UNITED BY OUR DIFFERENCE

WSP

Habitats Regulations Assessment for the Joint Nottinghamshire and Nottingham Waste Core Strategy and Nottinghamshire Minerals Core Strategy

Preliminary Screening Report

July 2011

CONTENTS

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	First Draft	Second Draft	Third Draft	
Date	May 2011	June 2011	July 2011	
Prepared by	Sean Nicholson Russell Buckley Andrew Malcomson	Sean Nicholson Russell Buckley Andrew Malcomson	Sean Nicholson Russell Buckley Andrew Malcomson	
Signature				
Checked by	Russell Buckley	Russell Buckley	Russell Buckley	
Signature				
Authorised by	Sean Nicholson	Sean Nicholson	Sean Nicholson	
Signature				
Project number	19027.00	19027.00	19027.00	
File reference	Preliminary Screening	Preliminary Screening	Preliminary Screening	

WSP Environment & Energy
One Queens Drive
Birmingham
B5 4PJ

Tel: +44 (0)121 352 4700
Fax: +44 (0)121 352 4701

www.wspenvironmental.com

Reg no: 1152332

1 INTRODUCTION

PURPOSE OF THIS REPORT

Nottinghamshire County Council (NCC) appointed WSP Environment and Energy to undertake a preliminary Habitats Regulations Assessment (HRA) of the Joint Nottinghamshire and Nottingham Waste Core Strategy and the Nottinghamshire Minerals Core Strategy, in recognition of its obligations under the Conservation of Habitats and Species Regulations 2010. The work has been commissioned at an early stage in the development of both Core Strategies. The term 'Preliminary-Screening Report' has been adopted for this report in recognition of the preliminary nature of the work. In essence, the purpose of this report is to provide the basis for agreeing the scope and method of the next stages of the HRA work with statutory consultees (Natural England and the Environment Agency) providing a sound basis for later stages of the work.

This Preliminary Screening Report provides:

- A summary of the role and purpose of the plans that are being assessed;
- A summary of the HRA process and the role of assessment in the context of Local Development Frameworks;
- Identification of potential impacts associated with different waste technologies, mineral resources and associated methods of working and consideration of the relevance of in-combination effects at this preliminary stage. In identifying such impacts account is also taken of avoidance and mitigation measures that can reasonably be assumed to apply;
- Initial Screening – including the identification of Natura 2000 sites within and adjacent to the Plan areas which may be affected, screening out sites where this is appropriate. This includes separately assessing the implications of a prospective Special Protection Area (SPA) at Sherwood Forest;
- Analysis of the sites that cannot be screened out and identification of the key environmental conditions required to sustain the sites' integrity;
- Identification of areas in need of further assessment and any information gaps;
- Production of a Method Statement for the next stages of work.

REPORT STRUCTURE

The HRA process is summarised below. **Section 2** of this report considers the potential impacts that waste technologies and minerals related development can have and also sets out assumed avoidance and mitigation measures. The potential for in-combination effects is also discussed.

Section 3 of this report identifies a long list of European sites that need to be considered. It then presents the rational for screening sites and the screening exercise. For sites that cannot be screened out consideration is given to the conditions required to sustain the sites integrity.

Section 4 then confirms areas in need of further assessment and information gaps, along with recommendations for the two plans going forward. A Method Statement for the next stages of work is also provided.

In order to provide an audit trail a series of questions are also set out in boxed text at the end of each section. These are designed to help the statutory consultees structure their responses to this report by providing an indication of the matters being consulted on at this stage.

THE ROLE AND PURPOSE OF THE PLANS THAT ARE BEING ASSESSED

Overview

Neither Core Strategy is expected to allocate sites, although it is possible that a small number of strategic sites could be identified if there is the evidence to support this approach. Instead the Core Strategies will show broad locations which for waste may, for example, relate to specific urban areas, or for minerals to parts of a particular mineral

resource. Separate Development Plan Documents allocating sites will be prepared and submitted after the relevant Core Strategy has been adopted, although evidence gathering work on them, and possibly early consultation, will commence well before the Core Strategies are adopted.

The boundary of the area of the Core Strategies is the geographic county of Nottinghamshire (including Nottingham City in the case of the Waste Core Strategy). More detail on the role of each plan is provided below.

Waste Core Strategy

The Waste Core Strategy will set out the overall vision, objectives and broad policies for future waste management within Nottinghamshire and Nottingham City. The Core Strategy will look ahead, just over twenty years, to 2031 and will need to show broadly how and where waste will be managed and decide on the likely number and type of new waste management facilities that will be needed. It will also have to show how changes are going to be delivered and the ways in which progress will be monitored and reviewed.

The Waste Core Strategy will therefore include:

- A 'spatial portrait' setting where we are now in terms of infrastructure, environmental pressures and other issues;
- A 'vision' of the future and the objectives that will help us achieve this; •
- An assessment of how much new waste management capacity will be required and how this should be provided; and
- Broad guidance on where new facilities are needed.

Minerals Core Strategy

The Minerals Core Strategy will set out the overall vision, objectives and broad policies for future minerals extraction in Nottinghamshire. The Core Strategy will look ahead to 2030 and will identify the amount of mineral needed to meet demand and where in broad terms new or extended mineral sites should be located.

The Minerals Core Strategy will therefore include:

- A 'spatial portrait' setting out where we are now in terms of infrastructure, environmental pressures and other issues
- A 'vision' of the future and the objectives that will help us achieve this;
- An assessment of how much mineral will need to be provided and where in broad terms mineral development should be located.

SUMMARY OF THE HRA PROCESS AND THE ROLE OF ASSESSMENT IN THE CONTEXT OF THE LOCAL DEVELOPMENT FRAMEWORK

Summary of the HRA Process

Natura 2000 is the European Union-wide network of protected areas, recognised as 'sites of Community importance' under the EC Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). These sites, which are also referred to as European sites, consist of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Offshore Marine Site (OMS). There are no OMS designated at present. Ramsar Sites are also considered under the banner of HRA.

The purpose of HRA of land use plans is to ensure that protection of the integrity of European sites is a part of the planning process at a regional and local level.

Appropriate assessment (AA) of plans and projects is required by Articles 6(3) and 6(4) of the European Habitats Directive:

"6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public"

"6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest".

In the UK, the Habitats Directive is implemented through the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations").

On 20 October 2005, the European Court of Justice (ECJ)[1] ruled that the UK had failed to fully transpose the provisions of Article 6(3) and (4) into the Habitats Regulations because the regulations do not clearly require land use plans to be subject to AA. Land use plans in this respect are Regional Spatial Strategies (RSSs), Development Plan Documents (DPDs) and Supplementary Planning Documents (SPDs)[2].

Following the ruling from the ECJ, the Department for Environment, Food and Rural Affairs (DEFRA) published amended Habitats Regulations in 2007[3]. The Habitats Regulations – formally known as the Conservation (Natural Habitats, & c.) Regulations 1994 – aim to transpose the requirements of the Habitats Directive into domestic legislation. These amendments to the Regulations apply in England and Wales.

One of the principal requirements of the Regulations is that before a Core Strategy is published under the 2004 Act[4], the plan making authority shall apply the requirements of Regulation 85. The essential requirement of Regulation 85 is for the plan making authority to assess the potential effects of the Plan on European Sites in Great Britain. The site affected could be in or outside England. The Regulations apply irrespective of when the authority started the review.

It has been recognised that the 30 sets of amendments to the Habitats Regulations since their inception made them difficult to follow. A consolidation of these amendments has now been undertaken and has resulted in the production of The Conservation of Habitats and Species Regulations 2010. Consolidation does not introduce any substantive policy or procedural changes.

The whole process of assessing the effects of the Core Strategy on European sites is referred to in this report as 'Habitats Regulations Assessment' (HRA), to clearly distinguish the whole process from the step within it commonly referred to as the 'Appropriate Assessment' (AA). The AA is a specific part of the entire assessment process and to use this term generally just adds confusion to the assessment. An AA is undertaken **when it has been determined that a plan or project (alone or in combination) is likely to have a significant effect, and where avoidance measures cannot easily be put in place to remove that likelihood**. In such instances, the next step in the process is to undertake an AA of the plan or project, to determine in far greater detail the type and magnitude of impacts and to try to find suitable mitigation measures that may reduce the impact to a level at which it will no longer be significant.

HRA involves the following key tasks (Figure One at the end of this section provides an overview):

- Brief description of the plan that is being considered;
- Characteristics of the European sites that might be affected;

[1] Para. 51-56 in Case C-6/04, Commission of the European Communities v. United Kingdom of Great Britain and Northern Ireland, http://curia.eu.int/jurisp/cgi-bin/form.pl?lang=en&Submit=Submit&alldocs=alldocs&docj=docj&docop=docop&docor=docor&docjo=docjo&numaff=C-6%2F04&datefs=&datefe=&nomusuel=&domaine=&mots=&resmax=100

[2] Letter from Lisette Simcock (ODPM) to chief planning officers (28 February 2006) "The Application of Appropriate Assessment under Article 6(3) and (4) of the Habitats Directive 92/43/EEC to Development Plans in the Transitional period between now and when the Amending Regulations come into force"

[3] Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007 (SI 2007/1843)

[4] The Planning and Compulsory Purchase Act 2004, Part 6

- Identification of potential effects and the 'pathways' that might give rise to these effects;
- An assessment of the significance of potential effects. This will need to consider cumulative effects, including those associated with other plans and projects;
- Reporting – setting out the results of the above tasks and a conclusion as to whether or not we consider that a full AA is needed;
- Consultation;
- Full AA, including if necessary consideration of alternatives and mitigation measures where significant effects are identified. If potential significant effects cannot be mitigated or compensated apply the 'Imperative Reasons of Overriding Public Interest' test. (IROPI).

IROPI primarily relates to human health, public safety or benefits of primary importance to the environment. Even if that was the case the Secretary of State would need to consult with the European Commission and be subject to the Secretary of State securing that any necessary compensatory measures are taken to ensure that overall coherence of Natura 2000 is protected (Section 105 of the Regulations).

The Waddenzee decision is important because it interprets the provisions of the Habitats Directive and is discussed below.

The issue of the implementation of the Habitats Directive in the Netherlands was the subject of an infringement procedure. The procedure related to the failure of the Netherlands to provide for an adequate protection of Natura 2000 sites. The case related to Eider Ducks threatened by the cockle-fishing industry in the Wadden Sea.

The decision states (paragraphs 56 and 57 our emphasis):

"….*the plan or project in question may be granted authorisation only on the condition that* ***the competent national authorities*** **[in this case Nottinghamshire County Council]** ***are convinced that it will not adversely affect the integrity of the site concerned****.*

So where doubt remains as to the absence of adverse effects on the integrity of the site linked to the plan or project being considered, the competent authority will have to refuse authorisation".

The Role of HRA in the LDF Process

Hopefully it is clear from the above that the way the Habitats Directive is cast makes it a powerful piece of legislation. A Plan cannot be adopted if it is likely to have a significant effect on a European site or if there is uncertainty as to whether or not this might be the case. Later stages of the process do allow for Plans that would cause harm to be adopted but these are contingent on the Secretary of State securing that any necessary compensatory measures are taken to ensure that overall coherence of Natura 2000 is protected. By way of contrast a Plan that was subjected to Strategic Environmental Assessment (SEA) could still proceed, even if the SEA identified significant potential negative effects. Where plans have been challenged for failure to comply with the SEA Directive the challenge has been around failure to comply with the **process** set out in the Directive and associated Regulations, rather than the identified effects of the Plan.

A key point is that the Core Strategies will not in themselves directly result in any change to or effect on any European site. An allocation DPD will be produced to bring sites forward and development cannot occur without planning permission. Whilst the Core Strategy can set a framework for these later decisions (and so to that extent influence them, as found in the Commission v UK decision, October 2007, see reference 1 on the preceding page for details), provided that the framework makes it clear that (i) the requisite requirements of the Directive/Habitats Regulations will have to be satisfied at those later stages; and (ii) that the Core Strategy policies do not provide support for any proposal which would have an adverse effect on the integrity of any European site, the Core Strategy should not impact on any European site. This point has its limits – since the Core Strategy would not be sound if it relied on a strategic location for development that might adversely affect a European site, a contingency would need to be identified in such a situation.

There are three additional factors that influence the role of HRA in the LDF process;

- Assessing issues down the line,

- The ability to take account of HRA of other plans and programmes, and
- Assessing in-combination effects

These are discussed in turn below.

Assessing Issues Down the Line

The principle of assessing issues down the line has also become established practice in HRA of plans and programmes. This principle recognises that it is reasonable to look at issues in more detail in lower tier plans or even at the planning application stage. In the case of the Core Strategies the lower tier plans are the Development Plan documents that would allocate sites. There are limits to what can be passed 'down the line,' for example if a policy in the Core Strategy could only be implemented in one location and development in that location would potentially adversely affect a European site it may not be appropriate to assess the issue down the line. If the later assessment confirmed there was a problem the Core Strategy policy could not be implemented which could potentially trigger the need for a review of the Core Strategy.

Taking Account of other HRAs

The Habitats Directive catches a range of other plans and programmes, including:

- Water Resource Management Plans, prepared by Water Companies - Every five years, water companies in England and Wales are required to produce a Water Resources Management Plan that sets out how they aim to meet predicted demand for water over a 25-year period;
- Catchment Abstraction Management Strategies (CAMS), prepared by the Environment Agency - assesses how much water is reliably available on a catchment by catchment basis and introduces time-limited licences. This means the Environment Agency can periodically review them to determine whether to replace them or not and if so, what conditions should apply to them; and
- Between 2000 and March 2010 the Environment Agency reviewed all permissions that were granted before the Habitats Regulations came into force. This was called the Review of Consents (RoC). The RoC looked at permissions to control emissions to air, land and water.

One of the key points from the Habitats Regulations appears to be that the Council can rely on the Environment Agency (as the Competent Authority for the HRA of the RoC and other documents to assess issues relating to emissions to air, land and water and also water abstraction). The regulations state:

65.—(1) This regulation applies where a plan or project—

(a) is undertaken by more than one competent authority;

(b) requires the consent, permission or other authorisation of more than one competent authority; or

(c) is undertaken by one or more competent authorities and requires the consent, permission or other authorisation of one or more other competent authorities.

(2) ***Nothing in regulation 61(1) or 63(2) requires a competent authority to assess any implications of a plan or project which would be more appropriately assessed under that provision by another competent authority****.*

(3) The appropriate authority may issue guidance to competent authorities for the purposes of regulations 61 to 64 as to the circumstances in which a competent authority may or should adopt the reasoning or conclusions of another competent authority as to whether a plan or project—

(a) is likely to have a significant effect on a European site or a European offshore marine site; or

(b) will adversely affect the integrity of a European site or a European offshore marine site.

(4) The competent authorities concerned must have regard to any such guidance.

(5) In determining whether a plan or project should be agreed to under regulation 62 (considerations of overriding public interest), a competent authority other than the Secretary of State or the Welsh Ministers must seek and have regard to the views of the other competent authority or authorities involved

The regulations seem to apply where a plan is undertaken by one or more authority and/or requires the consent, permission or authorisation of more than one competent authority. The applicability of these provisions to development plans requires legal clarification. There is scope for the appropriate authority (presumably Communities and Local Government in this instance) to issue guidance to competent authorities as to the circumstances in which a competent authority may or should adopt the reasoning or conclusions of another competent authority.

In-combination Effects

The Regulations require plans to be considered either alone or in combination with other plans or projects, to see if their combined effects would be likely to be significant. In a scenario where the effects have been reduced but not eliminated, the effects of the plan being assessed may have to be combined with the effects of other plans, or other projects.

