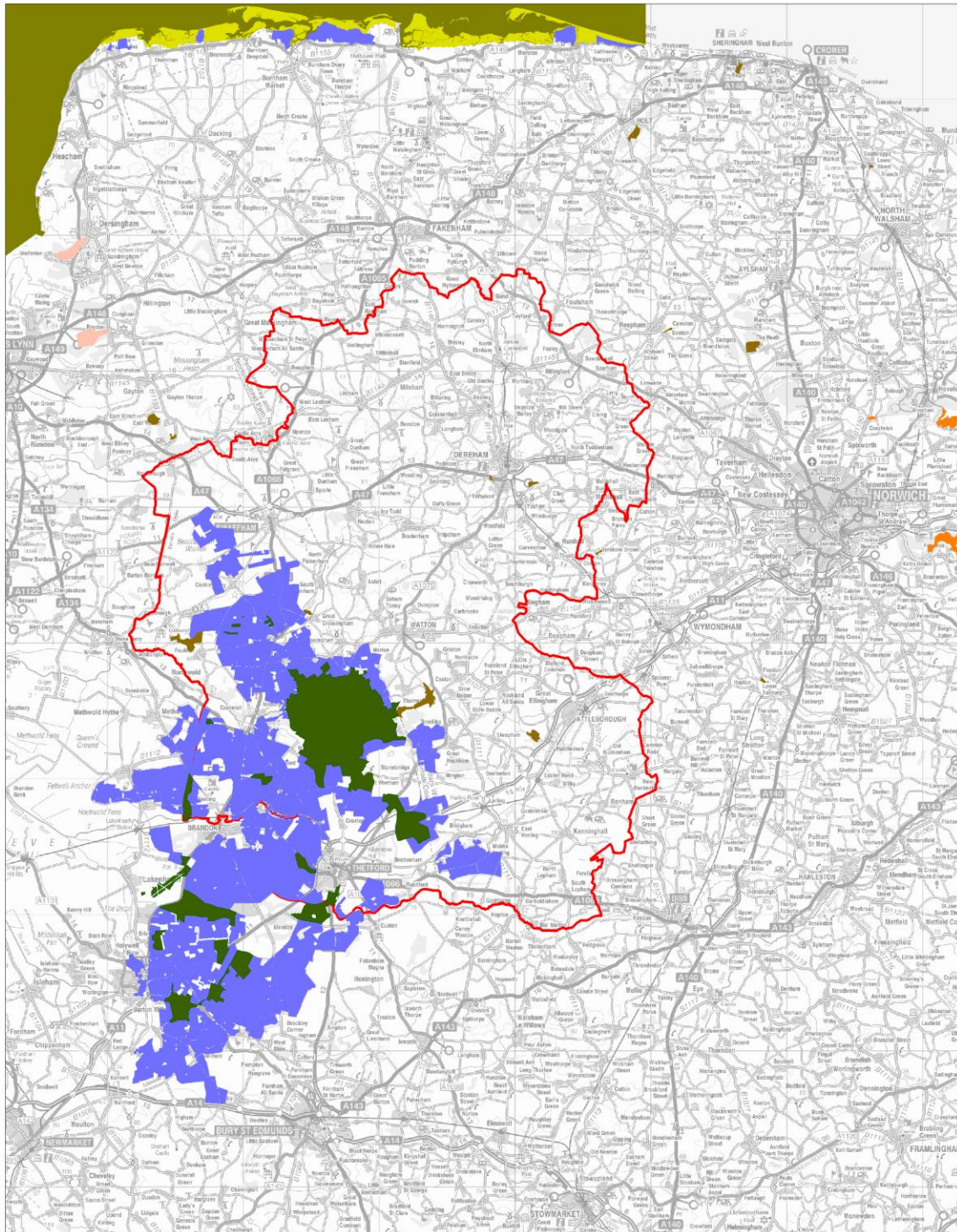
European sites

- 1.15 There are a range of European sites within or near the Breckland District that need to be checked for their potential to be affected by new growth that will be promoted by the new Local Plan. The sites considered within this report are drawn from the original HRA work on the Breckland Core Strategy (Liley *et al.* 2008). The check in 2008 involved identifying all European sites that fell within a 20km buffer of the District to give an initial list. A few sites were then removed from that list because they were so far from the District and their interest/character meant there was no plausible mechanism by which impacts might occur. Sites are listed in Table 1 and the main sites are shown on Map 1.

Table 1: Relevant sites (taken from Liley *et al.* 2008)

SPA	SAC	Ramsar
Breckland	Breckland	Broadland
Broadland	Norfolk Valley Fens	North Norfolk Coast
North Norfolk Coast	North Norfolk Coast	Ouse Washes
The Wash	Ouse Washes	Redgrave & Lopham Fens
Ouse Washes	River Wensum	The Wash
	The Broads	
	The Wash and North Norfolk Coast	
	Waveney and Little Ouse Valley Fens	

- 1.16 Appendix 3 of this report provides site by site interest features for each European site.



Map 1: European Sites

SACs

- Breckland
- Norfolk Valley Fens
- North Norfolk Coast
- Roydon Common & Dersingham Bog
- The Broads
- Winterton-Horsey Dunes

SPAs (only areas outside SACs shown)

Breckland District

Contains Ordnance Survey Data.
© Crown Copyright and Database Right 2014.

2. Previous Habitats Regulations Assessment Work

2.1 This section looks at all previous Habitats Regulations Assessment work and the mitigation measures in place in light of those assessments.

Breckland's current planning policy documents

2.2 The adopted planning documents for Breckland have all been the subject of Habitats Regulations Assessment, taking a consistent approach to mitigating for the potential impacts on European sites as each plan has been developed (Liley *et al.* 2008; Liley, Underhill-Day & Tyldesley 2010; Liley & Tyldesley 2011). This section revisits the assessment work undertaken to date and the mitigation currently in place.

2.3 Breckland District Council currently has a suite of development plan documents in place to guide the nature and location of sustainable development for the District and inform planning decisions up to 2026. The documents form what is known as a 'Local Development Framework.' This is a local planning system introduced by the previous Government under the Town and Country Planning (Local Development) (England) Regulations 2004. This system operated on the basis that a suite of documents would make up the local plan for an area, with key documents such as a Core Strategy in place, i.e. the overarching strategy for an area, and then additional individual documents prepared on the basis of local need. A typical example would be the production of area action plans for discrete areas of growth that would benefit from detailed planning policy.

2.4 The Local Development Framework system has now been replaced by the current government, under the Town and Country Planning (Local Planning) (England) Regulations 2012, to now require local planning policy to be provided within one single Local Plan. In reviewing the suite of documents under Breckland's Local Development Framework, the Council now intends to replace those documents with one Local Plan, in accordance with the new plan making process and requirements. The documents within Breckland's Local Development Framework will remain in place until the new Local Plan for Breckland is adopted. The Local Development Framework consists of:

- The Core Strategy
- Site Specific Policies and Proposals
- Thetford Area Action Plan ('TAAP')

2.5 The TAAP covers the market town of Thetford and its immediate surrounding area, including parts of the Parishes of Brettenham, Croxton and Kilverstone. Thetford lies on the A11 corridor and is partially surrounded by Thetford Forest. Thetford is the primary area for growth for the District, and has been so since the previous Government identified the town as a 'growth point' status in 2006. Thetford has the benefit of excellent local services and community facilities, along with transport links to the wider key towns and cities of the East of England such as Norwich and Cambridge, and also out to London. There are however a number of challenges to bringing forward growth whilst protecting European site interest, particularly with the presence of small

areas designated heath abutting the urban area, and the use of wider farmland by nesting stone curlew.

- 2.6 The Thetford ‘sustainable urban extension’ (SUE), is a large scale mixed use development of 5000 houses which has been granted planning permission subject to conditions and the completion of a Section 106 agreement. The extension is in line with policies within the Core Strategy and TAAP and has been subject to a project level Habitats Regulations Assessment.