An important point of principle here is that if the effects of other plans or projects will already be significant on their own they are **not** added to those of the plan being assessed. Only effects of other plans or projects which, like those of the plan under consideration here, alone would not be likely to be significant, need to be added to the in combination test. Consequently, until the elements of the plan that may have a significant effect in combination, but not on their own, are identified, it is pointless attempting to draw up a list of other plans and projects that should be combined. To do so at the outset of assessment could involve substantial abortive or irrelevant work (Natural England Draft Guidance page 31).

Sherwood Forest – prospective Special Protection Area

The potential for a new Special Protection Area within the Sherwood Forest area has been identified. The potential was highlighted during the inquiry into a proposed Energy Recovery Facility at Rufford (APP/L3055/V/09/2102006). The situation is complex and the implications for Development Planning Documents are not clear cut. The key points are:

- The site potentially qualifies as a SPA because of the presence of breeding nightjar and woodlark. The populations in the Sherwood Forest region represent more than 1% of their total UK breeding populations. The site is made up of a number of smaller areas which appear to provide optimal breeding habitat but it is important to stress that the boundary is not yet fixed;
- There is on-going consideration of an additional qualifying Annex 1 species (honey buzzard) in the far north of the Sherwood Forest region which may require the inclusion of additional lands within the prospective SPA. However Natural England have advised that this species is ignored at this stage;
- The formal designation process will take place over a number of years and is taking place in the context of a wider review of sites and policy on such sites across the Country that is being led by Natural England;
- As the full SPA selection process has yet to be formally implemented and the formal UK Review of the existing suite of sites for nightjar and woodlark is pending, Natural England has not yet formed a view on whether a site within the Sherwood Forest region is one of the most suitable territories for these two species;
- The site would only be protected under the Birds Directive once it became a Potential SPA (pSPA). This can occur in one of two ways:
  - 1) The announcement of a formal public consultation on the proposed site on behalf of the Minister; and
  - 2) A Ministerial announcement that a site, or list of sites, has been accepted as pSPAs, such as a list of sites resulting from an UK SPA Review exercise.
- As things stand there appears to be no statutory requirement for the HRA of the Core Strategies to consider the prospect of an SPA at this location, however Planning Policy Statement 12[5] (PPS12) highlights the need for Core Strategies to handle contingencies (para. 4.46):

[5] Planning Policy Statement 12**:** Creating Strong Safe and Prosperous Communities Through Local Spatial Planning, DCLG 2008

"A strategy is unlikely to be effective if it cannot deal with changing circumstances. Core strategies should look over a long time frame – 15 years usually but more if necessary. In the arena of the built and natural environment many issues may change over this time. Plans should be able to show how they will handle contingencies:

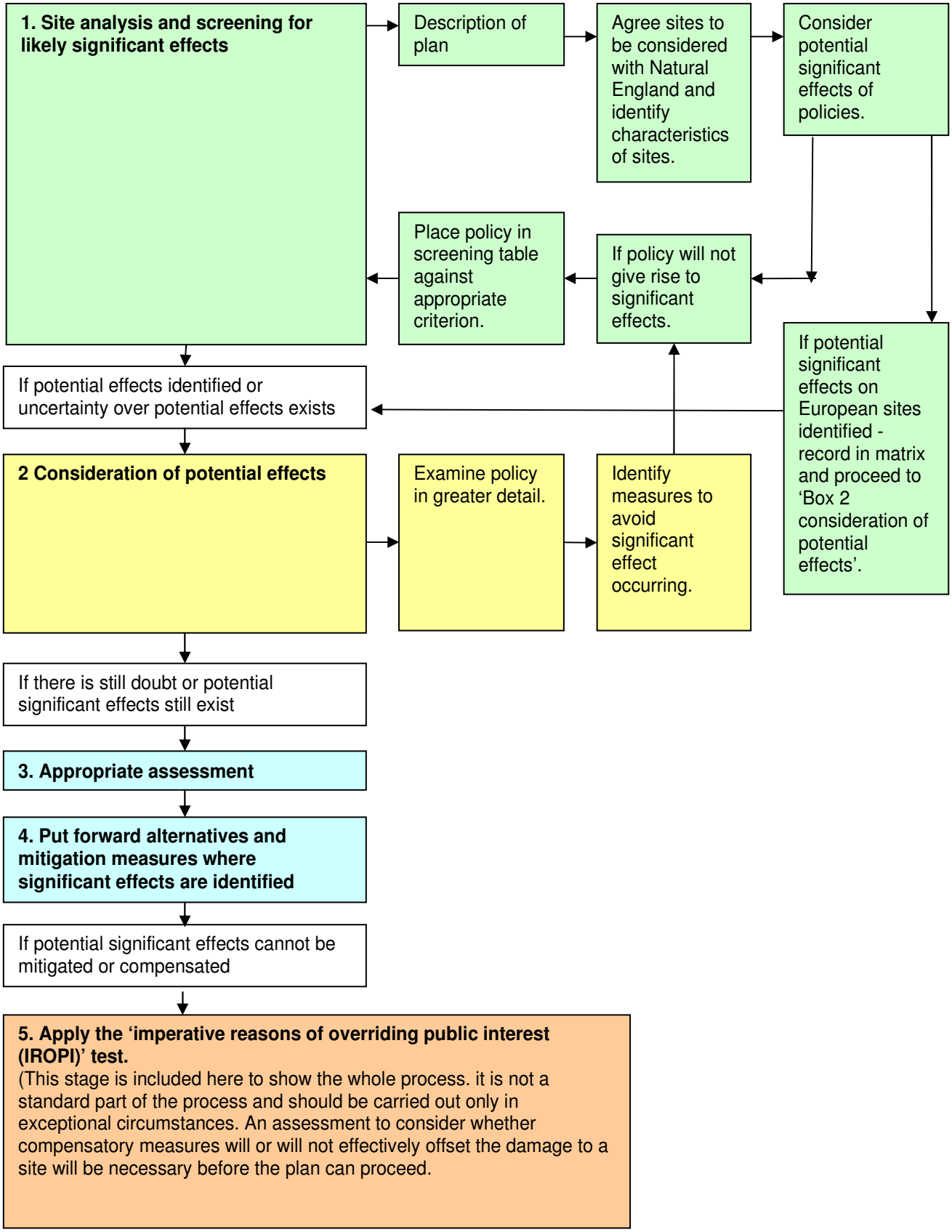
It may not always be possible to have maximum certainty about the deliverability of the strategy. In these cases the core strategy should show what alternative strategies have been prepared to handle this uncertainty and what would trigger their use. Authorities should not necessarily rely on a review of the plan as a means of handling uncertainty."

- The prospect of a new European Site being designated in the County is considered by the Council and WSP to warrant a contingency based approach in line with PPS12. Natural England has also confirmed support for this approach in the context of earlier work undertaken by WSP on behalf of Newark and Sherwood District Council (HRA Screening of Core Strategy, 2010).

This Preliminary Screening Report therefore looks at the potential implications of a new SPA at Sherwood Forest. It adopts a risk based approach, by examining the implications of the possible designation of a new SPA over the course of the life of the two Core Strategies – and any contingency arrangements, the Core Strategies might make, in the event that the designation occurs. The term 'prospective SPA' is used hereafter to refer to this area. The work has been kept separate from the main HRA to avoid confusing the two elements.

CONSULTATION QUESTION 1.1 DO YOU AGREE WITH THE SUMMARY OF THE HRA PROCESS AND THE ROLE OF ASSESSMENT IN THE CONTEXT OF THE LOCAL DEVELOPMENT FRAMEWORK – ARE THERE ANY OTHER FACTORS THAT SHOULD BE TAKEN INTO ACCOUNT?

Figure One: Overview of the HRA Process



2 POTENTIAL IMPACTS

INTRODUCTION

This section considers the potential impacts that minerals related development and waste technologies can have and also sets out assumed avoidance and mitigation measures. The relevance of the assessment of in-combination effects at this stage is also discussed.

MINERALS

Table 2.1 below sets out potential impacts associated with materials. Assumed avoidance and mitigation measures are set out in Table 2.2 these are measures that it can reasonably be assumed will apply at the project level. Generic impacts are identified along with impacts associated with the following materials:

- Sand and Gravel
- Limestone – Building Stone
- Limestone – Aggregate and Industrial
- Coal (underground mining) and colliery waste
- Coal (surface mining)
- Sandstone Aggregate
- Sandstone (Silica Sand)
- Clay
- Conventional Oil Extraction
- Coal Mine Methane (associated with current or abandoned mines)
- Coal Bed Methane (associated with coal strata not previously exploited)
- Shale Gas
- Gypsum (Open cast and underground - pillar and stall method)
- Secondary aggregates
- Coal washing - recovery of coal from pit tips

CONSULTATION QUESTION 2.1: ARE THERE ANY ADDITIONAL MATERIALS AND/OR IMPACTS?

CONSULTATION QUESTION 2.2 DO YOU AGREE WITH THE SCREENING RATIONALE?

CONSULTATION QUESTION 2.3: ARE THE ENHANCEMENT / MITIGATION MEASURES REASONABLE?

CONSULTATION QUESTION 2.4: ARE THERE ANY ADDITIONAL ENHANCEMENT / MITIGATION MEASURES?

Table 2.1 Activities and Potential Environmental Impacts for Minerals Operations of relevance to European sites	
All materials Site operations will normally include: • Extraction by Hydraulic excavator or mechanical rock breaker etc. • Development of ancillary of infrastructure. • Processing of the materials. • Transportation of materials around the site. • Transportation of minerals by road or rail. Site restoration (either during and/or after workings) and aftercare	
Activities associated with minerals development **Potential Environmental Impacts**	**Screening Rationale**
. **Land take & Habitat Loss/Fragmentation:** • From continued extraction of minerals and the development of ancillary infrastructure. • Any land take within a Natura 2000 site is likely to have an adverse impact upon site integrity. • It is likely to impact on species populations and species movements. • The impact may also relate to non-designated habitat features. For example, any fragmentation or loss of habitat associated with a SAC woodland, or equally any significant areas of woodland or hedgerows in the vicinity of the SAC may have an adverse effect on bats through the loss of foraging or commuting habitat. Similarly, removal of a habitat adjacent to or within vicinity of an SAC or SPA habitat may have a negative impact on the designated site through a reduction in buffering or changes to local hydrology. • Restoring quarries to biodiversity can be positive for nature conservation. • Partial and full restoration of extraction sites has the potential to improve the SACs and SPAs through increasing the robustness of sites. This could be either through enhancing buffers or improving the connectivity of sites.	Due to the uncertainty regarding the location of potential future minerals development, land take of any land in proximity to sites within Nottinghamshire cannot be ruled out. Therefore it is not possible to screen out European sites within Nottinghamshire at this stage.
Disturbance:	Disturbance from noise will be dependent on topography and noise attenuating

• Noise and light pollution from extraction, ancillary facilities, transportation and some types of restoration may impact upon fauna such as bats and birds.	features such as vegetation and buildings in the surrounding landscape. It is therefore considered that only European sites within Nottinghamshire have the potential to be effected by noise generating activities as a result of waste and minerals development within the county. Similarly the effect of lighting will be dependent on similar factors and only European sites within Nottinghamshire will be considered
Water pollution: • Contamination of habitats may occur from a number of sources. • Impacts may include reductions in prey species with subsequent impacts on the food chain, bioaccumulation of toxins in the food chain or eutrophication. • Contaminants can be transported large distances with surface or ground water. • Impacts may depend on the strength of the pathway between the source and the site. • Wetland habitats are particularly vulnerable to pollution from surface or ground water sources.	Any European sites that are potentially hydrologically linked to Nottinghamshire, particularly those downstream of any potential point sources of water pollution, will be considered as part of the screening process.
Air pollution • From on - site operations and transportation may result in reduced condition and integrity of Natura 2000 sites. • The impacts of nitrogen and nitrogen oxides deposition on vegetation growth are of particular concern. • Other pollutants including sulphur dioxide,	The Design Manual for Roads and Bridges (DMRB) identifies 200m as the distance beyond which the contribution of traffic emissions to local pollutant concentrations is considered to be negligible. Natural England has also confirmed that assessments of Development Plans should focus on European sites within 200m of a road.
Dust • Dust from extraction and on site operations may have an impact on habitats and species.	Various guidelines and standards exist for measuring the impacts of deposited dust; however none of these are sufficiently well established to be recommended for adoption. Therefore European sites within Nottinghamshire cannot be screened out

• Potential for affecting the growth of plants. • Dust could also impact on water sources.	due to the uncertainty of the extent and severity of any potential impact from dust.
Hydrology • Decreased (for example as a result of extraction) or increased water quantity (for example due to impeded water flow or restoration utilising non-permeable fill materials) ground or surface water levels may impact upon designated habitats. • This could impact on the integrity of the site by causing alterations in the species composition or reducing the extent of target habitats. • Reduced water levels in water courses and water bodies could have direct impacts on wetland habitats and designated wildfowl populations. • Reduced volumes of water would increase the concentration of contaminants. • Any significant or long term changes in ground water levels may also affect woodland sites, either having a direct effect on species (canopy, basal flora or epiphytes) or indirectly by increasing stress and vulnerability to other factors.	Development has the potential to change the hydrological regime of the catchment local to individual development sites through changes in groundwater recharge and surface water runoff. Included within the Humber River Basin Management Plan is a figure showing the quantitative quality of groundwater, this map has been used to identify areas which are of greater sensitivity to changes in hydrology. Consideration of the location of these areas and the location of European sites has informed the screening process.
Introduced/invasive species • Restoration and mitigation could potentially lead to the introduction or increased abundance of potential invasive species which could comprise an adverse impact on integrity of Natura 2000 sites.	Restoration can be controlled through planning conditions Planting schemes should include the use of native species. Under section 14 of the Wildlife and Countryside Act 1981, it is an offence to introduce a species which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state; or is included within Schedule 9 of the Act.
Sand and Gravel: Extracted by hydraulic excavators and drag lines following the stripping of soil. Minerals are generally crushed, screened and washed. Silt is disposed of within on-site lagoons. Noise and dust problems are most likely to be at their worst during soil stripping and replacement operations, which often involve the intensive use of excavators, dumper trucks and other heavy mobile plant. Fortunately these activities are intermittent and of short duration. The large fixed processing plant and stockpile areas can be visually intrusive and noisy. Transport is often by the road because of the small amounts being transported, the fact that markets are scattered and the fact that the material is relatively low value, bulk materials, for which transport costs make up a large proportion of the market price. Some sand and gravel operations in the Trent Valley are able to make use of barges to carry material to markets in Yorkshire and Humberside	

Potential Effects	Screening Rational
• Higher land take from extraction and development of ancillary infrastructure (than crushed rock). Likely to impact on species populations and species movements. • Noise levels relatively low (compared to hard rock quarries). • Silt disposal capacity is important – water impacts. • Soil stripping in summer can cause dust problems. • Road transport impacts. • Sand and gravel quarries can be pumped dry which has potential impacts on mean water table levels and the associated issues surrounding cumulative impacts derived from multiple sites, working in close proximity, all pumping water.	See screening rational above, under 'All materials'.
Limestone – Building stone Limestone is normally extracted by hydraulic excavators although where building and ornamental stone is sought, low grade explosives are used to dislodge rather than shatter the rock.. Building and ornamental stone is dressed by hand or machinery, which may be done in on-site workshops depending on the range of products.	
• Land take • Noise and dust impacts during above ground excavation • Road transport impacts. • Hydrological impacts The Magnesian Limestone is classified by the Environment Agency as a major aquifer and workings can breach the water table.	See screening rational above, under 'All materials'.
Limestone – aggregate and Industrial: Limestone is normally extracted by blasting or ripping. Aggregate mineral is then crushed and screened to the required grades. Washing is not involved, so avoiding the need for settling ponds. Limestone for industrial uses is processed in a Kiln. In the case of material from Nottinghamshire it is understood that an existing Kiln in Derbyshire would be used.	
• Land take • Noise and dust impacts during excavation and crushing. • Working can be below the water surface so can have water pollution impacts and other hydrological consequences. • Road transport impacts	See screening rational above, under 'All materials'.
Coal (underground mining): Deep mined coal from Nottinghamshire is extracted from depths generally ranging from between 400-900 metres below the surface. From the pithead on the surface a vertical shaft is sunk through overlying rock to the coal seams. Roadways are then driven along the seam to open up the face from which coal is extracted. Extraction and transportation of coal is highly mechanised, usually taking place by the longwall method. As the seam is worked, the void is allowed to progressively collapse behind the worked area, causing subsidence at the surface. The coal is transported away from the face by conveyor through screening, crushing and homogenising plants and then on to a coal preparation plant. The majority of surface tipping of Colliery Waste comprises the construction of spoil heaps immediately adjacent to the originating colliery. Spoil tips can be constructed of either coarse discard or a mixture of coarse discard and dewatered treated fines.	
• Land take - Surface development of the pithead and disposal of colliery waste	See screening rational above,

• Road transport impacts • Noise • Dust • Lighting • Subsidence • Surface water pollution from contaminated run-off	under 'All materials'.
Coal (surface mining): Modern technology allows extraction to reach depths in excess of 200 metres, although 80 metres is more commonplace. The ratio of overburden to coal extracted on average is 17:1. Consequently, extraction involves massive earth moving operations in order to recover relatively small quantities of coal. Soils and overburden are stripped and stored in large mounds. Once extracted, coal is normally taken by lorry to the nearest blending centre for processing. At large sites traffic generation can therefore be considerable. Most opencast coal sites can be reclaimed to their original or near original levels. This is because of the high overburden to coal ratio and the 'bulking up' effect of returned material.	
• Land take • Road transport impacts • Noise • Dust • Waste piles created during the mining process can contribute sediment to water ways • If mining takes place below the water table then drainage can result in a lowering of the water table as well as land subsidence	
Sandstone (Aggregate) Extracted using excavators. Crushing and screening / washing.	
• Land take • Road transport impacts • Noise and dust impacts during excavation and crushing. • Hydrological impacts.	See screening rational above, under 'All materials'.
Sandstone (Silica Sand): Silica sand (also known as 'industrial sand') is sand which contains a high proportion of silica in the form of quartz and is marketed for purposes other than for direct use in the construction industry. Extraction is by surface quarrying.	
• Land take • Road transport impacts • Noise and dust impacts during excavation	See screening rational above, under 'All materials'.
Gypsum (Surface mining): Extraction of the Newark Gypsum begins with the creation of an initial cut which needs to provide adequate space to develop and work the quarry	

face. Large quantities of overburden and inter-seam mudstones have to be stored, normally for the duration of the life of the quarry. When extraction is completed, material from the initial cut goes into the final void. Successive seams of mineral are exposed to form benches, and excavations may exceed 40 metres. Low grade blasting breaks up the mineral which is extracted by draglines or hydraulic excavators. It is then loaded into dumptrucks for transporting to the crushing and processing plant.	
• Land take • Road transport impacts. • Noise and dust impacts during excavation	See screening rational above, under 'All materials'.
Gypsum (Underground - Pill and Stall method): The Tutbury Gypsum is worked by the 'pillar and stall' method, whereby 25% of the mineral is left in place as pillars to provide support. This technique is specifically designed to prevent subsidence and is essential for mine safety and to provide surface support. As an added precaution mining has not been permitted beneath settlements, and adequate support pillars have to be left beneath isolated properties.	
• Road transport impacts. • Issues around potential subsidence	See screening rational above, under 'All materials'. Land to the west of Costock and land to the east in Leicestershire. Is identified as an area where there are reserves in the Minerals Local Plan.
Clay: Mechanical stripping and excavation.	
• Land take • Road transport impacts • Noise associated with extraction plant and transport. • Dust can be an issue if clay stockpiles are left to dry out.	See screening rational above, under 'All materials'.
Conventional Oil Extraction: Conventional oil extraction through drilling. The oil recovered in Nottinghamshire is of high quality, and mainly used in the plastics and chemical industries, rather than as a fuel.	

• Noise associated with drilling works and transport; • Contamination impacts on water and ground	See screening rational above, under 'All materials'.
Coal Mine Methane: Extraction of methane from drilling and dewatering of coal seams in operational or abandoned mines. Compression works will also be required as an ancillary element to the well.	
• Land take might be a minor issue at abandoned mines • Road transport impacts; • Potential impacts from dewatering of groundwater • Potential impacts on water quality	See screening rational above, under 'All materials'.
Coal Bed Methane (CBM): Extraction of methane produced from un-mined or virgin coal using surface boreholes, Can also involve using CO2 or N2 injection.	
• Land take • Noise associated with drilling works and transport • Potential impacts from dewatering of groundwater • Potential impacts on water quality	See screening rational above, under 'All materials'
Shale Gas: After drilling down vertically to above the shale formation, the drill is steered until the bore becomes horizontal and straight drilling resumes. Most fossil fuel reservoirs are much wider than they are tall, so horizontal drilling exposes significantly more reservoir to the well bore. Hydraulic fracturing, commonly referred to as "fracing" or "fracking", is the process of creating fissures, or fractures, in underground formations to allow natural gas to flow. The pressure to create these fractures is generated by the injection of a fluid—known as hydraulic fracturing fluid—down the well and into the shale gas formation. Water and sand comprise around 99% of the hydraulic fracturing fluid, the remainder being a mixture of chemicals. The newly created fractures are "propped" open by the sand, which allows the natural gas to flow into the wellbore and be collected at the surface.	
• Water required for hydraulic fracking • Potential for groundwater pollution from failure or loss of integrity of the well bore or if fracking fluid travelled through subsurface pathways away from the fracking zone • Surface pollution from leaks and contaminant spills • Noise pollution from drilling • Increased road traffic associated with construction and associated impacts on air quality • Potential impacts associated with ground stability	
Secondary Aggregates: 'Secondary aggregates' are by-products of other processes, and will not have been used previously as aggregates. Materials that are relevant to Nottinghamshire include- Colliery spoil for aggregate use can be obtained either by reworking spoil tips or by collecting the 'dry dirt' discard directly from the coal preparation plant (coal washing is dealt with separately below). Power station ash comprises Furnace Bottom Ash (FBA) and Pulverised Fuel Ash (PFA). FBA is a coarse clinker and is	

used to manufacture lightweight building blocks where demand generally exceeds supply. PFA, which is finer and similar in consistency to sand, is used in cement, as a concrete aggregate and as a low-density bulk fill. Approximately 200,000 tonnes of sand, silt, marl and gravel are dredged from the River Trent by British Waterways every year in order to maintain a navigation channel. River dredgings can be used as an aggregate either as bulk fill or, if of suitable quality and processed, used in concrete.	
• Road Transport Impacts • Dust	
Coal washing - re-working of colliery pit tips to recover coal that was previously discarded. Past coal processing was generally very inefficient and substantial quantities of coal often remained in the spoil especially in slurry ponds. At some sites it may now be economic to recover this coal, which can amount to several hundred thousand tonnes in a single large tip. Such an operation would result in the recovery of coal which would otherwise be lost. Coal recovery involves the re-excavation of spoil which may require screening and/ or washing to remove the coal, before the spoil is re-deposited within the original tipping area. Limited reworking may be possible under the provisions of the 1995 General Permitted Development Order, but where extensive reworking is proposed, planning permission is normally required.	
• Road transport impacts – although may be scope to use existing rail facilities depending on location • Noise • Dust • Potential loss of existing restored areas • Potential opportunity to achieve improved restoration	See screening rational above, under 'All materials'.
Remediation and Restoration: Restoration to previous land use or remediation to uses such as nature conservation.	
• Restoring quarries can be positive for nature conservation. • Partial and full restoration of extraction sites has the potential to improve the SACs and SPAs through increasing the robustness of sites. This could be either through enhancing buffers or improving the connectivity of sites. • Restoration and mitigation could potentially lead to the introduction or increased abundance of potential invasive species which could comprise an adverse impact on integrity of Natura 2000 sites.	See screening rational above, under 'All materials'.

Table 2.2 Environmental Impacts - Assumed Avoidance and Mitigation/Best Practice	
Topic	Measures
General	Minerals Policy Statement 1 (MPS1) includes the requirement to carefully consider applications for minerals exploration and extraction in terms of environmental impact. Minerals Policy Statement 2 (MPS2) states that mineral working applications and reviews of old mineral permissions in or affecting Sites of Special Scientific Interest and land to which Nature Conservation Orders apply and international conservation sites (e.g. those designated under the EU Habitats Directive or the Ramsar Convention on Wetlands)) should be subject to the most rigorous examination, normally including an Environmental Statement (ES), regardless of the size of the site. Controlling the Environmental Effects of Recycled and Secondary Aggregates Production: Good Practice Guidance, DCLG 2000
Disturbance (noise and light)	MPS2 Annex 2: Noise states that Mineral Planning Authorities should consider all the effects on the surrounding environment and where these affects cannot be adequately controlled or mitigated (through measures such as acoustic screening and site layout), planning permission should be refused. Enforcement can be taken under Part III of the Environmental Protection Act 1990. PPS23 'Planning and Pollution Control' (2004) requires planning authorities to take account of the possible polluting effect of lighting in preparing local development documents.
Water Pollution	Impacts from water pollution can be mitigated by following Environment Agency Pollution Prevention Guidelines (PPGs), including: • PPG 5 Works and maintenance in or near water • PPG 6 Working at construction and demolition sites • PPG 7 Refuelling facilities • PPG 8 Safe storage and disposal of used oils • PPG 13 Vehicle washing and cleaning • PPG 18 Managing fire water and major spillages • PPG 21 Pollution incident response planning • PPG 26 Storage and handling of drums and intermediate bulk containers Potential avoidance/mitigation measures include bunding of any liquid tanks and the storage of all materials to the requirements of Environment Agency guidance.

	Drainage and washdown water could be recycled on site and any excess be treated in a dedicated water treatment plant prior to release to the sewer system to the conditions set by an effluent discharge consent. Rainwater could be directed to the surface water drainage system, via separators/interceptors in the case of roads and parking areas, for subsequent discharge into infiltration ponds on the site.
Hydrology	Water discharges from mining operations are regulated under the Environmental Permitting Regulations. Any new abstractions will be considered by the Environment agency. The Humber River Basin Management Plan identifies that European sites will always be considered when assessing new applications and variations to existing licenses. In relation to specific operations like extraction of Coal Bed Methane where the fluids being injected contain pollutants and the injection is into rock formations that contain groundwater, or where the activity poses a potential risk of mobilising natural substances to cause pollution, the Environment Agency will require the operator to hold an environmental permit under the Environmental Permitting Regulations 2010 (EPR 2010). The Environment Agency will also require a permit for activities associated with the surface works if these involve emissions to surface or groundwater. The permit will specify the limits of the activity and any requirements for monitoring and will place a general management condition on the operator to provide a written management system that identifies and minimises risks of pollution. For aspects of the operation that would not normally be subject to EPR 2010 permits, such as the drilling of the borehole, the Environment Agency would also have powers to serve notices under those regulations to require the operator to cease an activity or apply for a permit if we consider it warranted. The Agency will separately consider potential impacts on water resources due to the effect on groundwater levels and flows. They expect industry to notify it of their intention to carry out drilling, at which time we will advise on measures that the Agency consider necessary to protect water resources. There may be a requirement for control under the Water Resources Act 1991 on abstraction of groundwater. Depending on the proposal, a groundwater investigation consent and abstraction license may be required. Operators making such applications would need to provide a supporting hydrogeological impact assessment.
Air Pollution	Effects from vehicle emissions can be reduced through measures such as regular vehicle maintenance and consideration of appropriate haulage routes.
Dust	Impacts from dust are addressed through MPS2 Annex 1: Dust and contain mitigation measures such as wetting down facilities, vehicle sheeting and consideration of appropriate haulage routes.
Restoration	Restoration can be controlled through planning conditions. Planting schemes should include the use of native species. Under section 14 of the Wildlife and Countryside Act 1981, it is an offence to introduce a species which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state; or is included within Schedule 9 of the Act.

WASTE

Table 2.3 below sets out potential impacts associated with waste management technologies and processes, together with the rational for screening effects and avoidance and mitigation measures that it can reasonably be assumed will apply at the project level. It considers the following:

- Recycling
- In vessel Composing
- Open air Composting
- Mechanical Biological treatment (including Autoclaving)
- Incineration with Energy Recovery
- Anaerobic Digestion
- Alternative Combustion Technologies (Pyrolysis, gasification and plasma arc technologies), ,
- Landfill/land raise, including disposal of Pulverised Fuel Ash
- Remediation and restoration

Potential environmental impacts have been identified using WSP's and the client's experience of working in this field along with guidance from:

- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites[6] (European Union November 2001);
- Unpublished Draft Guidance from Natural England on AA of Regional Spatial Strategies and Local Development Frameworks[7]; and
- Guidance from the Department for Communities and Local Government (DCLG)[8] on Appropriate Assessment of RSSs and LDDs.

CONSULTATION QUESTION 2.5 ARE THERE ANY ADDITIONAL TECHNOLOGIES AND/OR IMPACTS?

CONSULTATION QUESTION 2.6: ARE THE ENHANCEMENT / MITIGATION MEASURES REASONABLE?

CONSULTATION QUESTION 2.7 DO YOU AGREE WITH THE SCREENING RATIONALE?

CONSULTATION QUESTION 2.8: ARE THERE ANY ADDITIONAL ENHANCEMENT / MITIGATION MEASURES?

[6] Assessment of Plans and Projects Significantly Affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC European Union, November 2001 http://ec.europa.eu/environment/nature/nature_conservation/eu_nature_legislation/specific_articles/art6/pdf/natura_2000_assess_en.pdf

[7] Draft Guidance, The Assessment of Regional Spatial Strategies and Sub-Regional Strategies under the Provisions of the Habitats Regulations, David Tyldesley and Associates for English Nature, March 2007.