Evidence for the Habitats Regulations Assessment of current planning policy

- 2.7 The Habitats Regulations Assessment work for the Local Development Framework commenced with a considerable amount of evidence gathering to establish the sensitivities of European site interest to new growth. This particularly focussed on the potential impact of new growth on stone curlew, an interest feature of Breckland SPA, but evidence gathering also included consideration of other interest features of the Breckland European sites. This has since been supplemented by a range of relevant studies initiated by Breckland Council and other parties. Key evidence includes:

Visitor surveys

- Visitor surveys and visitor modelling relating to Breckland SPA sites (Thetford Forest undertaken by UEA for Breckland Council (Dolman, Lake & Bertoneclj 2008)
 - Visitor survey work undertaken for other local authorities (Fearnley, Liley & Cruickshanks 2011)
- 2.8 Key findings indicate a high proportion of visitors visit from their home and are local (Fearnley, Liley & Cruickshanks found 87% of visitors were local residents visiting from home). The same authors identified that there was considerable parking capacity – on average only 10% of parking spaces were occupied. A range of activities were recorded, but dog walking was the main activity in both surveys (46% and 36% respectively from the two surveys). Half of all visitors interviewed in the 2011 survey lived within 9km of the interview location; cyclists and those coming wildlife watching tending to come bigger distances.

Stone Curlews

- Original research on housing, roads and stone curlews commissioned by Breckland Council (Sharp *et al.* 2008)
 - Modelling of impact of additional traffic on the A11 (Clarke, Sharp & Liley 2009)
 - Peer-reviewed paper mainly based on data in 2008 report with some additional analysis (Clarke *et al.* 2013)
 - Additional work on stone curlews, focussing on impacts of buildings (Clarke & Liley 2013)
- 2.9 Key findings reveal that Numbers of stone curlews have steadily increased since the mid 1980s; the increases have been particularly associated with birds nesting on arable and

improved or rough grass land habitats (outside semi - natural habitat). As the population has increased , more breeding attempts (and a higher proportion of them) have been found outside the SPA, suggesting the range has changed over time and birds have expanded into new areas (rather than densities merely increasing in already occupied areas). The studies above consistently show a clear and highly significant lower density of nests around settlements, this was detectable for individual settlements as well as for data pooled across the whole area. The most recent work includes the most detailed models and the most comprehensive stone curlew nest data. This showed that the number of buildings (weighted by distance) and distance to trunk road were significant factors explaining the number of stone curlew nests in individual grid cells and other significant factors included a negative effect of woodland and a positive effect of the presence of semi-natural grassland nearby. Cumulative effects of buildings were detectable to 2000m and the more recent analysis suggests that the effect is particularly linked to residential buildings.

Nightjar and Woodlark

- Nest predation study, commissioned by Breckland Council (Dolman 2010)
- Analysis of woodlark and nightjar trends across Thetford Forest, to determine why population of these species is declining markedly, commissioned by Forestry Commission (Dolman & Morrison 2012)

- 2.10 Nightjar and woodlark numbers have declined within the Brecks, and the Dolman & Morrison study highlight a drop in nightjar numbers of 43% from 1998-2010 and a fall in woodlark numbers of 54% over the period 2000-2010. Dolman & Morrison's analysis considers a range of factors, including urban extent and different habitat variables. They suggest that the decline for both species is attributable to habitat loss linked to forestry management, i.e. the extent of clearfell and young plantations available for both species. In addition, for woodlark only, they suggest that some of the decline is also linked to a decline in habitat quality. The nest predation work, involving nest cameras, found a range of causes of nest loss and a range of different predators were involved. There was no clear effect of recreation pressure on breeding success.
- 2.11 These results suggest that these two species are not currently doing well in the Brecks and that there are some clear issues relating to habitat extent. Recreational disturbance and urban development – at current levels – does not seem to be a current issue (contrary to studies elsewhere where access levels are higher, see Murison 2002; Liley *et al.* 2006; Mallord *et al.* 2007).

The Habitats Regulations Assessment of current planning policy

- 2.12 Each of the three Local Development Framework documents was the subject of Habitats Regulations Assessment, drawing on the evidence available as each document was produced. The assessments for the Site Specific Policies and Proposals document and the Thetford Area Action Plan relied heavily on the extensive Habitats Regulations Assessment work already undertaken for the Core Strategy and the two later

documents consistently applied the comprehensive mitigation measures established for the Core Strategy.

2.13 Informed by evidence gathered, the Habitats Regulations Assessment for the Local Development Framework documents focused on the following potential impacts arising from new development:

- Reduction in SPA bird density (stone curlew, nightjar and woodlark) in proximity to new development
- Increased disturbance of SPA birds (stone curlew, nightjar and woodlark) arising from additional recreational activity
- Increased levels of urbanisation impacts to SAC heaths, as a result of increased numbers of people (including trampling, fly-tipping, fire risk)
- Traffic generated air pollution affecting SAC heaths
- Demand for new/upgraded roads leading to avoidance of habitat in close proximity by SPA birds (stone curlew, nightjar and woodlark).

2.14 The Habitats Regulations Assessment work also included consideration of impacts on other European sites further afield; the North Norfolk Coast, The Wash, Ouse Washes and The Broads. Impacts on these sites potentially include recreational disturbance and deterioration of water supply and water quality.

Direct effects of built development

2.15 For stone curlew, the Habitats Regulations Assessments concluded that built development should be focussed away from a 1500m zone around the SPA boundary (apart from those areas that are included within the SPA for woodlark and nightjar only). The assessment concluded that there may be exceptions to this where the development could be located in a place that was already surrounded by development, i.e. the new development would not add in any way to the intrusion of built development within the landscape.

2.16 The Habitats Regulations Assessment also concluded that, because there is a notable level of habitat outside the SPA boundary utilised by breeding stone curlew, additional development within 1500m of such habitat could also adversely affect the SPA population. Again therefore, development should be focussed away from these areas. Whilst it was concluded that growth should not be planned for these areas, an important distinction was made between habitat within and outside the SPA boundary, in that habitat outside the SPA could potentially be replaced with new habitat creation, leading to no net loss of supporting habitat, whereas loss of habitat within the SPA by rendering it unsuitable for use by breeding stone curlew as a result of new development would lead to a permanent reduction in protected SPA habitat.

2.17 In accordance with the evidence noted above in relation to studies of the effects of disturbance on woodlark and nightjar, some of which was used to inform the Thames Basin Heaths and Dorset Heaths strategic mitigations schemes, a 400m buffer was suggested by the Habitats Regulations Assessment. However, recognising the barrier effect of the A11, and the different way in which habitat is used by these species in the

Brecks than the southern heaths, it was recommended that the buffer would trigger development project level Habitats Regulations Assessment rather than creating an outright exclusion zone.

- 2.18 Accordingly, the Core Strategy and subsequent documents implemented a buffer around the SPA of 1500m, which expanded out to cover supporting stone curlew habitat adjacent to the SPA, but with recognition that the latter could be considered at the individual project level if the supporting habitat could be lost and fully replaced without detriment to the integrity of the SPA population. A 400m zone was also applied around woodlark and nightjar habitat, indicating where project level assessment would be required. Policy wording explained and supported the zoning in place.

Direct effect of built development = policy wording and 1500m/400m zones mapped

Indirect effects of disturbance

- 2.19 Visitor survey work and consideration of recreational use of the Breckland European sites led to a conclusion that impacts were possible, but based on information available were difficult to quantify. A precautionary approach was recommended, with continued close monitoring of recreational use and work with partners to manage access. Development that specifically increased access to the European sites, such as car parks, should be avoided. Over time an access management, monitoring and mitigation strategy should be developed to ensure a holistic approach in collaboration with partners.

Indirect effect of disturbance = policy wording committing to a recreation management, monitoring and mitigation strategy in collaboration with partners

Other urban effects

- 2.20 Additional development in close proximity to the heaths was predicted by the Habitats Regulations Assessments for the Local Development Framework documents. Such impacts were considered to be particularly concerning for the more urban heaths in and around Thetford, and included impacts such as fire risk, eutrophication, trampling and erosion and fly-tipping/litter.
- 2.21 The Habitats Regulations Assessments concluded that there was a need for a developer funded approach to onside management of the urban heaths and the provision of alternative greenspaces to deter increased use of the vulnerable urban heaths. Policy wording therefore committed to the development of a developer funded approach to these requirements.

Urban effects on heaths around Thetford = developer funded approach to urban heaths management and the provision of alternative green spaces

Recreational pressure on the North Norfolk Coast

- 2.22 In terms of the potential for recreational pressure to spread further afield to other European sites, it was recognised that the North Norfolk Coast has a wide draw for visitors across the Anglian region and beyond. In the absence of information, the

Habitats Regulations Assessment advised that new research and collaboration with other neighbouring local authorities should be committed to and taken forward. This should focus on opportunities to modify recreational use of the coast to secure better protection of European site interest, with measures such as zoning, wardening, way-marked routes, publicity and a review of car parking provision, for example.