[8] Planning for the Protection of European Sites: Appropriate Assessment Guidance For Regional Spatial Strategies and Local Development Documents, DCLG, August 2006 http://www.communities.gov.uk/pub/353/PlanningfortheProtectionofEuropeanSitesAppropriateAssessmentGuidanceForRegionals_id1502353.pdf

Table 2.3 Environmental Impacts Associated with Waste Management Facilities of relevance to European sites		
Recycling: Recycling of green waste by different forms of composting is discussed later in this table. Recycling of other forms of municipal waste in the County is done through a combination of kerb-side collection and bring schemes. Construction and demolition waste and commercial waste are also recycled. Most of the dry recycled material collected from kerbsides in the County is currently sorted at a large materials recycling plant in Mansfield that opened in 2009. The equivalent waste collected in the city currently goes to an established recycling plant at Colwick near Nottingham.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
Air Pollution / Disturbance • Road transport impacts • Dust, • Noise • Odour	See approach for Air pollution associated with transport/disturbance under Environmental Impacts Associated with 'All Materials' in Table 2.1.	Policy WM 1 'Environmental Impact of a Waste Management Facility' of Planning Policy Statement 11 (PPS 11) states that facilities will only be permitted where unacceptable adverse on the environment does not occur. Mitigations include standard good practice environmental management on site and off site (e.g. low emission vehicles, use of renewable energy sources etc) The local planning authority can set conditions on the maximum acceptable noise level. The Environmental Permitting Regulations provide industry, regulators and others with a single extended permitting and compliance system and includes those systems for discharge consenting, groundwater authorisations and radioactive substances

		regulation. Environmental Permitting also provides a tool for delivering the permitting and compliance requirements of EU directives such as those relating to the Batteries Directive and Mining Waste Directive.
In Vessel Composting: In-vessel composting is an industrial form of composting biodegradable waste that occurs in enclosed reactors. These generally consist of metal tanks or concrete bunkers in which air flow and temperature can be controlled, using the principles of a "bioreactor". Generally the air circulation is metered in via buried tubes that allow fresh air to be injected under pressure, with the exhaust being extracted through a biofilter. Sources of biodegradable waste include municipal and commercial waste, including waste from the food industry.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Land take • Road transport impacts • Odour, • Litter, • Possible vermin generation • Release of spores (non-native), requirement for buffer zones (at least 250 metres between composting operations and sensitive receptors) • Production of liquid pollutant • Potential for combustion • Mitigations include the use of in-vessel composting to control gas / odour and ventilation/in-vessel mixing (using different grade of carbon material) • Composting reduces waste to landfill, useful by-product, closed loop waste management.	See approach for Air pollution under Environmental Impacts Associated with 'All Materials' in Table 2.1. The Environment Agency position statement on composting and bio aerosols applies to both in-vessel and open air composting and states that composting activities should be located at least 250m away from sensitive receptors to avoid impacts from non-native spores. Therefore it is not possible to screen any sites which lie within Nottinghamshire or within 250m of Nottinghamshire, to be screened out	PPS11: Policy WM 1 & Environmental Permitting
Open air Composting: The open windrow composting system is used to process garden waste - such as grass cuttings, pruning's and leaves. It cannot be used to process catering or animal wastes. In an open windrow system, the feedstock is shredded and placed on a non-permeable surface. The materials should be turned on a regular basis, taking up to 16 weeks. The compost that is produced must then be graded and screened to remove any remaining contaminants.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Land take • Road transport impacts	See approach for Air pollution under Environmental	PPS11: Policy WM 1 & Environmental

• Odour, • Litter, • Possible vermin generation • Release of spores (non-native), requirement for buffer zones (at least 250 metres between composting operations and sensitive receptors) • Production of liquid pollutant • Potential for combustion • Composting reduces waste to landfill, useful by-product, closed loop waste management.	Impacts Associated with 'All Materials' in Table 2.1.' The Environment Agency position statement on composting and bio aerosols states that composting activities should be located at least 250m away from sensitive receptors to avoid impacts from non-native spores. Therefore it is not possible to screen any sites which lie within Nottinghamshire or within 250m of Nottinghamshire, to be screened out	Permitting
Mechanical Biological Treatment (MBT) including autoclaving: A mechanical biological treatment system is a type of waste processing facility that combines a sorting facility with a form of biological treatment such as composting or anaerobic digestion. MBT plants are designed to process mixed household waste as well as commercial and industrial wastes. MBT plants may be configured in a variety of ways to achieve the required recycling, recovery and biodegradable municipal waste (BMW) diversion performance. Outputs include biogas, refuse derived fuels and low grade compost/soil conditioner.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Land take • Road transport impacts • Processes produce residue • Mitigation measures as for landfill (rejects from mechanical sorting) and composting (outputs from biological treatment) • Final waste inert and diverts waste from landfill, leachate used in process, prevents attraction of vermin, deals with biogas	See approach for Air pollution/hydrology under Environmental Impacts Associated with 'All Materials' in Table 2.1. For industrial processes, the current guidance that is used when assessing point source emissions is the IPPC H1 Guidance for the Environmental Assessment and Appraisal of BAT. A simple screening tool is provided with the guidance to determine which pollutants emitted from a process are released in significant amounts and which are not. The H1 document indicates that designated sites (including European sites) which are located within 10 km of the	PPS11: Policy WM 1 & Environmental Permitting

	pollutant source should be considered as a sensitive receptor within an assessment. For major emitters (large power stations, refineries, or iron and steelworks) this distance increases to 15km. These distances will be used to establish which sites lie within 15km of Nottinghamshire.	
Anaerobic Digestion (energy from waste) Anaerobic Digestion (AD) is the process where plant and animal material (biomass) is converted into useful products by micro-organisms in the absence of air. Biomass is put inside sealed tanks and naturally occurring micro-organisms digest it, releasing methane that can be used to provide energy (biogas). The other product of AD is digestate - left over indigestible material and dead micro-organisms that can be used as a fertiliser.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
Air/Water Pollution • Land take • Road transport impacts • Odour (during collection, transport and pre-treatment) • Wastewater – potential for high concentrations of metals, dissolved nitrogen and organic material	See approach for water pollution under Environmental Impacts Associated with 'All Materials' in Table 2.1. See approach above for point source air pollution.	PPS11: Policy WM 1 & Environmental Permitting Mitigation measures include the use of biofilters to prevent odours
Incineration with Energy Recovery - Incineration involves the combustion of typically unprepared (raw or residual) MSW. To allow the combustion to take place a sufficient quantity of oxygen is required to fully oxidise the fuel. Incineration plant combustion temperatures are in excess of 850 o C and the waste is mostly converted into carbon dioxide and water and any non- combustible materials (e.g. metals, glass, stones) remain as a solid, known as Incinerator Bottom Ash (IBA) hat always contains a small amount of residual carbon.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Land take • Road transport impacts • Noise, • Dust • Deposition of substances on surface water • Solid, liquid emissions • Gaseous emissions include odour, acid gas, heavy metals, particulates, organic compounds • Ash residues comprising fine particles, [need to landfill ash/scrap] dioxins, heavy metals salts, unreacted lime	See approach for air pollution/water pollution/noise under Environmental Impacts Associated with 'All Materials' in Table 2.1.	PPS11: Policy WM 1 & Environmental Permitting IPPC controlled emissions, recovery of metals from ash, flue gas cleaning, onsite water treatment

and carbon • Contamination, accumulation of toxic substance (food chain)		
Alternative Combustion Technologies (Pyrolysis, gasification and plasma arc technologies): Pyrolysis is the thermal degradation of a substance in the absence of oxygen. This process requires an external heat source to maintain the pyrolysis process. Typically, temperatures of between 300 o C to 850 o C are used during pyrolysis of materials such as Municipal Solid Waste. The products produced from pyrolysing materials are a solid residue and syngas. Syngas can be used in either a gas engine or hydrogen fuel cell to generate energy. Gasification can be seen as being between pyrolysis and combustion in that it involves the partial oxidation of a substance. The temperatures employed are typically above 650 o C. The main product is a syngas. In plasma technologies the waste is heated with a plasma arc (6,000º to 10,000º Celsius) to create gases and vitrified slag. In some cases the plasma stage may follow on from a gasification stage.		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Land take • Road transport impacts • if the gases and oils coming off the process are then burnt, this may also generate emissions to air		
Landfill and Landraise, including PFA		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Land take • Road transport impacts • Methane and carbon monoxide emissions. • Leachate, salts, heavy metals, biodegradable and persistent organics • Accumulation of hazardous substances in soil • Topography alteration, • Soil occupancy, prevention of other land uses • Attraction of vermin • Contamination, accumulation of toxic substances • Potential exposure to hazardous substances • Impact on surface water runoff, flood risk • Potential to extract and utilise landfill gas.	See approach for air pollution/water pollution under Environmental Impacts Associated with 'All Materials' in Table 2.1.	PPS11: Policy WM 1 Mitigation includes, liner systems, leachate collection, compaction to increase density and stability and covering to reduce impacts of vermin Environmental Permitting associated will require monitoring of environmental effects arising from: • Emissions to water and groundwater; • Particulate matter (dust and aerosols): • Litter; • Mud on the road; • Odour; • Noise and Vibration; and • Pests.

		Under the requirements of the permit, abatement procedures should be in place to address and address effects arising from these.
Remediation and Restoration		
Potential Environmental Impacts	**Screening Rationale**	**Assumed mitigation**
• Road transport impacts • Restoring waste sites (such as landfill) can be positive for nature conservation. • Partial and full restoration of sites has the potential to improve the SACs and SPAs through increasing the robustness of sites. This could be either through enhancing buffers or improving the connectivity of sites. • Restoration and mitigation could potentially lead to the introduction or increased abundance of potential invasive species which could comprise an adverse impact on integrity of Natura 2000 sites.	Issues around remediation will be restricted to those sites within the plan area, although effects could extend to other sites, e.g. because of transport related emissions.	Under section 14 of the Wildlife and Countryside Act 1981, it is an offence to introduce a species which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state; or is included within Schedule 9 of the Act. Planting schemes should include the use of native species.

3 SCREENING SITES

INTRODUCTION

This section identifies a long list of European sites that need to be considered. It then re-caps the rational for screening sites and the screening exercise. For sites that cannot be screened out consideration is given to the conditions required to sustain the sites integrity.

THE LONG LIST OF SITES

There is no prescribed method for identifying the sites that need to be considered in a HRA. The most common approach is to identify an area of search based on distance from the plan area. The distance used can vary from 10km, 15km to 20km. Irrespective of distance there is a need to consider any sites where a linkage or pathway between the plan that is being assessed and a site might exist. The principle of source-pathway-receptor is relevant in both instances.

The brief required consideration of sites within 20km of the plan area and also identified the Humber Estuary SPA as appropriate for consideration. The brief also identified the need for any other sites to be identified, irrespective of distance from the plan area if a potential linkage could be identified.

The site and their reason for inclusion are summarised in **Table 3.1** below and are shown on **Figure 3.1**:

Table 3.1: European Sites

Reason for inclusion	**Site(s)**
Confirmed European Site within Nottinghamshire	1 Birklands and Bilhaugh SAC
A further nine European Sites fall within a 20 kilometre buffer zone around Nottinghamshire	2 Peak District Dales SAC 3 South Pennine Moors SAC 4 Peak District Moors (South Pennine Moors Phase 1) SPA 5 Bees Nest and Green Clay Pits SAC 6 Gang Mine SAC 7 Hatfield Moor SAC 8 Thorne Moor SAC 9 Thorne and Hatfield Moors SPA 10 Humber Estuary SAC 11 River Mease SAC
Beyond 20Km but potential for linkages or pathways	12 Humber Estuary SPA/Ramsar
prospective European SIte	13 Sherwood Forest prospective SPA

CONSULTATION QUESTION 3.1: DO YOU AGREE WITH THE LIST OF SITES IDENTIFIED IN TABLE 3.1?

The characteristics of the relevant sites are set summarised below and more detail is provided in **Appendix A**. This information has been used to inform the screening exercise.

1. Birklands and Billhaugh SAC

Birklands and Bilhaugh SAC is designated for ANNEX 1 habitat: 9190 Old acidophilous oak woods with *Quercus robur* on sandy plains.

This is one of only four known outstanding localities in the UK. It is the most northerly of these localities and is also notable for its rich invertebrate fauna, particularly spiders, and for a diverse fungal assemblage.

Birklands and Bilhaugh SAC lies within Sherwood Forest which is a popular recreation area. The delicate habitat is considered vulnerable to damage from visitors. The LDF could have a role in helping to fund management of the site to avoid these issues.

The SAC experiences air pollution from urban areas, which has led to a reduction in lichen diversity.

The SAC has been dependent on grazing regimes, which have now ceased. This cessation has meant that there has been birch invasion and scrubbing up of grass/heath glades. This has altered the open nature of the understorey and threatens future deadwood habitats. The LDF could have a role in helping to fund a Management Plan for the site.

2. Peak District Dales SAC

The primary reasons for the designation of the Peak District Dales includes *Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia),* for which it is one of the most extensive surviving areas in England. The diversity of structural types of grassland at this site is unparalleled in the UK. There is also a great physical diversity due to rock outcrops, cliffs, screes and a variety of slope gradients and aspects.

Tilio-Acerion forests of slopes, screes and ravines are present as a primary reason for designation and a priority feature, for which the site represents the north-central part of its UK range, this site in the English Midlands contains a large area of *Tilio-Acerion*, dominated by ash *Fraxinus excelsior*. The Dales provide good examples of woodland-scrub-grassland transitions, with associated rich invertebrate populations and plant communities.

Other Annex 1 habitats on the site, which are qualifying features but not the primary reason for designation include:

- European dry heaths;
- Calaminarian grasslands of the Violetalia calaminariae;
- Alkaline fens;
- Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii); and
- Calcareous rocky slopes with chasmophytic vegetation.

Annex II species White-clawed Crayfish *Austropotamobius pallipes* are present within the SAC as a primary reason for designation. The River Dove represents the species in a high-quality, upland limestone river, in the north-east of the species' UK range.

Two species are also present as non-primary qualifying features, Brook Lamprey *Lampetra planeri* and Bullhead *Cottus gobio*.

3. South Pennine Moors SAC

The site is designated for Annex I habitats. The primary reasons for designation include European dry heaths, Blanket bogs (priority feature) and Old sessile oak woods with Ilex and Blechnum. The site is representative of upland dry heath at the southern end of the Pennine range, the habitat's most south-easterly upland location in the UK. The moors support a rich invertebrate fauna, especially moths, and important bird assemblages.

Blanket bogs are a priority feature and the site represents the habitat in the south Pennines, the most south-easterly occurrence of the habitat in Europe. Substantial areas of the bog surface are eroding, and there are extensive areas of bare peat. In some areas erosion may be a natural process reflecting the great age (9000 years) of the south Pennine peats.

Old sessile oak woods with Ilex and Blechnum in the British Isles are present around the fringes of the upland heath and bog of the south Pennines are blocks of old sessile oak woods, usually on slopes. These tend to be dryer than those further north and west, such that the bryophyte communities are less developed (although this lowered diversity may in some instances have been exaggerated by the effects of 19th century air pollution).

Other Annex I habitats present as non-primary qualifying features include Northern Atlantic wet heaths with *Erica tetralix* and Transition mires and quaking bogs.

4. Peak District Moors (South Pennine Moors Phase I) SPA

The habitats associated with the South Pennine Moors regularly support significant breeding populations of short eared owl *Asio flammeus*, merlin *Falco columbarius* and golden plover *Pluvialis apricaria*.

5. Bees Nest and Green Clay Pits SAC

The primary reason for the designation of the site is the Annex 1 species great crested newt *Triturus cristatus*, for which this is one of the best areas in the United Kingdom. The Annex 1 habitat Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) is present as a qualifying feature, but not as the primary reason for selection.

Historically the site has been disturbed by, and partially created by, mineral abstraction of silica sands. An extant permission for extraction is currently dormant and would require review by the planning authority before re-enactment. This extant permission would require the disposal of any waste generated to be disposed of on site, which could result in the ponds being filled.

There have been possible problems with unauthorised excavation and tipping. Several applications for tipping at the site have been submitted, it is unclear if any of these have been approved.
The land is currently grazed by a tenant who is part of a Natural England wildlife enhancement scheme; however there are problems with grazing management at the site affecting the quality of the grassland.

6. Gang Mine SAC

The site is designated for the Annex 1 habitat Calaminarian grasslands of the *Violetalia calaminariae* for which it is considered one of the best areas in the UK. A fifth of the site is not currently grazed and if this continues then the accumulation of plant litter could lead to successional change. However, temporary cessation of grazing does allow for the development of the unusual lichen-rich sub community.