North Norfolk Coast = Plan wording to commit to new research and collaboration with other neighbouring local authorities

New and upgraded roads

- 2.23 The Habitats Regulations Assessment of the Local Development Framework documents recognised the risk of air borne pollution affecting sensitive heathland habitats within Breckland SAC, and that this cannot be mitigated for. In accordance with research available at the time of the assessment, this risk would be present for any new road or road upgrade within 200m of the SAC. Discussions with the Council led to a conclusion that the development within the policy documents would not require new or improved road infrastructure within 200m of the SAC, and a policy commitment to this effect was incorporated.
- 2.24 As the stone curlew research relating to avoidance of development included roads as well as houses, the Habitats Regulations assessment concluded that roads should be included within the 1500m zone as well as other built development.

New and upgraded roads = policy commitment to preventing any new roads or road improvements within 200m of Breckland SAC

New and upgraded roads = excluded from the 1500m stone curlew zone

Flood risk, water supply and water treatment

- 2.25 In recognition of the sensitivity of European site interest to hydrological changes and water quality, the Habitats Regulations Assessment sought to remove potential risks to the Broads and River Wensum, the Wash and Redgrave and Lopham Fen.
- 2.26 Flood water infiltration and attenuation measures for new development was incorporated into policy wording, and importantly, the local development framework documents committed to the total quantum of housing proposed for the plan period up to 2026 to be clearly divided into that which could be taken forward without water infrastructure improvements and sustainable water supply, that which would be accommodated by planned improvements and sourcing of new water supply, and finally that which cannot be accommodated in either of the first two categories, and which should be particularly re-considered at plan review to determine whether new information can inform the Habitats Regulations Assessment of a revised plan. The latter category was therefore not supported by the Local Development Framework, but was included as a possibility subject to future assessment work.

Water issues = policy wording to secure flood alleviation measures and commitment to bringing forward new development in step with infrastructure and supply improvements

Table 2: Summary of adverse effects identified (and discussed in detail) in the Core Strategy HRA (Liley *et al.* 2008). Table taken from HRA for the TAAP (Liley & Tyldesley 2011)

Potential effect	Summary of impact and related evidence
Direct impacts of built development on Annex I birds species	There is strong evidence that stone curlew, nightjar and woodlark all occur at lower densities on sites/areas surrounded by housing (Liley & Clarke 2002, 2003; Murison 2002; Underhill-Day 2005; Langston <i>et al.</i> 2007).
Disturbance to Annex I birds associated with heathland and farmland habitats as a result of recreational use	Stone curlew, nightjar and woodlark are all vulnerable to disturbance, which can result in sites not being used by breeding pairs and reduced breeding success (Murison 2002; Taylor 2006; Mallord <i>et al.</i> 2007; Taylor, Green & Perrins 2007)
'Urban effects'	A suite of urban effects such as fly tipping, eutrophication (e.g. from dog fouling), increased fire risk etc. are documented for heathland sites adjacent to housing (Underhill-Day 2005). Such impacts may be relevant for other habitats too.
Recreation impacts to coastal habitats and species	Coastal habitats and some coastal species are vulnerable to impacts from recreation (Saunders <i>et al.</i> 2000; Lowen <i>et al.</i> 2008; Liley <i>et al.</i> 2010).
Water abstraction	Water abstraction reduces flow in rivers and streams, lowers groundwater levels and potentially depletes aquifers. Impacts potentially occur where the interest features are aquatic or depend on water.
Discharges affecting water quality	Discharges from waste water treatment works may increase levels of nutrients in the water, leading to loss of water quality.
Contamination from flood water	Flood water can result in water flows containing high levels of nutrients or contaminants draining from urban areas into water courses and affecting European Protected sites. There are particular issues where existing sewers or drains cannot cope with water levels.

Potential effect	Summary of impact and related evidence
Air pollution from road traffic	Impacts typically occur within 200m of a road (Highways Agency 2005; Bignal <i>et al.</i> 2007). Increased traffic may result in a decrease in air quality.
Avoidance of roads by Annex I birds	Evidence that stone curlews occur at lower densities adjacent to main roads (Day 2003; Sharp <i>et al.</i> 2008).

3. Current Status of Mitigation Measures

3.1 The mitigation measures, highlighted in bold in the previous section, are considered here in terms of their current status and progression in implementation.

1500m/400m zones

3.2 The zones have been clearly mapped for the Local Development Framework documents and the zoning policy has been applied by Breckland Council to the determination of new development proposals. This has been supported by advice from Natural England, particularly where consideration of development that does not add to the build landscape has been considered. Application of the policy in relation to the latter situations has however been the subject of some considerable debate, as to how extensively a potential building site needs to be masked by existing development. Some development proposals have been taken to appeal on this basis.

3.3 Importantly the additional research undertaken in 2013 to try to expand on previous work relating to the avoidance of roads and buildings by breeding stone curlew reaffirmed the findings of the previous work; that there is a strong correlation between breeding density and the presence of building and roads up to a distance of 1500m. The revised analysis therefore confirmed and strengthened the 1500m zone policy. Some options for additional work to identify where development within the 1500m zone but affecting supporting habitat rather than SPA habitat may be more feasible, subject to project level assessment, and where it would be unlikely to be suitable, subject to project level assessment, were suggested.

3.4 The Council has sought to rigorously apply the zoning, and its establishment in policy is well known and understood by developers. The Council has responded strongly and positively to challenge, most notably with the commissioning of the 2013 research to re-evaluate the use of the zone in light of the most up to date information.

3.5 However, it is also concluded that despite the Council's best efforts, there has been some difficulties with the approach to identifying where a new development may be completely masked by existing, and how and when to mitigate for impacts on supporting habitat outside the SPA. This inconsistency has been compounded by decisions taken by other competent authorities such as in an appeal situation.

3.6 The 400m zone for woodlark and nightjar is being applied and has caused little concern as this zone encompasses an area where only a small amount of development has taken place since the adoption of the Core Strategy. The findings of the nightjar and woodlark nest monitoring study (Dolman 2010) indicated that a low level of impact from recreation, although there does need to be some caution around that conclusion as the study looked at nest predation and bird response, not at avoidance of habitat. Conversely there is notable evidence (Dolman & Morrison 2012) to indicate that the population declines for both species within Breckland, with numbers now worryingly below that at site classification. It is thought that this may be at largely as a result of

habitat loss and deterioration as a consequence of changes in forest management and areas of clear fell (Dolman & Morrison 2012). Natural England’s SSSI monitoring information, available on their website, states the following:

- 3.7 *“Surveys for both woodlark and nightjar were carried out in 2010. The woodlark survey recorded 209 breeding pairs; a figure below 253 would indicate unfavourable condition. The nightjar survey recorded 240 churring males; a figure below 311 would indicate unfavourable condition. The indirect condition assessment is based on habitat quality, with a threshold of 12,757 ha of rotational clearfell, of which 165225ha is felled each year (2007-2011). The Forestry Commission's Design Plans Indicate the habitat extent has been maintained. Based on the decline in these populations the SSSI is unfavourable. However, the drivers for population change in the Forest are unclear, whilst available habitat has remained more or less stable. A programme of research and experimental management is underway to determine the cause of population changes, with a commitment from FC to adopt management practices to meet population targets....”*
- 3.8 Restoring and sustaining the populations of woodlark and nightjar in Breckland therefore remains an urgent and important issue that requires all relevant public bodies and nature conservation organisations to achieve.

Recreation management, monitoring and mitigation strategy

- 3.9 Whilst policy wording in the Core Strategy committed to working with partners to secure, manage and monitor sustainable levels of recreation, to date any collaboration has been when required on a case/issue specific basis, and a proactive joined up approach with agreed actions is yet to be established.

Developer funded approach to urban heaths management and the provision of alternative greenspaces

- 3.10 As above for the District wide commitments, the specific commitment to progressing a developer funded approach to managing recreation on the Thetford urban heaths, including the provision of alternative green spaces where necessary, has not yet been taken forward. The key site of concern is Barnhamcross Common. A lack of a strategic approach to this mitigation requirement has led to difficulties in bringing forward the required mitigation for the largest and therefore proportionately the most potentially damaging development proposal in Thetford; the Thetford SUE.
- 3.11 At the time of writing this background report, discussions are still on-going with regard to the mitigation measures required for the Thetford SUE proposal. In the absence of a scheme for developers to adhere to in terms of guidelines on required alternative green space, for example, or any mechanism in place for the collection of contributions towards a mitigation programme for the management of access at Barnhamcross Common there is a risk that a piecemeal approach will not deliver the necessary protection measures for the already deteriorating urban heaths.