The majority of the site is currently under the ownership of Derbyshire Wildlife Trust who are developing it as a nature reserve. The remaining area is well grazed and is under the Countryside Stewardship Scheme.

The impact of deposition of dust from nearby limestone quarry needs to be assessed. An assessment of adjacent land should also be undertaken for inclusion as a SSSI or as part of the SAC designation.

7. Hatfield Moor SAC

The site is designated for its Annex 1 habitat Degraded raised bogs still capable of natural regeneration. The site is formed of 1425 ha of raised peat bog, a large area of which is classed as degraded due to historic peat cutting.
Water abstraction from the underlying aquifer and agricultural land drainage affect the ability to successfully restore the bog. Scrub invasion following drainage and peat cutting is controlled via Site management Statements, NNR management and WES agreements.

Sand and Gravel Abstraction in close proximity to the site effects water levels and will be addressed via the review of planning consents.

8. Thorne Moor SAC

The site is designated for its Annex 1 habitat Degraded raised bogs still capable of natural regeneration. The site comprises of approximately 1900 ha of raised peat bog. Much of the site has already been restored to active bog through the maintenance of water levels, although large areas are classed as degraded because restoration to its previous habitat are still at the early stages.

Peat cutting, water abstraction from the underlying aquifer and drainage of agricultural land all affect the ability to restore the bog.

Scrub invasion following drainage and peat cutting is controlled via Site management Statements, NNR management and WES agreements.

9. Thorne and Hatfield Moors SPA

During the breeding season the area regularly supports 1.9% of the UK breeding population of European nightjar *Caprimulgus europaeus* (5 count peak mean 1993, 1995-98).

Thorne Moor and Hatfield Moor form an extensive lowland raised mire system. The main threats to the nightjar's habitat are lack of management and re-wetting operations. Lack of management is being addressed by a programme of scrub clearance work to create a mosaic of open spaces. The National Nature Reserve Management Plan, which relates to the site, incorporates information regarding the requirements and previous site usage by nightjars, thus ensuring that both the interests of the raised mire system and the nightjar are addressed.

10. Humber Estuary SAC

The Humber Estuary SAC features Estuaries as a primary reason for designation. The Humber is the second-largest coastal plain estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. It is a muddy, macro-tidal estuary, fed by the Rivers Ouse, Trent and Hull, Ancholme and Graveney. Habitats within the Humber Estuary include Atlantic salt meadows and a range of sand dune types in the outer estuary, together with subtidal sandbanks (Sandbanks which are slightly covered by sea water all the time), extensive intertidal mudflats (Mudflats and sandflats not covered by seawater at low tide), glasswort beds (Salicornia and other annuals colonising mud and sand), and coastal lagoons. Significant fish species include river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* which breed in the River Derwent, a tributary of the River Ouse.

Another primary reason for designation is the Annex I habitat Mudflats and sandflats not covered by seawater at low tide, for which the site represents an extensive area.

Other Annex I habitats present on the site include:

- Sandbanks which are slightly covered by sea water all the time**;**
- Coastal lagoons (Priority feature);
- Salicornia and other annuals colonising mud and sand**;**
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)**;**
- Embryonic shifting dunes**;**
- Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`)**;**
- Fixed dunes with herbaceous vegetation (`grey dunes`) (Priority feature); and
- Dunes with *Hippophae rhamnoides.*

11. River Mease SAC

The primary reasons for the sites designation includes the Annex II species Spined loach *Cobitis taenia*, for which the site is a good example of a riverine population. The river has retained a reasonable degree of channel diversity compared to other similar rivers containing spined loach populations. It has extensive beds of submerged plants along

much of its length which, together with its relatively sandy sediments (as opposed to cohesive mud) provides good habitat opportunities for the species.

Bullhead *Cottus gobio* are present as a primary reason for designation. The site is an example of a population in the rivers of central England. Sediments are generally not as coarse as other sites selected for the species, reflecting the nature of many rivers in this geographical area, but are suitable in patches due to the river's retained sinuosity. The patchy cover from submerged macrophytes is also important for the species.

The Annex II species White-clawed Crayfish *Austropotamobius pallipes* and Otter *Lutra lutra* are also present in the site as non-primary qualifying features.

The Annex I habitat Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation is also present on the site as a non-primary qualifying feature

12. Humber Estuary SPA/Ramsar

The Humber Estuary SPA/Ramsar represents an important habitat for large assemblages of waterfowl. During the breeding season the area supports significant proportions of the populations of species such as Bittern *Botaurus stellaris*, Marsh Harrier *Circus aeruginosus*, Acocet *Recurvirostra avosetta* and Little Tern *Sterna albifrons*

During the non-breeding season the estuary supports a 5 year average of 153,934 waterfowl, with many species occurring at levels of international importance. The estuary also represents an important migratory route for species passing through on passage.

13. Sherwood Forest prospective SPA

As noted in the introduction to this report the potential for a new European site has been highlighted during the inquiry into a proposed Energy Recovery Facility at Rufford (APP/L3055/V/09/2102006). The key points are:

- The site potentially qualifies as a SPA because of the presence of breeding nightjar and woodlark. The populations in the Sherwood Forest region represent more than 1% of their total UK breeding populations. The site is made up of a number of smaller areas which appear to provide optimal breeding habitat but it is important to stress that the boundary is not yet fixed;
- There is on-going consideration of an additional qualifying Annex 1 species (honey buzzard) in the far north of the Sherwood Forest region which may require the inclusion of additional lands within the prospective SPA. However Natural England have advised that this species is ignored at this stage;
- The formal designation process will take place over a number of years and is taking place in the context of a wider review of sites and policy on such sites across the Country that is being led by Natural England;

RATIONALE FOR SCREENING

It is important that European sites are screened against a set of factors that are transparent and applied consistently across sites. Tables 2.1 and 2.2 identify relevant factors.

RESULTS OF THE SCREENING EXERCISE

Table 3.2 presents the results of an exercise that has taken the factors identified in Tables 2.1 and 2.2 and considered their applicability to the European sites identified in Table 3.1, thereby providing a transparent audit trail of this element of the work. The key before the table explains the reasons for excluding sites against specific issues.

CRITICAL ISSUES

The nature of the HRA process means that a transparent approach to screening is essential with all potentially relevant European sites screened against all relevant issues. Table 3.2 makes a start on that process. At the same

time the HRA needs to focus on those issues that will be critical to determining whether or not the Core Strategies will have a significant negative impact on the integrity of a European site.

The review of issues suggests that potential significant effects are mainly localised and potentially affect sites within the plan boundaries. This includes potential impacts on the prospective SPA. For sites within the plan area, including the prospective SPA the issues are around disturbance, including noise and light and land take (associated with supporting habitat). Dust could also be an issue depending on proximity to the site and the nature of the material. These are all matters that should be capable of mitigation but it would be premature to screen such issues out at this stage.

Air quality associated with point source emissions and road haulage is another key issue. This potentially affects sites outside of the plan areas, as well as those within the plan areas. For point source emissions the distance could be 10 to 15km depending on the size of the facility.

Transport related emissions are most relevant to sites within 200 metres of a major road and these are indicated in Table 3.2. The main pollutants and issues associated with air quality effects on Designated Sites are atmospheric concentrations of oxides of nitrogen (NOX), ammonia (NH3) sulphur dioxide (SO2) and ozone (O3), and subsequent nutrient nitrogen and acid deposition. The nature and severity of effects on Designated Sites are related, amongst other issues, to the types of habitats and species present.

Data on air quality effects on Designated Sites in the UK (including critical levels and loads) are available from the Air Pollution Information System. It is likely that the potential effects of the Plans associated with traffic related emissions will be difficult to assess, therefore a policy highlighting the need for projects to demonstrate no significant effect on the integrity of a European site in terms of air pollution and avoidance measures may be appropriate. In this context avoidance measures would include measures to optimise loads, promoting alternatives to road haulage where feasible and routing of vehicles.

Impact on water quality (surface waters and ground water) is another issue that is relevant but probably can be confined to sites within the plan areas at this stage we have also flagged up sites that are downstream of the plan areas.

Potential impacts on hydrology are also relevant and could impact on sites outside the plan area if there is a hydrological connection.

The European sites identified in Derbyshire and the Peak Park are in the Carboniferous Limestone and maybe overlying Millstone Grit which are aquifers that lie below and are unconnected with the Permo-Triassic aquifers in Nottinghamshire. These are separated by thick coal measures which are not aquifers albeit some ground waters will exist) It is difficult to see how a minerals or waste proposal that depleted or polluted the Nottinghamshire aquifers could have any impact on the Carboniferous aquifers in Derbyshire which are stratigraphically located 1000's of feet below them but because of uplift and erosion are at a higher altitude. They are hydraulically separated by intervening low permeability strata. Furthermore these are located downstream of surface waters within the catchment which flow approximately from west to east. .It is therefore suggested that it is reasonable to screen these sites out. Without more detailed consideration it is difficult to screen other sites out at this stage.

The following extract is from a response by Natural England to consultation on the HRA for another HRA. It acknowledges the difficulties associated with assessing such effects at the plan level[9]:

> *"We acknowledge that for water related impacts it is not possible to use a set distance as these effects depend on hydrological continuity between minerals and the Natura 2000 site. In terms of determining likely significant effects it is not possible to determine significant effects at this stage as site specific data, including actual groundwater flow direction, groundwater levels, gradients, volumes and details of the proposed activity including depth in relation to water table, necessity for dewatering, depth of proposed abstraction, potential for migration and ability to redirect localised groundwater flows are required in order to determine significance of any impact.* ***This data is unlikely to be available until an application for the proposed activity is submitted and fully assessed and supporting data is provided. There is the potential for significant effect in all areas where mineral sites have been identified within reasonable proximity to Natura 2000 sites however the actual significance will be***

[9] Hampshire Minerals Plan: Habitats Regulations Assessment Screening Report, Response by Natural England 31st August 2007

determined by the specifics of the proposed activity and the ability to implement appropriate mitigation or enhancement as part of the works*".*

This suggests that if the Core Strategies have a policy that highlights this issue and the need for projects to demonstrate that they will not significantly affect the integrity of a European site through changes in hydrology the HRA should be able to conclude that the Core Strategies will not significantly affect a European site. This is not to suggest that the issue is screened out but that that passing the issue down the line (as discussed in the introduction to this report) appears to be the appropriate response in this instance. The HRA will have a role in demonstrating that relevant policies in the Core Strategies are sufficiently robust to allow the issue to be passed down the line.

This screening work will need to be revisited as the Plans are developed, in order to ensure that the conclusions are still valid but if that is the case it should help focus the later stages of the assessment.

CONSULTATION QUESTION 3.2: DO YOU AGREE WITH THE RESULTS OF THE PRELIMINARY SCREENING EXERCISE SET OUT IN TABLE 3.2?

Key to Table 3.2	
Potential for significant adverse effect cannot be ruled out at this stage	✓
There is uncertainty as to whether or not a potential significant adverse effect will occur – hence the issue cannot be screened out at this stage	**✓?**
No significant adverse effect anticipated at this stage (see comments on specific issues below)	-
Air quality (AQ) - Screened out on the basis that the European site is outside the plan areas (15km or more from the plan boundary) and more than 200m from a road.	-
Hydrology (H) **–** Sites are screened out on the grounds that there is unlikely to be any hydrological connectivity (see main text)	-
Noise (N) - Screened out on the basis that the European site is outside the plan areas and noise issues are more localised in nature	-
Lighting (L) - Screened out on the basis that the European site is outside the plan areas and lighting issues associated with relevant developments are likely to be more localised in nature	-
Dust (D) - Screened out on the basis that the European site is outside the plan areas and issues associated with dust and relevant developments are likely to be more localised in nature	-
Water Quality (WQ) – Screened out on the basis that the European site is up - stream of the Plan areas and/or there is unlikely to be any hydrological connectivity (see main text). For some sites that have been screened in a question mark has been used to highlight uncertainty.	-
Land take, habitat loss fragmentation (LT) - Screened out on the basis that the European site is wholly outside the plan areas and issues associated with land take are therefore not relevant	-
Point source pollution – (P) Screened out on the basis that the European site is over 15 km from the plan boundaries and therefore point source pollution is unlikely to be an issue	-
Introduction of invasive species (IS) **–** Screened out on the basis that the site is outside the plan areas. This issue will only be relevant where proposals are within 250m of a European site.	-

Table 3.2: Application of Screening Criteria

	Waste (W) Minerals (M)	Birklands and Bilhaugh SAC	Peak District Dales SAC	South Pennine Moors SAC	Peak District Moors (South	Bees Nest and Green Clay Pits	Gang Mine SAC	Hatfield Moor SAC	Thorne Moor SAC	Thorne and Hatfield Moors	Humber Estuary SAC	River Mease SAC	Humber Estuary SPA / Ramsar	Sherwood Forest prospective SPA
AQ - Does the site lie within 200m of a major road – potentially air quality issues from haulage routes	**M and W**	✓	✓	✓	✓	-	-	-	-	-	✓	✓	✓	✓
H - Changes in hydrology, including groundwater levels effecting site integrity	**M and W**	✓	-	-	-	-	-	✓?	✓?	✓?	✓?	-	✓?	✓
N- Disturbance from noise during construction and/or operation	**M and W**	✓	-	-	-	-	-	-	-	-	-	-	-	✓
L - Disturbance from artificial lighting during construction and/or operation	**M and W**	✓	-	-	-	-	-	-	-	-	-	-	-	✓
D - Dust generation resulting in deposition, and resulting effect on integrity of site during construction and/or operation	**M and W**	✓	-	-	-	-	-	-	-	-	-	-	-	✓
WQ - Water Quality – discharges effecting water quality and integrity of the site during construction and/or operation	**M and W**	✓	-	-	-	-	-	-	-	-	✓?	-	✓	✓
L - Landtake / habitat loss /fragmentation – this is particularly the case if supporting habitats are removed during construction and/or operation	**M and W**	✓	-	-	-	-	-	-	-	-	-	-	-	✓
P - Pollution from point sources, including	**W**	✓	-	-	-	-	-	✓	✓	✓	-	-	-	✓

energy from waste during operation														
IS - Introduction of invasive species, spores during operation.	**W**	✓	-	-	-	-	-	-	-	-	-	-	-	✓

Appendix B to this report includes more detailed consideration of issues associated with the prospective SPA at Sherwood Forest. This is based on the evidence submitted to the Rufford inquiry referred to in the introduction. This identifies potential issues associated with disturbance as an issue that could be specific to the prospective SPA. The other issues considered are covered in Table 3.2 above. Note that the table is intended to be a generic review of the issues and is not intended to be specific to the Rufford proposals.

IN –COMBINATION EFFECTS

As noted in the introduction, Natural England's advice is that until the elements of the plan that may have a significant effect in combination, but not on their own, are identified, it is pointless attempting to draw up a list of other plans and projects that should be combined.

Potential sources include:

a) The incomplete parts of projects that have been started but which are not yet completed;
b) Projects given consent but not yet started;
c) Projects that are subject to applications for consent;
d) Projects that are subject to outstanding appeal procedures;
e) Any known projects that are not subject to any consent;
f) On-going projects subject to regulatory reviews, such as discharge consents or waste management licences;
g) Policies and proposals that are not yet fully implemented in plans that are still in force; and
h) Draft plans that are being brought forward by other public bodies.

In view of Natural England's advice it is considered premature to consider the potential for in-combination effects in this report.

SUSTAINING SITE INTEGRITY

General Natural England Policy in relation to site integrity dictates that sites are to be maintained in favourable condition, or restored to favourable condition where this does not exist.

Table 3.3 below specifies the factors that are key to maintaining integrity at each site having regard to the range of effects that the Core Strategies might give rise to.

Table 3.3 Key Factors Regarding Site Integrity

Site	Factors that are key to maintaining site integrity
Birklands and Bilhaugh SAC	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes and point sources (site features include fungal assemblages sensitive to deterioration) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (vegetation on site, including designated woodland, is sensitive to changes in level of groundwater) – avoiding significant effects on water levels etc will help maintain site integrity • Dust deposition (effects on habitats and fungal assemblage) – avoiding significant effects associated with dust will help maintain site integrity • Water Quality (to maintain woodland habitats) – avoiding significant effects on water quality will help maintain site integrity • Habitat loss/fragmentation resulting in deterioration in age diversity and regeneration – avoiding habitat loss will help maintain site integrity • Disturbance (noise/light) should be avoided to maintain site integrity • Invasive species resulting in change of ecology for which the site is designated. – avoid introduction of invasive species to help maintain site integrity

Site	Factors that are key to maintaining site integrity
Peak District Dales SAC	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes (this has the potential to cause localised damage to areas of site close to major roads) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (aquatic species present within site) – avoiding significant effects on water levels etc will help maintain site integrity
South Pennine Moors SAC	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes (this has the potential to cause localised damage to areas of the site close to major roads) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (bog, wet heath and mire habitats present within site) – avoiding significant effects on water levels etc will help maintain site integrity
Peak District Moors (South Pennine Moors Phase 1) SPA	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes (this has the potential to cause localised damage to areas of the site close to major roads) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (supporting habitats include bog, wet heath and mire) – avoiding significant effects on water levels etc will help maintain site integrity
Bees Nest and Green Clay Pits SAC	The qualifying site features are considered to be sensitive to changes in: • Hydrology (great crested newt, for which the site is designated, dependent on aquatic elements in habitat) – avoiding significant effects on water levels etc will help maintain site integrity
Hatfield Moor SAC	The qualifying site features are considered to be sensitive to changes in: • Hydrology (site designated for bog habitat) – avoiding significant effects on water levels etc will help maintain site integrity
Thorne Moor SAC	The qualifying site features are considered to be sensitive to changes in: • Hydrology (site designated for bog habitat) – avoiding significant effects on water levels etc will help maintain site integrity
Thorne and Hatfield Moors SPA	The qualifying site features are considered to be sensitive to changes in: • Hydrology (Designated for European nightjar which are dependent on mosaic of habits including open water bodies and bog/marsh habitats) – avoiding significant effects on water levels etc will help maintain site integrity
Humber Estuary SAC	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes (this has the potential to cause localised damage to areas of site close to major roads) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (Designated aquatic habitats and aquatic species, both salt and freshwater) – avoiding significant effects on water levels etc will help maintain site integrity • Water Quality (to maintain aquatic habitats and species) – avoiding significant

Site	Factors that are key to maintaining site integrity
	effects on water quality will help maintain site integrity
River Mease SAC	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes (this has the potential to cause localised damage to areas of the site close to major roads) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (Designated aquatic habitats and aquatic species) – avoiding significant effects on water levels and water quality will help maintain site integrity
Humber Estuary SPA/Ramsar	The qualifying site features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes (this has the potential to cause localised damage to areas of the site close to major roads, which may impact on designated species) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (Designated aquatic habitats and aquatic species, both salt and freshwater) – avoiding significant effects on water levels and water quality will help maintain site integrity • Water Quality (to maintain aquatic habitats and species on which the designated features rely) – avoiding significant effects on water quality will help maintain site integrity
Gang Mine SAC	The likely qualifying features are considered to be sensitive to changes in: • Dust deposition (from adjacent limestone quarry) – effect unknown and needs to be assessed further – potential effect on habitat, vegetation and lichen rich sub community.
Sherwood Forest prospective SPA	The likely qualifying features are considered to be sensitive to changes in: • Air Quality, including effects from haulage routes and point sources (deterioration in air quality could effect supporting habitats, such as those at Birklands and Bilhaugh SAC) – so maintaining air quality at existing levels or better is important for maintaining site integrity • Hydrology (range of supporting habitats will depend on groundwater levels) – avoiding significant effects on water levels etc will help maintain site integrity • Disturbance from noise and artificial lighting (effects on prospective designated species) – avoiding significant effects from lighting/noise will help maintain site in favourable condition for qualifying species • Disturbance to ground nesting birds – limit access to site, avoid development in close proximity to the site • Dust deposition (effects on supporting habitats) – avoiding significant effects associated with dust will help maintain site integrity • Water Quality (to maintain range of supporting habitats) – avoiding significant effects on water quality will help maintain site integrity • Habitat loss/fragmentation resulting in breaking up of area of suitability and resulting in a reduction of area and a reduction in favourability of remaining area – avoiding habitat loss will help maintain site integrity Invasive species resulting in change of ecology of supporting habitats. – avoid introduction of invasive species to help maintain site integrity

4 NEXT STEPS

INTRODUCTION

This section confirms areas in need of further assessment and information gaps, along with recommendations for the two plans going forward. A Method Statement for the next stages of work is also provided.

AREAS IN NEED OF FURTHER ASSESSMENT AND INFORMATION GAPS

The areas in need of further assessment relate to:

- Transport related impacts on air quality for those European sites outside of the County boundary. The likely number of trips and their destination and origin, e.g. markets needs to be better understood so that a more informed assessment of likely effects can be undertaken. Annexe F of the Design Manual for Roads and Bridges (DMRB) guidance provides a methodology for assessing air quality effects on Designated Sites associated with road traffic. If warranted this methodology could be used to assess air quality effects caused by changes in traffic flows brought about by the Strategies at European sites near to roads. The DMRB guidance identifies that the pollutant of most concern for sensitive vegetation near to roads is NOX. It provides a methodology for predicting atmospheric concentrations of NOX and nitrogen deposition at locations near to roads and determining the significance of changes in concentrations and deposition levels as a result of a proposed scheme It is likely that the potential effects of the Plans are difficult to assess, therefore a policy highlighting the need for projects to demonstrate no significant effect on the integrity of a European site in terms of air pollution and avoidance measures may be appropriate. In this context avoidance measures would include measures to optimise loads, promoting alternatives to road haulage where feasible and routing of vehicles.
- The approach to assessing potential for impacts on water levels and water quality outside the County needs to be agreed – any potential effects likely to be relatively localised and this issue seems best suited to being passed 'down the line' to project level EIAs. The role of the Core Strategies would be to provide a policy hook to ensure that such assessment took place at the project level and that all sites are considered, not just those within the plan area. The next iteration of the screening work could include:
    - A desk top review of the groundwater and surface water conditions and links between the designated areas and the areas of potential extraction;
    - Development of an opinion on whether there is the potential for impacts to these sites or they are not at risk; and
    - Where such risks cannot be discounted recommendations for a criteria based policy that enables the issue to be passed down the line to the project level.

CONSULTATION QUESTION 4.1: ARE THERE ANY AREAS IN NEED OF FURTHER ASSESSMENT OR INFORMATION GAPS?

CONSULTATION QUESTION 4.2 DO YOU AGREE THAT ISSUES RELATING TO AIR QUALITY, WATER QUALITY AND HYDROLOGY CAN BE PASSED DOWN THE LINE, PROVIDED THAT THE CORE STRATEGY CONTAINS A POLICY HIGHLIGHTING THE NEED FOR THE ASSESSMENT OF POTENTIAL EFFECTS?

METHOD STATEMENT

This section briefly sets out the proposed methodology for undertaking the Screening exercise to be applied to the draft policies. In devising the methodology we have had regard to existing relevant guidance (Assessment of Plans and Projects Significantly Affecting Natura 2000 sites, European Union November 2001 and Planning for the Protection of European Sites: Appropriate Assessment. Guidance for Regional Spatial Strategies and Local

Development Documents, DCLG 2006 and most recently Draft Guidance from Natural England on HRA of Local Development Documents, February 2009).

The EU guidance recommends the following key tasks:

- Brief description of the plan that is being considered;
- Characteristics of the sites that might be affected;
- Identification of potential effects and the 'pathways' that might give rise to these effects;
- An assessment of the significance of potential effects. This will need to consider cumulative effects, including those associated with other plans and projects;
- Reporting – we will prepare a succinct draft report setting out the results of the above tasks and a conclusion as to whether or not we consider that a full AA is needed; and
- Consultation.

Each of these tasks is discussed in more detail below:

Brief description of the plan that is being considered

The main elements of the Core Strategies should be briefly described including the following matters:

- Purpose and function of the documents;
- Structure and scope;
- Relationship to other documents;
- Key policies relating to the natural environment; and
- Anticipated distribution of development across the plan area.

Characteristics of the sites that might be affected

This will set out details of the agreed European sites, that might be affected summarised in a table. This will include consideration of the reasons for designation and the required environmental conditions. It will also summarise the attributes of the prospective SPA.

Identification of potential effects and the 'pathways' that might give rise to these effects

This work can draw on Section 3 of this report, together with any comments received from the statutory consultees. Latest guidance from Natural England (February 2009) suggests that thematic policies can be screened out if they fall into the following categories:

- Category A2: The policy is intended to protect the natural environment;
- Category A3: The policy is intended to conserve or enhance the natural, built or historic environment;
- Category A4: The policy would positively steer development away from European sites and associated sensitive areas;
- Category A5: The policy would have no effect because no development could occur through the policy itself, the development being implemented through later policies in the same plan, which are more specific and therefore more appropriate to assess for their effects on European Sites and associated sensitive areas.

Policies that could not initially be screened out are considered further. The Natural England guidance identifies the following categories in which such policies can be placed:

- Category B – no significant effect;
- Category C – likely significant effect alone; and

- Category D – Likely significant effects in combination.

The policies in the Core Strategies would be placed against one or more of these categories as appropriate and the results shown in a table. If a policy cannot be placed into one of the 'A' or 'B' categories it will need to be subjected to further consideration in terms of the potential effects that it will give rise to (see below). The aim will be to analyse the issue and provide suggested avoidance or mitigation measures that will allow the policy to be reclassified.

An assessment of the significance of potential effects

This will need to consider in-combination effects, including those associated with other plans. The work undertaken in Section 2 of this report provides a basis for that work.

The potential for significant effects on the European site, having regard to the factors set out above would be considered. The results of this work will be presented as a matrix.

Consideration of Avoidance and Mitigation Measures

The potential for avoidance and mitigation measures should be discussed; this could build on the work set out in Section Two of this report.

Reporting

The results of the above tasks, potential impacts resulting from the Core Strategies, dealing with each separately and a conclusion as to whether or not further work is needed and, if so, its nature are reported.
The implications of a prospective SPA at Sherwood Forest should be considered in the same way – with the results kept separate from consideration of the confirmed sites.

Consultation

The report should be consulted on alongside the draft plans. Note that if the consultation on the plans diverges then a separate report should be prepared for each plan and made available at the time the plan is consulted on.

Further Iterations

The HRA report should be updated and sit alongside any further versions of the Core Strategy

RECOMMENDATIONS FOR THE CORE STRATEGIES

We recommend that both Core Strategies contain a policy (or explanatory text) that states:

"Any development project that would be likely to have a significant effect on a European site either alone or in combination with other plans or projects would not be in accordance with the development plan and would not, therefore, have the benefit of the presumption in favour accorded via S.38 of the 2004 Act at application stage"

A specific policy relating to European sites and the need to demonstrate that projects will not harm a European site is also suggested for each Core Strategy. This should include air quality, water quality and hydrology as factors that will need to be examined.

In relation to the prospective SPA it is recommended that the Core Strategies seek to avoid potential effects on the area but the following wording may also be appropriate:

Prospective Special Protection Area

If a Special Protection Area is identified and sent to the European Commission for designation, the Council will review the Core Strategies to ascertain if any part of the document - whether policy or proposal - conflicts with the potential SPA designation and seek to review those as soon as is practicable.

CONSULTATION QUESTION 4.2: DO YOU AGREE WITH THE PROPOSED METHODOLOGY FOR THE NEXT STEPS?

In order to assist with the next steps of the HRA we would be grateful for comments by 5th September.
Please send comments to:

Wayne Allum
Acting Team Manager – Planning Policy Team
Planning Services
Nottinghamshire County Council
Trent Bridge House
Fox Road
West Bridgford
Nottingham NG2 6BJ

wayne.allum@nottscc.gov.uk

APPENDIX A: SCHEDULE OF EUROPEAN SITES

<table>
<tr><td>Site Name</td><td colspan="3">Birklands and Bilhaugh</td></tr>
<tr><td>Status</td><td colspan="3">Special Area of Conservation</td></tr>
<tr><td>Details of primary habitats for which site is designated</td><td colspan="3">Annex 1 Habitats that are a primary reason for selection of this site
9190 Old acidophilous oak woods with Quercus robur on sandy plains
Birklands and Bilhaugh is the most northerly site selected for old acidophilous oak woods and is notable for its rich invertebrate fauna, particularly spiders, and for a diverse fungal assemblage, including Grifoa suphurea and Fistulina hepatica. Both native oak species, Quercus petraea and Quercus robur, are present, with a mixture of age-classes, so there is good potential for maintaining the structure and function of the woodland system and a continuity of dead-wood habitats.</td></tr>
<tr><td>Details of primary species for which site is designated</td><td colspan="3">N/A</td></tr>
<tr><td>Other Qualifying Habitats/ Species</td><td colspan="3">N/A</td></tr>
<tr><td>Conservation objectives</td><td colspan="3">Natural England Draft Conservation Objectives for Birklands and Bilhaugh SAC (Taken from living legend AA)
<table>
<tr><th>Ecological Feature</th><th>Attribute</th><th>Target</th></tr>
<tr><td rowspan="6">Ancient semi-natural woodland, pasture mosaic/Old acidophilus oak wood on sandy plains W10 & W16a</td><td rowspan="2">Area</td><td>There is no decrease in the area of ancient semi-natural wood-pasture</td></tr>
<tr><td>No loss of the semi-natural wood-pasture mosaic</td></tr>
<tr><td rowspan="4">Structure and natural processes</td><td>At least three age classes present and spread across the average life expectancy of the commonest trees</td></tr>
<tr><td>No reduction in the number of veteran trees other than through natural processes</td></tr>
<tr><td>All standing veteran trees (>120cms dbh) are retained indefinitely and number ideally between 5-10 per hectare [Current distribution of veteran trees given in ENRR 361]</td></tr>
<tr><td>All standing veterans have free crowns and are clear of competitive woody growth within at least a 5-10 metre radius of their canopy</td></tr>
</table></td></tr>
</table>

Site Name	Birklands and Bilhaugh		
Status	**Special Area of Conservation**		
			Mature native oak trees (>80cms dbh) average at least 5 trees per hectare
			Associated areas of permanent open (i.e.<25% tree cover) semi-natural habitat (e.g. acid grass-heath) covers between 10-30% of the wood-pasture mosaic
			Fallen decaying wood is visibly abundant from any one place (presence of one or more large fallen trunks/major boughs >50 cms in diameter, smaller pieces of timber numerous)
		Regeneration	At least 5 native oak saplings or young trees (>1.5 m high) visible from any one place OR 10% of the number of veteran trees occur as young trees (>3m high) measured every 10 Years
			Any planting material is composed of locally native stock
			Saplings of trees and shrubs such as rowan, hawthorn and birch present
		Composition	Less than 1% of woodpasture, canopy and shrub layer occupied by non-native species. Beech and sweet chestnut are included as introductions, but retention of existing mature and veteran specimens of this species is acceptable.
			Canopy cover (>25% tree cover) is present across no less than 70-80% of the unit Area
			Less than 5% of mature trees > 80cms dbh show severe stress or death attributable to disease, subsurface activities or pollution
		Local	Less than 5% of semi-natural wood-pasture mosaic area is heavily

Site Name	Birklands and Bilhaugh		
Status	**Special Area of Conservation**		
		distinctiveness	poached (by grazing animals) or heavily trampled (by recreational pressure)
			Less than 5% of semi-natural wood-pasture mosaic is heavily modified, improved or composed of vegetation characteristic of high disturbance levels
			At least 80% of woodland vegetation referable to appropriate NVC type (mainly W10, W16a)
			At least 95% of permanent open space within woodpasture mosaic referable to an appropriate NVC vegetation type (mainly H9, U2, U4)
		Associated species	No evidence from periodic expert surveys (at least once every 6 years) of a loss of key saproxylic species or a significant decline in their habitat quality (as assessed by more frequent simple visual surveys)
Condition assessment	Condition of the Birklands and Bilhaugh SSSI is assessed as 'Unfavourable Recovering'.		
A summary of the Management Plan for the site (where one is in place)	The site is managed as part of the Sherwood Forest National Nature Reserve, which is subject to a management plan.		
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The site is currently open to the public and features a visitor centre. Some visitor paths are fenced.		