New roads and road improvements

- 3.12 The policy wording in place to ensure that new roads or notable road upgrades do not occur within 200m of Breckland SAC or within the 1500m stone curlew zone has, as far as can be ascertained, adhered to up to the present time. The only significant road improvement programme has been for the A11, with the scheme including on-line widening, a new two level junction and an underpass. This large scale project was considered at Public Inquiry and was the subject of its own Habitats Regulations Assessment and extensive mitigation measures were developed for that scheme.

Protection of water sensitive European site interest

- 3.13 The Core Strategy set out a three phased approach to housing delivery, in light of uncertainties regarding provision of adequate and sustainable water supplies and waste water treatment and potential risks to European sites. The need for on-going liaison between the Council, the Environment agency and water utility company was recognised.
- 3.14 The Breckland Water Cycle Study has been produced in 2 phases. A Phase 1 Outline Study was undertaken 2008, and subsequently, a Phase 2 detailed study continued on from the Phase 1 studies, finalised in May 2010. The Water Cycle Study work sets out the detailed solutions required for delivering growth for the specific development allocations, including detailed information on the cost of the infrastructure and the policy required to deliver it. The Phase 2 report discusses the timing of the required works necessary to deliver sustainable water supply and waste water treatment, including a new mains sewer for Thetford, some of which will be implemented through developer funding and some that will be the responsibility of the water utility company, overseen by the Environment Agency.

Collaboration with partners for the North Norfolk Coast

- 3.15 Local authorities in Norfolk (eight authorities) have now commissioned work to consider the cumulative impacts of development on the North Norfolk Coast. The work will involve visitor survey work (to be undertaken by Footprint Ecology) focussed at European sites across Norfolk and will include a range of coastal sites. It will also include other sites such as the Broads, the Brecks and the Norfolk Valley Fen. The survey is being commissioned specifically to provide evidence on likely impacts of growth to inform future Habitat Regulations Assessment work and the results are likely to be available from the summer 2016.
- 3.16 The results, once available, should provide a foundation for local authorities across Norfolk to consider the cumulative, in-combination effects of development across the county and where counter measures may be required. The project involves partnership working and collaboration between multiple authorities.

4. Recommendations for Progressing Mitigation Measures

- 4.1 In light of a review of current mitigation measures, the key issues for the new plan to consider are set out below.

1500m/400m zones

- 4.2 The zones are founded on evidence, recently reviewed in 2013, which clearly indicates that breeding stone curlew are affected by new development within 1500m of potential breeding habitat. The Council has sought to rigorously apply the zoning policy. However, there have been some inconsistencies in how those using the policy and other decision makers external to the Council have interpreted its requirements, and therefore there may be scope to make improvements with regard to the interpretation and consistent application of the policy. This could include, for example, clarification on where, if any, there are locations that could possibly support new growth within that zone. Any mechanism to assist developers in this regard would be beneficial. Importantly however, the zonation policy remains a strong, evidence backed and essential mitigation mechanism.
- 4.3 With the stone curlew population expanding it is important that areas used by the stone curlew population that are outside the SPA are mapped and documented. The birds nesting outside the SPA are part of the population linked to the SPA. Development within 1500m of these birds will trigger likely significant effect and mitigation will be necessary. The HRA needs to ensure relevant areas are mapped using up to date data and also it is important to provide clarity on mitigation, for example the extent to which stone curlew plots may function adequately.
- 4.4 Whilst evidence suggests that recreational pressure is currently not significant for woodlark and nightjar, it is recommended that the 400m zone for project level Habitats Regulations Assessment remains within policy for the new Local Plan, because the two species are in decline and therefore more vulnerable to additional pressure than would be the case if populations were thriving. Project level Habitats Regulations Assessment should be based on up to date information. Continued monitoring of these species should be secured and the Council should consider how the Local Plan can contribute towards measures to restore population numbers, in liaison with other partners such as the Forestry Commission, Natural England and the RSPB.

Recreation management, monitoring and mitigation strategy

- 4.5 There is an urgent need to progress this policy commitment from the Local Development Framework as despite its requirement in the Core Strategy Habitats Regulations assessment, a proactive and committed partnership approach is yet to be instigated. In taking forward the new Local Plan, it is recommended that a steering group is established to deal with this commitment for the District as a whole, and also the specific requirements detailed below for Barnham Cross Common.

Developer funded approach to urban heaths management and the provision of alternative greenspaces

- 4.6 In light of the recent approval of the Thetford SUE, and the continuing focus on Thetford for growth in the emerging Local Plan, it is critical that a consistent approach is developed for the protection of areas of Breckland SPA/SAC that are on the urban fringe. These areas are already deteriorating and upon consideration of the proposal for the Thetford SUE, the Council did not have an established approach to draw upon in order to secure mitigation for the recreational impacts of this large scale proposal.
- 4.7 As above, it is advised that there is an urgent need to progress this policy commitment it is recommended that a steering group is established to deal with commitments to an approach to manage and monitor recreational impacts for the District as a whole, and also the specific requirement to secure an evidence based, consistent and pre-agreed mitigation package for sites such as Barnham Cross Common, to enable development coming forward to have clarity on the mitigation required.

New roads and road improvements

- 4.8 Whilst the policy wording in place to ensure that new roads or notable road upgrades do not occur within 200m of Breckland SAC or within the 1500m stone curlew zone has been adhered to up to the present time, it will now be necessary to gather evidence to identify what level and location of growth may trigger the need to new roads or road upgrades, and then how such needs could be alternatively accommodated and/or development confined in order to prevent any such need. Early consideration of these issues is recommended, as there is the potential for serious implications for the location and quantum of growth in the Local Plan.

Protection of water sensitive European site interest

- 4.9 The Local Development Framework recognised that the full quantum of housing proposed for Breckland over the plan period could not be accommodated without certainty that water sensitive European site interest would not be affected. For this reason, a commitment to continued close working with water companies and the Environment Agency was made and importantly, housing levels that could not be sustained with current or planned infrastructure and supply would not be supported, but rather would be the subject of future assessment in light of up to date information.
- 4.10 More detailed work undertaken for the 2nd Phase of the Water Cycle Study undertaken in 2010 identifies water supply and treatment issues that require resolution in order to support the continued growth in the Breckland District. This includes, for example, the need for options for additional groundwater sources to meet supply demand to be assessed, the rectification of waste water treatment and discharge capacity, particularly for further growth at Attleborough, and the requirement for additional infrastructure, notably at Thetford. Whilst the detailed Phase 2 report has considered the potential for impacts on European sites, it remains the fact that the full extent of growth proposed by the Local Development Framework cannot be supported unless there is

additional assessment of options for water supply and treatment and additional investment in infrastructure.

- 4.11 With the emerging Local Plan, the Council will need to work with the Environment Agency and water companies to obtain the necessary information to inform the Habitats Regulations Assessment of the growth options proposed. An update to the previous situation with an understanding of what progress has been made to date, what work is planned and what level of growth is still not accommodated by existing or planned work is necessary to inform the emerging Local Plan and the options for levels and locations of growth.

Collaboration with partners for the North Norfolk Coast

- 4.12 As explained in the previous section, the Norfolk wide approach to assessing and mitigating for potential impacts arising from recreational pressure on European sites is in progress, with Breckland Council actively involved and contributing to this work. As the project develops it will inform the Habitats Regulations Assessment for the emerging Local Plan and any policy requirements for incorporation into the new plan.

5. The Issues and Options document for the Emerging Local Plan

- 5.1 The Issues and Options document for the emerging Local Plan was produced for public consultation in November 2014. Whilst this is the first stage in the plan making process, the document produced by Breckland Council is notably detailed in comparison to many other local plans at this stage. There is clear explanation of the range of options for growth and why those options are appropriate for consideration at this early stage. Options include consideration of the right level of housing growth, sites and quantum of land for employment, gypsy and traveller sites and what should constitute the right level of affordable housing delivery.
- 5.2 Initial checking of the Issues and Options presented by the consultation document raises the following points for further consideration by the Council and will be important to consider as the Habitats Regulations Assessment of the emerging plan gets underway. These points are provided as an initial steer for the Council's consideration of possible impacts on European sites and do not replace the need for comprehensive assessment of emerging options as the plan progresses.

Points for further consideration as assessment of the plan progresses

- 5.3 Housing options are suggested in light of most recent evidence and options currently presented indicate that overall housing numbers could be slightly less than that currently proposed in the adopted Local Development Framework. This initially bodes well for the continued application of existing mitigation measures, but it is important to recognise that not all of the mitigation measures have been fully implemented and there is an urgent need to progress measures relating to recreational and urbanisation impacts in particular.
- 5.4 The Issues and Options document recognises that Breckland has a high level of commuting taking place in the district, primarily because of the A11. Air pollution issues will therefore remain a concern as the plan develops. The A11 corridor will itself continue to be a focus for development in terms of employment growth.
- 5.5 Thetford remains a growth priority for Breckland. This is logical given its good transport links and opportunities for both residential and employment growth. However, the proximity of the Breckland European sites boundary to the edge of the town in most directions remains a fundamental issue to overcome. Barnham Cross Common remains particularly vulnerable to urban impacts such as fly tipping, trampling, fire and eutrophication. Issues relating to increasing recreation to the SPA (nightjar and woodlark being of particular concern) require monitoring and measures in place should that monitoring trigger any concerns.
- 5.6 Attleborough is also promoted as a location for housing and employment growth. Whilst this town is of a reasonable distance (approximately 8km) from Breckland SPA/SAC, there is a fragmented site that forms part of the Norfolk Valley Fens SAC to the south west of Attleborough. In seeking to make sure that the current situation with

regard to water supply provision and waste water treatment capacity is fully understood, the Council should have particular regard for potential hydrological impacts on this site. Any potential impacts will need to be considered in the Habitats Regulations Assessment.

- 5.7 The document includes a number of options for specific allocations. These will need to be checked against current mitigation measures including the zones, proximity to Thetford urban heaths and possible the need for adequate green space provision to deter use of European sites.
- 5.8 Tourism will also feature in the emerging plan and it is important for the Habitats Regulations assessment to consider whether mitigation measures for recreational impacts adequately cover any tourism related impacts as well as those arising from new residential development. The Norfolk wide work on recreational impacts should contribute to any consideration of tourism impacts arising from growth in the Breckland District, but the Habitats Regulations Assessment of the emerging Local Plan will need to consider the impact of tourism on sites within Breckland itself as well as the wider Norfolk sites.
- 5.9 In addition to these specific points, the emerging Local Plan should have regard for the need to maintain and restore European site interest, irrespective of new growth. Seeking opportunities for a plan led approach to protecting and enhancing the natural environment, and particularly European sites, should be an integral part of the development of the Local Plan. Sustainable development should include actively improving the natural environment as well as economic and social improvements, and whilst the Issues and Options document gives weight to the protection of environmental assets, it will be important for the emerging Local Plan to seek to do more than simply incorporate generic protective policies.

6. Summary and Next Steps

- 6.1 As explained in the introduction to this report, the Habitats Regulations Assessment work contained within this document is essentially a foundation for the assessment of the emerging Local Plan, in that it sets the context and background and summarises current evidence and potential evidence needs, as well as identifying the key priorities for early consideration of updating and maintaining the implementation of established mitigation. This report is therefore not in itself a Habitats Regulations Assessment, rather it sets the groundwork for the Habitats Regulations Assessment. Sections 4 and 5 in particular give recommendations for the progression of that assessment and the development and refinement of mitigation measures.
- 6.2 At this stage it is not possible to decisively state whether current mitigation measures are adequate to support the emerging Local Plan. The new plan is in its early stages of development and the Habitats Regulations Assessment process should be iterative and inform plan development. As explained in Appendix 1, a Habitats Regulations Assessment takes account of all European site interest features, their current sensitivities and progression towards conservation objectives, and all aspects of the emerging plan; vision, policies, supporting text and allocations.
- 6.3 In accordance with the requirements of Regulation 102 of the Habitats Regulations, this background report should now progress to a formal screening of the emerging Local Plan, and should start to gather information necessary to inform an appropriate assessment where there are uncertainties about options being progressed. It is understood that the Council is now working on the preparation of preferred option for the Local Plan, which is the next stage in plan making. The Council should use the initial findings and recommendations of this background report to inform the progression of the plan, but should also progress the Habitats Regulations Assessment with a formal screening stage, checking for the possibility of significant effects and should use the screening to modify or reject options or identify further evidence needs. Screening for likely significant effects highlights where there are information gaps that need to be progressed and where more detailed assessment in the form of an appropriate assessment is required.

7. References

- Signal, K.L., Ashmore, M.R., Headley, A.D., Stewart, K. & Weigert, K. (2007) Ecological impacts of air pollution from road transport on local vegetation. *Applied Geochemistry*, **22**, 1265–1271.
- Clarke, R.T. & Liley, D. (2013) *Further Assessments of the Relationship between Buildings and Stone Curlew Distribution*. unpublished report for Breckland District Council, Footprint Ecology, Wareham, Dorset.
- Clarke, R.T., Liley, D., Sharp, J.M. & Green, R.E. (2013) Building Development and Roads: Implications for the Distribution of Stone Curlews across the Brecks. *PLoS ONE*, **8**, e72984.
- Clarke, R.T., Sharp, J. & Liley, D. (2009) *The Impacts for Stone Curlews of Increased Traffic on the A11: Model and Predictions*. Footprint Ecology, Wareham.
- Day, T.C.F. (2003) *The Effects of Disturbance from Roads on Stone Curlews in Southern England*. Darwin College, University of Cambridge, Cambridge.
- Dolman, P. (2010) *Woodlark and Nightjar Recreational Disturbance and Nest Predator Study 2008 and 2009. Final Report*. UEA.
- Dolman, P., Lake, I.R. & Bertoneclj, I. (2008) *Visitor Flow Rate and Recreational Modelling in Breckland*. UEA, Norwich.
- Dolman, P. & Morrison, C. (2012) *Temporal Change in Territory Density and Habitat Quality for Breckland Forest SSSI Woodlark and Nightjar Populations*. Unpublished report for Forestry Commission and Natural England.
- Fearnley, H., Liley, D. & Cruickshanks, K. (2011) *Visitor Survey from Results Breckland SPA*. Footprint Ecology Unpublished Report.
- Highways Agency. (2005) *Guidance for Undertaking Environmental Assessment of Air Quality for Sensitive Ecosystems in Internationally Designated Nature Conservation Sites and SSSIs (Supplement to DMRB 11.3.1)*.
- Langston, R.H.W., Wotton, S.R., Conway, G.J., Wright, L.J., Mallord, J.W., Currie, F.A., Drewitt, A.L., Grice, P.V., Hoccom, D.G. & Symes, N. (2007) Nightjar *Caprimulgus europaeus* and Woodlark *Lullula arborea* - recovering species in Britain? *Ibis*, **149**, 250–260.
- Liley, D. & Clarke, R.T. (2002) *Urban Development Adjacent to Heathland Sites in Dorset: The Effect on the Density and Settlement Patterns of Annex 1 Bird Species*. English Nature, Peterborough.
- Liley, D. & Clarke, R.T. (2003) The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation*, **114**, 219 – 230.
- Liley, D., Clarke, R.T., Mallord, J.W. & Bullock, J.M. (2006) *The Effect of Urban Development and Human Disturbance on the Distribution and Abundance of Nightjars on the Thames Basin and Dorset Heaths*. Natural England / Footprint Ecology.