Site Name	Peak District Dales
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	**Annex 1 Habitats that are a primary reason for selection of this site** **6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)** Peak District Dales is one of the most extensive surviving areas in England of CG2 *Festuca ovina – Avenula pratensis* grassland. Grasslands at this site range from hard-grazed short turf through to tall herb-rich vegetation, with transitions through to calcareous scrub and 9180 *Tilio-Acerion* forests – a diversity of structural types unparalleled in the UK. There is also a great physical diversity due to rock outcrops, cliffs, screes and a variety of slope gradients and aspects. In contrast to examples of *Festuca – Avenula* grassland on chalk to the south, these grasslands are less at risk from the threat of invasion by upright brome *Bromopsis erecta* and tor-grass *Brachypodium pinnatum*, which are at the edge of their range here and have limited vigour. The relatively cold oceanic nature of the climate means that there is enrichment with northern floristic elements, such as limestone bedstraw *Galium sterneri* and globeflower *Trollius europaeus.* **9180 Tilio-Acerion forests of slopes, screes and ravines * Priority feature** Representing the north-central part of its UK range, this site in the English Midlands contains a large area of *Tilio-Acerion,* dominated by ash *Fraxinus excelsior*. Locally, sycamore *Acer pseudoplatanus* is abundant. The Dales provide good examples of woodland-scrub-grassland transitions, with associated rich invertebrate populations and plant communities. Among the uncommon plants present in the woods are mezereon *Daphne mezereum* and green hellebore *Helleborus viridis*, as well as whitebeams *Sorbus spp.* on the crags.
Details of primary species for which site is designated	**Annex II species that are a primary reason for selection of this site** **1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*** The River Dove represents white-clawed crayfish *Austropotamobius pallipes* in a high-quality, upland limestone river, in the north-east of the species' UK range.
Other Qualifying Habitats/ Species	**Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site** • 4030 European dry heaths • 6130 Calaminarian grasslands of the *Violetalia calaminariae* • 7230 Alkaline fens • 8120 Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) • 8210 Calcareous rocky slopes with chasmophytic vegetation **Annex II species present as a qualifying feature, but not a primary reason for site selection** • 1096 Brook lamprey *Lampetra planeri* • 1163 Bullhead *Cottus gobio*

Site Name	Peak District Dales
Status	**Special Area of Conservation**
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Condition assessment	A Condition assessment has been undertaken for Dove Valley and Biggin Dale SSSI, which lies within the SAC. This assessment found that majority of the SSI is in Favourable condition, or Unfavourable Recovering. A small area (3.51%) was found to be Unfavourable No Change.
A summary of the Management Plan for the site (where one is in place)	Some of the dalesides are now managed under Countryside Stewardship, which has brought about considerable improvements in their management. Similarly since 1996 Natural England's White Peak Wildlife Enhancement Scheme has been successful in attracting land managers and enhancing the conservation value of sites. Neglect has resulted in invasion by non-native species in some woods. This is now being addressed where possible through management under a Wildlife Enhancement Scheme. In some areas access by grazing livestock to some of the woodlands has resulted in a degraded ground flora, and limited regeneration of the shrub and canopy species. Once again, this is to be addressed, wherever practicable, through the Wildlife Enhancement Scheme.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	This extensive area is largely open to the public.

Site Name	South Pennine Moors
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	**Annex I habitats that are a primary reason for selection of this site** **4030 European dry heaths** The site is representative of upland dry heath at the southern end of the Pennine range, the habitat's most south-easterly upland location in the UK. Dry heath covers extensive areas, occupies the lower slopes of the moors on mineral soils or where peat is thin, and occurs in transitions to acid grassland, wet heath and 7130 blanket bogs. The upland heath of the South Pennines is strongly dominated by heather *Calluna vulgaris*. Its main NVC types are H9 *Calluna vulgaris – Deschampsia flexuosa* heath and H12 *Calluna vulgaris – Vaccinium myrtillus* heath. More rarely H8 *Calluna vulgaris – Ulex gallii* heath and H10 *Calluna vulgaris – Erica cinerea* heath are found. On the higher, more exposed ground H18 Va*ccinium myrtillus – Deschampsia flexuosa* heath becomes more prominent. In the cloughs, or valleys, which extend into the heather moorlands, a greater mix of dwarf shrubs can be found together with more lichens and mosses. The moors support a rich invertebrate fauna, especially moths, and important bird assemblages. **7130 Blanket bogs * Priority feature** This site represents blanket bog in the south Pennines, the most south-easterly occurrence of the habitat in Europe. The bog vegetation communities are botanically poor. Hare's-tail cottongrass *Eriophorum vaginatum* is often overwhelmingly dominant and the usual bog-building Sphagnum mosses are scarce. Where the blanket peats are slightly drier, heather *Calluna vulgaris*, crowberry *Empetrum nigrum* and bilberry *Vaccinium myrtillus* become more prominent. The uncommon cloudberry *Rubus chamaemorus* is locally abundant in bog vegetation. Bog pools provide diversity and are often characterised by common cottongrass *E. angustifolium*. Substantial areas of the bog surface are eroding, and there are extensive areas of bare peat. In some areas erosion may be a natural process reflecting the great age (9000 years) of the south Pennine peats. **91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles** Around the fringes of the upland heath and bog of the south Pennines are blocks of old sessile oak woods, usually on slopes. These tend to be dryer than those further north and west, such that the bryophyte communities are less developed (although this lowered diversity may in some instances have been exaggerated by the effects of 19th century air pollution). Other components of the ground flora such as grasses, dwarf shrubs and ferns are common. Small areas of alder woodland along stream-sides add to the overall richness of the woods.
Details of primary species for which site is designated	N/A
Other Qualifying Habitats/ Species	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • 4010 Northern Atlantic wet heaths with Erica tetralix • 7140 Transition mires and quaking bogs
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)

Site Name	South Pennine Moors
Status	**Special Area of Conservation**
Condition assessment	A condition assessment has been undertaken for the Dark Peak SSSI, which falls within the site. The majority of this SSSI has been assessed as Unfavourable Recovering.
A summary of the Management Plan for the site (where one is in place)	The South Pennine Moors is subject to The South Pennine Moors Integrated Management Strategy and Conservation Action Programme.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	This extensive area is largely open to the public.

Site Name	Peak District Moors (South Pennine Moors Phase 1)
Status	**Special Protection Area**
Details of primary habitats for which site is designated	N/A
Details of primary species for which site is designated	**ARTICLE 4.1 QUALIFICATION (79/409/EEC)** During the breeding season the area regularly supports: • Short-eared Owl *Asio flammeus* - at least 2.2% of the GB breeding population Count, as at 1990 and 1998 • Merlin *Falco columbarius* - at least 2.3% of the GB breeding population Count as at 1990 and 1998 • Golden Plover *Pluvialis apricaria* - (North-western Europe - breeding) at least 1.9% of the GB breeding population Count, as at 1990 and 1998
Other Qualifying Habitats/ Species	Parts of the SPA are also designated as the South Pennine Moors SAC
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Main habitats within site which support the Primary Qualifying Features	The site features the following habitat classes: Inland water bodies (1%), Bogs, Marshes, Water fringed vegetation, Fens (35%), Heath, Scrub, Maquis and garrigue, Phygrana (40%), Dry grassland (16%), Humid grassland, Mesophile grassland (6%), Broadleaved deciduous woodland (1%), Inland rocks, Screes, Sands, Permanent snow and ice (1%). It is also worth noting that the site has been identified as a possible SAC for habitats such as blanket bog and there will be a need to balance the management of the different interests across the whole site
Condition assessment	A condition assessment has been undertaken for the Dark Peak SSSI, which falls within the site. The majority of this SSSI has been assessed as Unfavourable Recovering.
A summary of the Management Plan for the site (where one is in place)	Grazing pressure is generally being lowered and appropriate burning encouraged by two separate ESAs which encourage and support habitat restoration.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	Approximately two thirds of the moorlands are open to the public.

Site Name	Bees Nest and Green Clay Pits SAC
Status	**Special Areas of Conservation**
Details of primary habitats for which site is designated	N/A
Details of primary species for which site is designated	**Annex II species that are a primary reason for selection of this site:** **1166 Great crested newt *Triturus cristatus*** The site encompasses a series of silica sand pits supporting a complex mosaic of acidic and calcareous grassland, with small areas of heathland communities. There are also areas of open water, flushes and communities of disturbed ground. Great crested newts *Triturus cristatus* occur in a number of ponds on site, which vary in size, profile and vegetation cover
Other Qualifying Habitats/ Species	**Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** • 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Condition assessment	The condition of the SSSI (which covers the same extent as the SAC) has been assessed to be favourable/unfavourable recovering.
A summary of the Management Plan for the site (where one is in place)	The land is currently grazed by a tenant who is in English Nature's Wildlife Enhancement Scheme. There are currently problems with the grazing management, which is affecting the quality of the grassland. The ponds require maintenance and enhancement management for the newts. English Nature will be taking action on this in the short-term.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The site is not open to the public.

Site Name	Gang Mine
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	**Annex I habitats that are a primary reason for selection of this site** **6130 Calaminarian grasslands of the *Violetalia calaminariae*** Gang Mine is an example of Calaminarian grasslands in an anthropogenic context in northern England. Natural limestone outcrops supporting species typical of calaminarian grasslands are rare and small, with a very impoverished flora. This site is included to provide an example of the habitat type on sedimentary rocks; it has colonised the large area of mine workings and spoil heaps on limestone. These are notable for the wide variations in slope, aspect and soil toxicity. Floristically the site contains the richest anthropogenic Calaminarian grasslands in the UK, with abundant spring sandwort *Minuartia verna* and alpine penny-cress *Thlaspi caerulescens*. Other species of grassland vegetation present include early-purple orchid *Orchis mascula* and dyer's greenweed *Genista tinctoria*. Many of these species are likely to be distinct genotypes adapted to soils rich in heavy metals.
Details of primary species for which site is designated	N/A
Other Qualifying Habitats/ Species	N/A
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Condition assessment	The condition of the SSSI (which covers the same extent as the SAC) has been largely assessed to be Favourable, with the remaining area assessed as Unfavourable Recovering.
A summary of the Management Plan for the site (where one is in place)	Approximately one-fifth of Gang Mine is currently ungrazed. If this continues, the accumulation of plant litter will result in detrimental successional change, although temporary cessation of grazing will allow the development of the unusual lichen-rich sub-community. This area has recently been purchased by Derbyshire Wildlife Trust and will be developed as a nature reserve with funding under English Nature's Reserves Enhancement Scheme. The remaining area is currently well-grazed, being managed under the MAFF Countryside Stewardship Scheme, and is under no immediate threat. Site management will be assisted if appropriate by the White Peak Wildlife Enhancement Scheme which was launched in early 1996.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The site is traversed by public rights of way.

Site Name	Hatfield Moor
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	**Annex I habitats that are a primary reason for selection of this site** **7120 Degraded raised bogs still capable of natural regeneration** Hatfield Moors is a remnant of the once-extensive bog and fen peatlands within the Humberhead Levels, and is still the second-largest area of extant lowland raised bog peat in England. Moraines of sand occur beneath the peat, the largest of which forms Lindholme Island, in the centre of the bog. Little, if any, original bog surface has survived the massive extraction of peat over the last few decades. Peat-cutting has now ceased, and the bog is being restored over its remaining minimum average depth of 0.5 m of peat. 4.1.1
Details of primary species for which site is designated	N/A
Other Qualifying Habitats/ Species	N/A
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Condition assessment	The condition of the SSSI (which covers the same extent as the SAC) has been largely assessed to be unfavourable recovering. Although, some small areas of the site have been assed as being unfavourable no change/unfavourable declining.
A summary of the Management Plan for the site (where one is in place)	The majority of the site is currently under the ownership of Derbyshire Wildlife Trust who are developing it as a nature reserve. The remaining area is well grazed and is under the Countryside Stewardship Scheme.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The site is designated as an NNR and is publically accessible.

Site Name	Thorne Moor
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	**Annex I habitats that are a primary reason for selection of this site** **7120 Degraded raised bogs still capable of natural regeneration** Thorne Moor is England's largest area of raised bog, lying a few kilometres from the smaller Hatfield Moors, both within the former floodplain of the rivers feeding the Humber estuary (Humberhead Levels), and includes the sub-components Goole Moors and Crowle Moors. Although recent management has increased the proportion of 7110 active raised bog at Thorne Moors, the inclusion of Goole Moors, where peat-extraction has now ceased, means that the site is still predominantly degraded raised bog. The restored secondary surface is rich in species of 7110 Active raised bogs with bog-mosses *Sphagnum spp*., cottongrasses *Eriophorum angustifolium* and *E. vaginatum*, heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, round-leaved sundew *Drosera rotundifolia*, cranberry *Vaccinium oxycoccos* and bog-rosemary *Andromeda polifolia.*
Details of primary species for which site is designated	N/A
Other Qualifying Habitats/ Species	N/A
Conservation objectives	To maintain the designated interest feature in favorable condition.
Condition assessment	The condition of the SSSI (which covers the same extent as the SAC) has been largely assessed to be unfavourable recovering. Although, some small areas of the site have been assed as being unfavourable no change/unfavourable declining.
A summary of the Management Plan for the site (where one is in place)	Much of the site has been successfully restored to active bog through maintenance of water levels, though a large area is classed as degraded because restoration to its previous habitat is still in early stages. Peat-cutting (now very limited (approx. 15 ha), and which will be addressed via the review of planning consents), water abstraction from the underlying aquifer (consented by the EA), and surrounding agricultural drainage (addressable through Water Level Management Plans) affect the ability to successfully restore the degraded bog. Scrub invasion following drainage and peat-cutting is addressed via the Site Management Statements, NNR management and WES agreements.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The site is designated as an NNR and is publically accessible.