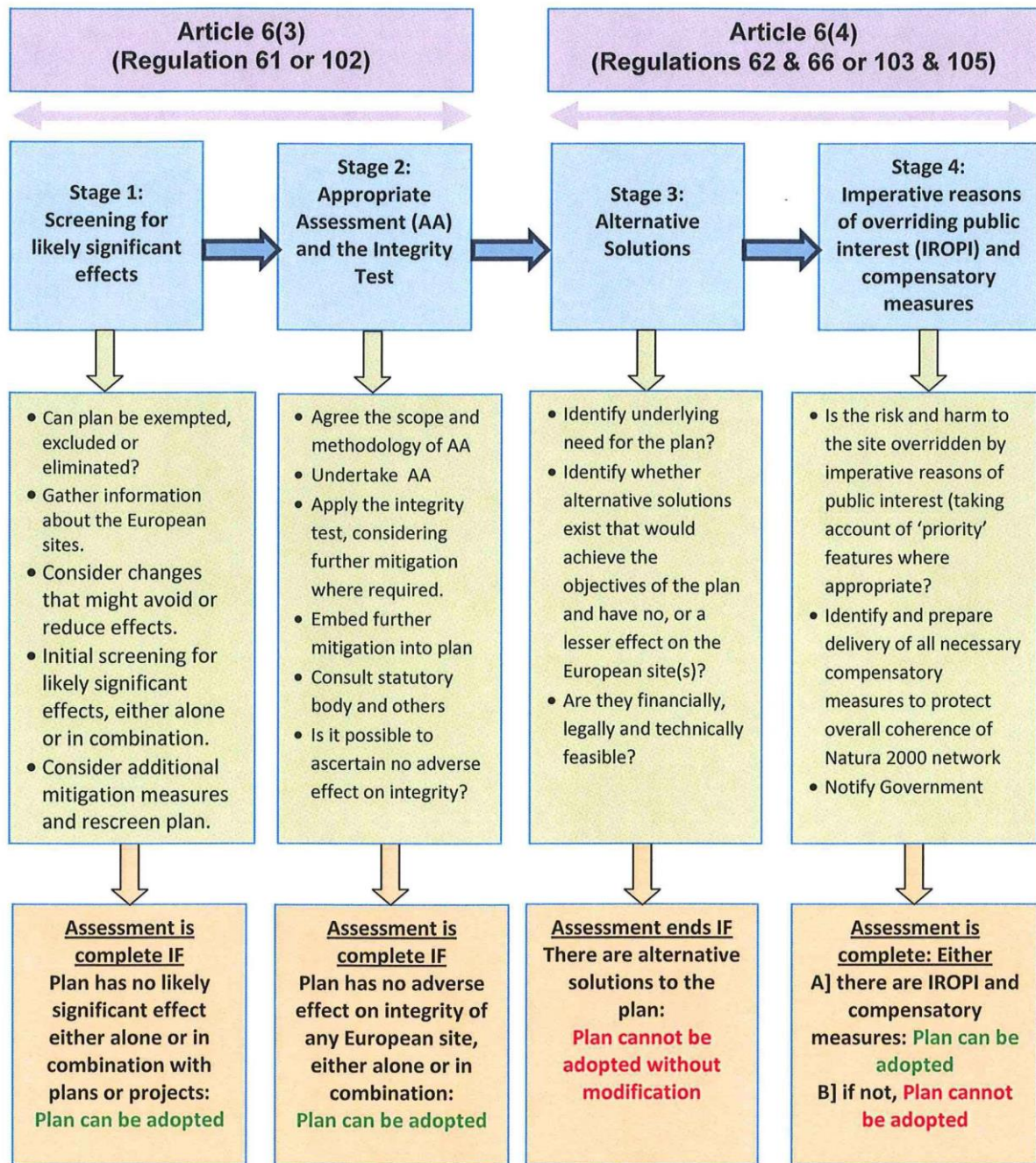
- Liley, D., Hoskin, R., Underhill-Day, J. & Tyldesley, D. (2008) *Habitat Regulations Assessment: Breckland Council Submission Core Strategy and Development Control Policies Document*. Footprint Ecology / David Tyldesley Associates / Breckland Council.
- Liley, D., Lake, S., Underhill-Day, J., Sharp, J., White, J., Hoskin, R., Cruickshanks, K. & Fearnley, H. (2010) *Welsh Seasonal Habitat Vulnerability Review*. Footprint Ecology / CCW.
- Liley, D. & Tyldesley, D. (2011) *Habitat Regulations Assessment. Thetford Area Action Plan, Submission Version*.
- Liley, D., Underhill-Day, J. & Tyldesley, D.T. (2010) *Habitat Regulations Assessment: Breckland Council Site Specific Policies and Proposals Document*. Footprint Ecology / Breckland Council.
- Lowen, J., Liley, D., Underhill-Day, J. & Whitehouse, A.T. (2008) Access and Nature Conservation Reconciliation: supplementary guidance for England.
- Mallord, J.W., Dolman, P.M., Brown, A.F. & Sutherland, W.J. (2007) Linking recreational disturbance to population size in a ground-nesting passerine. *Journal of Applied Ecology*, **44**, 185–195.
- Murison, G. (2002) *The Impact of Human Disturbance on the Breeding Success of Nightjar Caprimulgus Europaeus on Heathlands in South Dorset, England*. English Nature, Peterborough.
- Saunders, C., Selwyn, J., Richardson, S., May, V. & Heeps, C. (2000) *A Review of the Effects of Recreational Interactions within UK European Marine Sites*. UK CEED & Bournemouth University.
- Sharp, J., Clarke, R.T., Liley, D. & Green, R.E. (2008) *The Effect of Housing Development and Roads on the Distribution of Stone Curlews in the Brecks*. Footprint Ecology / Breckland District Council.
- Taylor, E. (2006) *Stone Curlews Burhinus Oedicnemus and Human Disturbance: Effects on Behaviour, Distribution and Breeding Success*. University of Cambridge, Cambridge.
- Taylor, E.C., Green, R.E. & Perrins, J. (2007) Stone-curlews *Burhinus oedicnemus* and recreational disturbance: developing a management tool for access. *Ibis*, **149**, 37–44.
- Underhill-Day, J.C. (2005) *A Literature Review of Urban Effects on Lowland Heaths and Their Wildlife*. English Nature, Peterborough.

8. Appendix 1 - The Habitats Regulations Assessment Process

- 8.1 The designation, protection and restoration of European wildlife sites is embedded in the Conservation of Habitats and Species Regulations 2010, as amended, which are commonly referred to as the 'Habitats Regulations.' Recent amendments to the Habitats Regulations were made in 2012. The recent amendments do not substantially affect the principles of European site assessment as defined by the 2010 Regulations, the focus of this report or the previous Habitats Regulations Assessment work undertaken for the Poole Core Strategy, upon which some of this Habitats Regulations Assessment relies.
- 8.2 The Habitats Regulations are in place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect, conserve and restore habitats and species that are of utmost conservation importance and concern across Europe. Although the Habitats Regulations transpose the European legislation into domestic legislation, the European legislation still directly applies, and in some instances it is better to look to the parent Directives to clarify particular duties and re-affirm the overarching purpose of the legislation.
- 8.3 European sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive. The suite of European sites includes those in the marine environment as well as terrestrial, freshwater and coastal sites. European sites have the benefit of the highest level of legislative protection for biodiversity. Member states have specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted, with a precautionary approach embedded in the legislation, i.e. it is necessary to demonstrate that impacts will not occur, rather than they will. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. Where sites are not achieving their potential, the focus should be on restoration.
- 8.4 The UK is also a contracting party to the Ramsar Convention, which is a global convention to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. In order to ensure compliance with the requirements of the Convention, the UK Government expects all competent authorities to treat listed Ramsar sites as if they are part of the suite of designated European sites, as a matter of government policy, as set out in Section 118 of the National Planning Policy Framework. Most Ramsar sites are also a SPA or SAC, but the Ramsar features and boundary lines may vary from those for which the site is designated as a SPA or SAC.

- 8.5 It should be noted that in addition to Ramsar sites, the National Planning Policy Framework also requires the legislation to be applied to potential SPAs and possible SACs, and areas identified or required for compensatory measures where previous plans or projects have not been able to rule out adverse effects on site integrity, yet their implementation needs meet the exceptional tests of Regulation 62 of the Habitats Regulations, as described below.
- 8.6 The step by step process of Habitats Regulations Assessment is summarised in Figure 1 and is as follows. Within the Habitats Regulations, local planning authorities, as public bodies, are given specific duties as ‘competent authorities’ with regard to the protection of sites designated or classified for their species and habitats of European importance. Competent authorities are any public body individual holding public office with a statutory remit and function, and the requirements of the legislation apply where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. Regulation 61 of the Habitats Regulations sets out the Habitats Regulations Assessment process for plans and projects, which includes development proposals for which planning permission is sought. Additionally Regulation 102 specifically sets out the process for assessing emerging land use plans.
- 8.7 The step by step approach to Habitats Regulations Assessment is the process by which a competent authority considers any potential impacts on European sites that may arise from a plan or project that they are either undertaking themselves, or permitting an applicant to undertake. The step by step process of assessment can be broken down into the following stages, which should be undertaken in sequence:
- Check that the plan or project is not directly connected with or necessary for the management of the European site
 - Check whether the plan or project is likely to have a significant effect on any European site, from the plan or project alone
 - Check whether the plan or project is likely to have a significant effect on any European site, from the plan or project in-combination with other plans or projects
 - Carry out an Appropriate Assessment
 - Ascertain whether an adverse effect on site integrity can be ruled out
- 8.8 Throughout all stages, there is a continual consideration of the options available to avoid and mitigate any identified potential impacts. For projects, the project proposer may identify potential issues and incorporate particular avoidance measures to the project, which then enables the competent authority to rule out the likelihood of significant effects. A competent authority may however consider that there is a need to undertake further levels of evidence gathering and assessment in order to have certainty, and this is the Appropriate Assessment stage. At this point the competent authority may identify the need to add to or modify the project in order to adequately protect the European site, and these mitigation measures may be added through the imposition of particular restrictions and conditions.

- 8.9 When preparing a plan, a competent authority may go through a continued assessment as the plan develops, enabling the assessment to inform the development of the plan. For example, a competent authority may choose to pursue an amended or different option where impacts can be avoided, rather than continue to assess an option that has the potential to significantly affect European site interest features.
- 8.10 After completing an assessment a competent authority should only approve a project or give effect to a plan where it can be ascertained that there will not be an adverse effect on the integrity of the European site(s) in question. In order to reach this conclusion, the competent authority may have made changes to the plan, or modified the project with restrictions or conditions, in light of their Appropriate Assessment findings.
- 8.11 Where adverse effects cannot be ruled out, there are further exceptional tests set out in Regulation 62 for plans and projects and in Regulation 103 specifically for land use plans. Exceptionally, a plan or project could be taken forward for imperative reasons of overriding public interest where adverse effects cannot be ruled out and there are no alternative solutions. It should be noted that meeting these tests is a rare occurrence and ordinarily, competent authorities seek to ensure that a plan or project is fully mitigated for, or it does not proceed.
- 8.12 In such circumstances where a competent authority considers that a plan or project should proceed under Regulations 62 or 103, they must notify the relevant Secretary of State. Normally, planning decisions and competent authority duties are then transferred, becoming the responsibility of the Secretary of State, unless on considering the information, the planning authority is directed by the Secretary of State to make their own decision on the plan or project at the local level. The decision maker, whether the Secretary of State or the planning authority, should give full consideration to any proposed 'overriding reasons' for which a plan or project should proceed despite being unable to rule out adverse effects on European site interest features, and ensure that those reasons are in the public interest and are such that they override the potential harm. The decision maker will also need to secure any necessary compensatory measures, to ensure the continued overall coherence of the European site network if such a plan or project is allowed to proceed.



Extract from *The Habitats Regulations Assessment Handbook*, www.dtapublications.co.uk
 © DTA Publications Limited (September) 2013 all rights reserved
 This work is registered with the UK Copyright Service

Figure 1: Outline of the assessment of plans under the Habitat Regulations

9. Appendix 2 – European Site Conservation Objectives

- 9.1 As required by the Directives, 'Conservation Objectives' have been established by Natural England, which should define the required ecologically robust state for each European site interest feature. All sites should be meeting their conservation objectives. When being fully met, each site will be adequately contributing to the overall favourable conservation status of the species or habitat interest feature across its natural range. Where conservation objectives are not being met at a site level, and the interest feature is therefore not contributing to overall favourable conservation status of the species or habitat, plans should be in place for adequate restoration.
- 9.2 Natural England has embarked on a project to renew all European site Conservation Objectives, in order to ensure that they are up to date, comprehensive and easier for developers and consultants to use to inform project level Habitats Regulations Assessments in a consistent way. In 2012, Natural England issued now a set of generic European site Conservation Objectives, which should be applied to each interest feature of each European site. These generic objectives are the first stage in the project to renew conservation objectives, and it is anticipated that the second stage, which is to provide more detailed and site specific information for each site to support the generic objectives, will follow shortly.
- 9.3 The new list of generic Conservation Objectives for each European site include an overarching objective, followed by a list of attributes that are essential for the achievement of the overarching objective. Whilst the generic objectives currently issued are standardised, they are to be applied to each interest feature of each European site, and the application and achievement of those objectives will therefore be site specific and dependant on the nature and characteristics of the site. The second stage, provision of the more detailed site specific information to underpin these generic objectives, will provide much more site specific information, and this detail will play a fundamental role in informing Habitats Regulations Assessments, and importantly will give greater clarity to what might constitute an adverse effect on a site interest feature.
- 9.4 In the interim, Natural England advises that Habitats Regulations Assessments should use the generic objectives and apply them to the site specific situation. This should be supported by comprehensive and up to date background information relating to the site.
- 9.5 For SPAs the overarching objective is to:
- 9.6 'Avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Birds Directive.'
- 9.7 This is achieved by, subject to natural change, maintaining and restoring:

- The extent and distribution of the habitats of the qualifying features.
- The structure and function of the habitats of the qualifying features.
- The supporting processes on which the habitats of the qualifying features rely.
- The populations of the qualifying features.
- The distribution of the qualifying features within the site.

9.8 For SACs the overarching objective is to:

'Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.'

9.9 This is achieved by, subject to natural change, maintaining and restoring:

- The extent and distribution of the qualifying natural habitats and habitats of qualifying species.
- The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species.
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely.
- The populations of qualifying species.
- The distribution of qualifying species within the site.

9.10 Conservation objectives inform any Habitats Regulations Assessment of a plan or project, by identifying what the interest features for the site should be achieving, and what impacts may be significant for the site in terms of undermining the site's ability to meet its conservation objectives.

10. Appendix 3: Conservation Interest of European Sites

10.1 The following European sites were screened in the original Habitats Regulations Assessment Work for the Breckland Local Development Framework as those within a 20km radius that could potentially be affected by the implementation of policies contained within. These sites remain a potential concern for the emerging Local Plan and should be considered in the Habitats Regulations Assessment.

- The Broads SAC
- Broadland SPA/Ramsar
- Breckland SPA/SAC
- North Norfolk Coast SPA/Ramsar/SAC
- The Wash SPA/Ramsar
- Norfolk Valley Fens SAC
- The Wash & North Norfolk Coast SAC
- Ouse Washes SAC/SPA/Ramsar
- River Wensum SAC
- Waveney and Little Ouse Valley Fens SAC
- Redgrave and South Lopham Fen Ramsar

10.2 The interest features for each European site designation are listed below in Table 3. The overarching Conservation Objectives set out in Appendix 2 should be applied to each of these interest features. As noted in Appendix 2, detailed supplementary information for each interest feature will be developed as part of the Conservation Objectives in due course. Further detailed description of each interest feature in terms of its characteristics within the individual European site is provided on the JNCC website. Four figure reference numbers are the EU reference numbers given to each habitat and species listed within the Annexes of the European Directives.

Table 3: Reasons for designation of European sites where there may be potential impacts arising from the new Local Plan

Site	Reason for designation, * indicate a priority SAC feature
The Broads SAC	3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition- type vegetation 7140 Transition mires and quaking bogs 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae * 7230 alkaline fens 91E0 Alluvial Forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) * 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) – <i>qualifying feature but not a primary reason for site selection</i> 1016 Desmoulin`s whorl snail Vertigo moulinsiana 1903 Fen orchid Liparis loeselii 4056 Ramshorn snail Anisus vorticulus 1355 Otter Lutra lutra - <i>qualifying feature but not a primary reason for site selection</i>
Broadland SPA	Article 4.1 qualification of breeding populations of: A021 <i>Botaurus stellaris</i> A082 <i>Circus cyaneus</i> Article 4.1 qualification of overwintering populations of: A056 <i>Anas Clypeata</i> A050 <i>Anas Penelope</i> A081 <i>Circus aeruginosus</i> A037 <i>Cygnus columianus bewickii</i> A038 <i>Cygnus Cygnus</i> A151 <i>Philomachus pugnax</i> Article 4.2 qualification (migratory species): A051 <i>Anas Strepera</i>
Broadland Ramsar	Data sheet does not break down into criterion, provides a general description to include: Extensive peatlands, shallow lakes, large range of wetland types, wet grazing marsh, outstanding assemblage of breeding and wintering wetland birds and rare plants and invertebrates
Breckland SAC	2330 Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands 3150 Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation 4030 European dry heaths 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (important orchid sites) 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) * - <i>qualifying feature but not a primary reason for site selection</i> 1166 Great crested newt <i>Triturus cristatus</i> - <i>qualifying feature but not a primary reason for site selection</i>
Breckland SPA	Article 4.1 qualification of breeding populations of: A133 <i>Burhinus oedicephalus</i> A224 <i>Caprimulgus europaeus</i> A246 <i>Lullula arborea</i>

Site	Reason for designation, * indicate a priority SAC feature
The Wash and North Norfolk Coast SAC	1110 Sandbanks which are slightly covered by sea water all the time 1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1170 Reefs 1310 <i>Salicornia</i> and other annuals colonizing mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) 1150 Coastal lagoons * - qualifying feature but not a primary reason for site selection 1365 Harbour seal <i>Phoca vitulina</i> 1355 Otter <i>Lutra lutra</i> - qualifying feature but not a primary reason for site selection
North Norfolk Coast SPA	<p>Article 4.1 qualification of breeding populations of: A021 Botaurus stellaris A081 Circus aeruginosus A132 Recurvirostra avosetta A195 Sterna albifrons A193 Sterna hirundo A191 Sterna sandvicensis</p> <p>Article 4.1 qualification of overwintering populations of: A132 Recurvirostra avosetta</p> <p>Article 4.2 qualification (migratory species): A050 Anas penelope A040 Anser brachyrhynchus A046a Branta bernicla bernicla A143 Calidris Canutus</p> <p>Article 4.2 qualification (species assemblage): 91536 waterfowl (5 year peak mean in 2008), including A040 <i>Anser brachyrhynchus</i>, A046a <i>Branta bernicla bernicla</i>, A050 <i>Anas penelope</i>, A132 <i>Recurvirostra avosetta</i>, A143 <i>Calidris Canutus</i></p>
North Norfolk Coast SAC	1150 Coastal lagoons * 1220 Perennial vegetation of stony banks 1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) 2110 Embryonic shifting dunes 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")" 2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes") * 2190 Humid dune slacks 1355 Otter <i>Lutra lutra</i> - qualifying feature but not a primary reason for site selection 1395 Petalwort <i>Petalophyllum ralfsii</i> - qualifying feature but not a primary reason for site selection
North Norfolk Coast Ramsar	<p>Data sheet does not break down into criterion, provides a general description to include: 40km stretch of coastline including shingle beaches, sand dunes, saltmarsh, intertidal mud and sand flats, brackish lagoons, reedbeds and grazing marshes. Internationally important numbers of breeding and overwintering bird species. Several important botanical sites and breeding localities for natterjack toad <i>Bufo calamita</i>.</p>

Site	Reason for designation, * indicate a priority SAC feature
The Wash SPA	<p>Article 4.1 qualification of breeding populations of: A195 <i>Sterna albifrons</i> A193 <i>Sterna hirundo</i></p> <p>Article 4.1 qualification of overwintering populations of: A037 <i>Cygnus columbianus bewickii</i> A157 <i>Limosa lapponica</i></p> <p>Article 4.2 qualification (migratory species): A054 <i>Anas acuta</i> A050 <i>Anas penelope</i> A051 <i>Anas strepera</i> A040 <i>Anser brachyrhynchus</i> A169 <i>Arenaria interpres</i> A046a <i>Branta bernicla bernicla</i> A067 <i>Bucephala clangula</i> A144 <i>Calidris alba</i> A149 <i>Calidris alpina alpina</i> A143 <i>Calidris canutus</i> A130 <i>Haematopus ostralegus</i> A156 <i>Limosa limosa islandica</i> A065 <i>Melanitta nigra</i> A160 <i>Numenius arquata</i> A141 <i>Pluvialis squatarola</i> A048 <i>Tadorna tadorna</i> A162 <i>Tringa totanus</i></p> <p>Article 4.2 qualification (species assemblage): 400367 waterfowl (5 year peak mean in 1998) including: <i>Cygnus columbianus bewickii</i> , <i>Anser brachyrhynchus</i> , <i>Branta bernicla bernicla</i> , <i>Tadorna tadorna</i> , <i>Anas penelope</i> , <i>Anas strepera</i> , <i>Anas acuta</i> , <i>Melanitta nigra</i> , <i>Bucephala clangula</i> , <i>Haematopus ostralegus</i> , <i>Pluvialis squatarola</i> , <i>Calidris canutus</i> , <i>Calidris alba</i> , <i>Calidris alpina alpina</i> , <i>Limosa limosa islandica</i> , <i>Limosa lapponica</i> , <i>Numenius arquata</i> , <i>Tringa totanus</i> , <i>Arenaria interpres</i></p>
The Wash Ramsar	<p>Data sheet does not break down into criterion, provides a general description to include: Largest estuarine system in Britain, extensive saltmarshes, intertidal banks of sand and mud, shallow waters and deep channels. Overwintering and migratory wildfowl and wading birds, commercial fishery for shellfish, important nursery for flatfish, north sea's largest breeding population of common seal <i>Phoca vitulina</i> and some grey seal <i>Halichoerus grypus</i>. The sublittoral area supports marine communities including colonies of the reef-building polychaete worm <i>Saballaria spinulosa</i>.</p>
River Wensum SAC	<p>3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation 1092 white-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i> 1016 Desmoulin's whorl snail <i>Vertigo moulinsiana</i> - qualifying feature but not a primary reason for site selection 1096 Brook lamprey <i>Lampetra planeri</i> - qualifying feature but not a primary reason for site selection 1163 Bullhead <i>Cottus gobio</i> - qualifying feature but not a primary reason for site selection</p>
Ouse Washes SAC	<p>1149 Spined loach <i>Cobitis taenia</i></p>

Site	Reason for designation, * indicate a priority SAC feature
Ouse Washes SPA	<p>Article 4.1 qualification of overwintering populations of:</p> <p>A082 <i>Circus cyaneus</i> A037 <i>Cygnus columbianus bewickii</i> A038 <i>Cygnus Cygnus</i> A151 <i>Philomachus pugnax</i></p> <p>Article 4.2 qualification (migratory species - breeding):</p> <p>A056 <i>Anas clypeata</i> A053 <i>Anas platyrhynchos</i> A055 <i>Anas querquedula</i> A051 <i>Anas strepera</i> A156a <i>Limosa limosa limosa</i></p> <p>Article 4.2 qualification (migratory species - overwintering):</p> <p>A054 <i>Anas acuta</i> A056 <i>Anas clypeata</i> A052 <i>Anas crecca</i> A050 <i>Anas penelope</i> A051 <i>Anas strepera</i> A059 <i>Aythya ferina</i> A061 <i>Aythya fuligula</i> A036 <i>Cygnus olor</i> A125 <i>Fulica atra</i> A017 <i>Phalacrocorax carbo</i></p> <p>Article 4.2 qualification (species assemblage):</p> <p>During the breeding season the area regularly supports: <i>Gallinago gallinago</i> , <i>Gallinula chloropus</i> , <i>Haematopus ostralegus</i> , <i>Tadorna tadorna</i> , <i>Tringa totanus</i> , <i>Vanellus vanellus</i> .</p> <p>Over winter the area regularly supports: <i>Phalacrocorax carbo</i> , <i>Cygnus columbianus bewickii</i>, <i>Cygnus cygnus</i> , <i>Anas penelope</i> , <i>Anas strepera</i> , <i>Anas crecca</i> , <i>Anas acuta</i> , <i>Anas clypeata</i> , <i>Aythya ferina</i> , <i>Aythya fuligula</i> , <i>Fulica atra</i> , <i>Philomachus pugnax</i> .</p> <p>64428 waterfowl (5 year peak mean 01/04/1998)</p> <p>Including:</p> <p><i>Phalacrocorax carbo</i> , <i>Cygnus columbianus bewickii</i> , <i>Cygnus cygnus</i> , <i>Anas penelope</i> , <i>Anas strepera</i> , <i>Anas crecca</i> , <i>Anas acuta</i> , <i>Anas clypeata</i> , <i>Aythya ferina</i> , <i>Aythya fuligula</i> , <i>Fulica atra</i> , <i>Philomachus pugnax</i> .</p>
Ouse Washes Ramsar	<p>Criterion 1a – representative example of a natural or near-natural wetland characteristic of its biogeographic region, one of the most extensive areas of seasonally flooding washland of its type in Britain.</p> <p>Criterion 2a – appreciable numbers of nationally rare plants and animals</p> <p>Criterion 5 - internationally important waterfowl assemblage</p> <p>Criterion 6 – internationally important overwintering bird populations</p>
Waveney and Little Ouse Fens SAC	<p>6410 Molinia meadows on calcareous, peaty or clayet-silt-lade soils <i>Molinion caeruleae</i></p> <p>7210 Calcareous fens with <i>cladium mariscus</i> and species of the <i>caricion davallianae</i> *</p> <p>1016 Desmoulin`s whorl snail <i>Vertigo moulinsiana</i></p>

Site	Reason for designation, * indicate a priority SAC feature
Redgrave and South Lopham Fen Ramsar	<p>Criterion 1 – extensive example of spring-fed lowland base-rich valley, remarkable for its lack of fragmentation</p> <p>Criterion 2 – Rare and scarce invertebrates, including fen raft spider <i>Dolomedes plantarius</i></p> <p>Criterion 3 - Rare and scarce invertebrates, including fen raft spider <i>Dolomedes plantarius</i> and site diversity, due to the lateral and longitudinal zonation of the vegetation types characteristic of valley mires.</p>