Site Name	Thorne and Hatfield Moors
Status	**Special Protection Area**
Details of primary habitats for which site is designated	N/A
Details of primary species for which site is designated	**ARTICLE 4.1 QUALIFICATION (79/409/EEC)** During the breeding season the area regularly supports: European Nightjar *Caprimulgus europaeus* - 1.9% of the GB breeding population. 5 count peak mean 1993, 1995-1998
Other Qualifying Habitats/ Species	N/A
Conservation objectives	To maintain the designated interest feature(s) in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Main habitats within site which support the Primary Qualifying Features	Mosaic of open spaces, also designated as Thorne Moor SAC and Hatfield Moor SAC. These include Inland water bodies (10%), Bogs, Marshes, water fringed vegetation, Fens (28%), Heath, Scrub, Maquis and garrigue, Phygrana (21%), Broadleaved deciduous woodland (14%), Coniferous woodland (1%), Other land (including towns, villages, roads, waste places, mines, industrial sites) (26%)
Condition assessment	The condition of the SSSIs (which cover the same extent as the SPA) have largely been assessed to be unfavourable recovering. Although, some small areas of the site have been assed as being unfavourable no change/unfavourable declining.
A summary of the Management Plan for the site (where one is in place)	Lack of management is being addressed by a programme of scrub clearance work to create a mosaic of open spaces. The National Nature Reserve Management Plan, which relates to the site, incorporates information regarding the requirements and previous site usage by nightjars, thus ensuring that both the interests of the raised mire system and the nightjar are addressed.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The site is designated as an NNR and is publically accessible.

Site Name	Humber Estuary
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	**Annex I habitats that are a primary reason for selection of this site** **1130 Estuaries** The Humber is the second-largest coastal plain estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. It is a muddy, macro-tidal estuary, fed by the Rivers Ouse, Trent and Hull, Ancholme and Graveney. Suspended sediment concentrations are high, and are derived from a variety of sources, including marine sediments and eroding boulder clay along the Holderness coast. This is the northernmost of the English east coast estuaries whose structure and function is intimately linked with soft eroding shorelines. Habitats within the Humber Estuary include 1330 Atlantic salt meadows and a range of sand dune types in the outer estuary, together with subtidal sandbanks (H1110 Sandbanks which are slightly covered by sea water all the time), extensive intertidal mudflats (H1140 Mudflats and sandflats not covered by seawater at low tide), glasswort beds (H1310 Salicornia and other annuals colonising mud and sand), and 1150 coastal lagoons. As salinity declines upstream, reedbeds and brackish saltmarsh communities fringe the estuary. These are best-represented at the confluence of the Rivers Ouse and Trent at Blacktoft Sands. Upstream from the Humber Bridge, the navigation channel undergoes major shifts from north to south banks, for reasons that have yet to be fully explained. This section of the estuary is also noteworthy for extensive mud and sand bars, which in places form semi-permanent islands. Significant fish species include 1099 river lamprey *Lampetra fluviatilis* and 1095 sea lamprey *Petromyzon marinus* which breed in the River Derwent, a tributary of the River Ouse. **1140 Mudflats and sandflats not covered by seawater at low tide** the Humber Estuary includes extensive intertidal mudflats and sandflats not covered by seawater at low tide. Upstream from the Humber Bridge, extensive mud and sand bars in places form semi-permanent islands.
Details of primary species for which site is designated	N/A
Other Qualifying Habitats/ Species	**Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site** • 1110 Sandbanks which are slightly covered by sea water all the time • 1150 Coastal lagoons * Priority feature • 1310 Salicornia and other annuals colonising mud and sand • 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) • 2110 Embryonic shifting dunes • 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`) • 2130 Fixed dunes with herbaceous vegetation (`grey dunes`) * Priority feature • 2160 Dunes with *Hippophae rhamnoides* **Annex II species present as a qualifying feature, but not a primary reason for site selection** • 1095 Sea lamprey *Petromyzon marinus* • 1099 River lamprey *Lampetra fluviatilis* • 1364 Grey seal *Halichoerus grypus*

Site Name	Humber Estuary
Status	**Special Area of Conservation**
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Condition assessment	The condition of the SSSI (which covers the same extent as the SAC) has largely been assessed to be unfavourable recovering. Although, some small areas of the site have been assed as being unfavourable no change/unfavourable declining. A small area of the SSSI has been assessed as favourable.
A summary of the Management Plan for the site (where one is in place)	Coastal squeeze is being addressed through the development and implementation of the Humber Flood Risk Management Strategy. All proposals for flood defence, development, dredging, abstractions and discharges which require consent from any statutory body, and land use plans which may have impacts upon the site are subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (the "Habitats Regulations"). Diffuse pollution will be addressed through a range of measures including implementation of the Waste Water Framework Directive and Catchment Sensitive Farming initiatives. Other issues are addressed via a range of measures including regulation of on-site land management activities and implementation of the Humber Management Scheme, developed by all relevant statutory bodies to assist in the delivery of their duties under the Habitats Regulations.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The Estuary is largely accessible to the public.

Site Name	River Mease
Status	**Special Area of Conservation**
Details of primary habitats for which site is designated	N/A
Details of primary species for which site is designated	**Annex II species that are a primary reason for selection of this site** **1149 Spined loach *Cobitis taenia*** The River Mease is a good example of a riverine population of spined loach *Cobitis taenia*. It is a small tributary of the River Trent and has retained a reasonable degree of channel diversity compared to other similar rivers containing spined loach populations. It has extensive beds of submerged plants along much of its length which, together with its relatively sandy sediments (as opposed to cohesive mud) provides good habitat opportunities for the species. **1163 Bullhead *Cottus gobio*** The Mease is an example of bullhead Cottus gobio populations in the rivers of central England. Bed sediments are generally not as coarse as other sites selected for the species, reflecting the nature of many rivers in this geographical area, but are suitable in patches due to the river's retained sinuosity. The patchy cover from submerged macrophytes is also important for the species.
Other Qualifying Habitats/ Species	**Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site** • 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation **Annex II species present as a qualifying feature, but not a primary reason for site selection** • 1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* • 1355 Otter *Lutra lutra*
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Condition assessment	The condition of the SSSI (which covers a similar extent as the SAC) has been assessed to be entirely unfavourable no change.
A summary of the Management Plan for the site (where one is in place)	None found
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The River Mease is easily accessible to public and features many public rights of way.

Site Name	Humber Estuary
Status	**Special Protection Area**
Details of primary habitats for which site is designated	N/A
Details of primary species for which site is designated	**ARTICLE 4.1 QUALIFICATION (79/409/EEC)** **During the breeding season the area regularly supports:** *Botaurus stellaris* (Europe - breeding) 10.5% of the population in Great Britain 2000-2002 *Circus aeruginosus* 6.3% of the population in Great Britain 1998-2002 *Recurvirostra avosetta* (Western Europe/Western Mediterranean - breeding) 8.6% of the population in Great Britain 1998-2002 *Sterna albifrons* (Eastern Atlantic - breeding) 2.1% of the population in Great Britain 1998-2002 **Over winter the area regularly supports:** *Botaurus stellaris* (Europe - breeding) 4% of the population in Great Britain 1998/9 to 2002/3 *Circus cyaneus* 1.1% of the population in Great Britain 1997/8 to 2001/2 *Limosa lapponica* (Western Palearctic - wintering) 4.4% of the population in Great Britain 1996/7 to 2000/1 *Pluvialis apricaria* (North-western Europe - breeding) 12.3% of the population in Great Britain 1996/7 to 2000/1 *Recurvirostra avosetta* (Western Europe/Western Mediterranean - breeding) 1.7% of the population in Great Britain 1996/7 to 2000/1 **On passage the area regularly supports:** *Philomachus pugnax* (Western Africa - wintering) 1.4% of the population in Great Britain 1996-2000 **ARTICLE 4.2 QUALIFICATION (79/409/EEC)** **Over winter the area regularly supports:** *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 1.7% of the population 1996/7 to 2000/1 *Calidris canutus* (North-eastern Canada/Greenland/Iceland/North-western Europe) 6.3% of the population 1996/7 to 2000/1 *Limosa limosa islandica* (Iceland - breeding) 3.2% of the population 1996/7 to 2000/1 *Tadorna tadorna* (North-western Europe) 1.5% of the population 1996/7 to 2000/1 *Tringa totanus* (Eastern Atlantic - wintering) 3.6% of the population 1996/7 to 2000/1 **On passage the area regularly supports:** *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 1.5% of the population 1996-2000 *Calidris canutus* (North-eastern Canada/Greenland/Iceland/North-western Europe) 4.1% of the population 1996-2000 *Limosa limosa islandica* (Iceland - breeding) 2.6% of the population 1996-2000 *Tringa totanus* (Eastern Atlantic - wintering) 5.7% of the population 1996-2000 **ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS** **In the non-breeding season the area regularly supports:** 153934 waterfowl (5 year peak mean 1996/7 to 2000/1) Including: *Anas crecca , Anas penelope , Anas platyrhynchos , Arenaria interpres , Aythya ferina , Aythya marila , Botaurus stellaris , Branta bernicla bernicla , Bucephala clangula , Calidris alba , Calidris alpina alpina , Calidris canutus , Charadrius hiaticula , Haematopus ostralegus , Limosa lapponica , Limosa limosa islandica ,*

Site Name	Humber Estuary
Status	**Special Protection Area**
	Numenius arquata , Numenius phaeopus , Philomachus pugnax , Pluvialis apricaria , Pluvialis squatarola , Recurvirostra avosetta , Tadorna tadorna , Tringa nebularia , Tringa totanus , Vanellus vanellus
Other Qualifying Habitats/ Species	N/A
Conservation objectives	To maintain the designated interest feature in favorable condition. (taken from the Habitats Regulations Assessment of the East Midlands Regions Plan (RSS), Treweek Environmental Consultants & Environ, March 2009)
Main habitats within site which support the Primary Qualifying Features	The habitat classes within the SPA include Tidal rivers, Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins) (93.6%), Salt marshes, Salt pastures, Salt steppes (4.6%), Coastal sand dunes, Sand beaches, Machair (0.8%), Inland water bodies (standing water, running water) (0.6%), Bogs, Marshes, Water fringed vegetation, Fens (0.3%). The Humber Estuary is also designated as an SAC for its habitats.
Condition assessment	The condition of the SSSI (which covers the same extent as the SAC) has largely been assessed to be unfavourable recovering. Although, some small areas of the site have been assed as being unfavourable no change/unfavourable declining. A small area of the SSSI has been assessed as favourable.
A summary of the Management Plan for the site (where one is in place)	Coastal squeeze is being addressed through the development and implementation of the Humber Flood Risk Management Strategy. All proposals for flood defence, development, dredging, abstractions and discharges which require consent from any statutory body, and land use plans which may have impacts upon the site are subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (the "Habitats Regulations"). Diffuse pollution will be addressed through a range of measures including implementation of the Waste Water Framework Directive and Catchment Sensitive Farming initiatives. Other issues are addressed via a range of measures including regulation of on-site land management activities and implementation of the Humber Management Scheme, developed by all relevant statutory bodies to assist in the delivery of their duties under the Habitats Regulations.
Information on whether or not the site is currently open to the public and whether or not any visitor survey data exists	The SPA is largely open to the public and is utilised for recreational activities.

APPENDIX B: Potential Effects on the prospective SPA		
Potential Effect	Nightjar	Woodlark
Construction Phase		
a) Degradation of adjacent semi-natural habitats by water pollution	Adherence to the requirements of the Environment Agency should help avoid such incidents occurring and manage them if they do. It is assumed that sites would have emergency procedures in place. Nightjar nesting is not associated with water related or dependent habitat or habitats otherwise particularly sensitive to water pollution. Such an incident would not affect Nightjar indirectly through their food supply as such a managed incident would not have a significant or widespread effect on the invertebrates that are the food source for this species. The significance of any effect would depend on the proximity of the incident to nesting sites. Any effect would be localised and temporary.	Adherence to the requirements of the Environment Agency should help avoid such incidents occurring and manage them if they do. It is assumed that sites would have emergency procedures in place. Woodlark nesting is not associated with water related or dependent habitat or habitats otherwise particularly sensitive to water pollution. During the breeding season they feed on invertebrates picked off the ground and off low vegetation and have a strong dependence on bare ground to forage. Such an incident would not affect Woodlark food supply provided it was managed and did not have a widespread effect on the invertebrates that are the food source for this species.
b) Disturbance by noise	The local planning authority can set conditions on the maximum acceptable noise level. The effect of noise, above an identified threshold, would be to mask the territorial song of Nightjar, if the threshold were exceeded over the habitat that is regularly used by territorial Nightjar then this may disrupt territory establishment and hence reduce the chance of successful nesting. As these acceptable noise levels are typically based on residential locations and could be in excess of the threshold for the 'masking' of bird calls by noise then temporary adverse effects on breeding birds could be predicted if those exceedances occur during the breeding season and the relevant species occur within the zone over which the exceedance is predicted to occur. The effect from the construction phase that may have impacts on breeding birds results from any continuous noise that might 'mask' the communication between birds. A threshold noise level of 55dB LAeq. has been identified as significant in this context. The effect of noise, above an identified threshold, would be to mask the territorial calls of Nightjar. If the threshold were exceeded over	The local planning authority can set conditions on the maximum acceptable noise level. The effect of noise, above an identified threshold, would be to mask the territorial song of Woodlark. If the threshold were exceeded over habitat that is regularly used by territorial Woodlark then this may disrupt territory establishment and hence reduce the chance of successful nesting. A threshold noise level of 55dB LAeq. has been identified as significant in this context[10]. Avoiding the breeding season or limiting the duration of operations during the breeding season, including to the afternoons when song activity is reduced in Woodlark, would avoid the effect of such construction noise impacts. If this was not practicable then there would be potential for significant potential effects. However this would need to be confirmed through project level Appropriate Assessment.

[10] Brumm, H. (2004). The impact of environmental noise on song amplitude in a territorial bird. Journal of Animal Ecology 73: 434-440

APPENDIX B: Potential Effects on the prospective SPA		
Potential Effect	Nightjar	Woodlark
	habitat that is regularly used by territorial Nightjar then this may disrupt territory establishment and hence reduce the chance of successful nesting. Nightjar call between the hours of ~20.30 and 06.00 in late spring and late summer and for a shorter period in the height of summer so provided there was no noise during this period there should be no significant effect. However this would need to be confirmed through project level Appropriate Assessment.	
c) Disturbance by light pollution	Lighting is typically used during the construction phase to allow normal working hours during shorter winter days. Nightjar is a summer visitor, occurring in the UK between May and early September. It feeds during the hours of darkness, with the greatest level of feeding activity from dusk to midnight. Early or late in the breeding season Nightjar would not emerge to feed until ~20.30hrs, emerging later in the height of summer. The effect of lighting in the construction phase on Nightjar would either be to deter them from feeding across lit areas or to reduce the availability of flying insect food in lit areas. Limiting external lighting for construction and limiting the operating hours for the construction phase could help avoid lightspill onto habitats used by Nightjar at the time of year and time of night when Nightjar will be using those habitats. However the potential for harm would need to be confirmed through project level Appropriate Assessment.	Woodlark is not active at night, feeding by sight by day and singing by day. It is not known to be sensitive to artificial lighting. Woodlark will not be active in winter when bright lighting is needed to permit construction activity to continue during normal working hours during the short winter days. No significant effect associated with lighting is therefore predicted.
d) Disturbance by human activity	Potential effects under this category are associated with moving around and potentially accessing adjoining heathland during the construction phase. The potential for such effects would depend on the proximity of the development to the site and/or supporting habitats. The potential for such effects would depend on the location of the site entrance relative to the European site and the effectiveness of security fencing. The provision of suitable welfare facilities on the site would also mean that construction workers do not need to move off the site to eat and presumably this could be conditioned if necessary.	Potential effects under this category are associated with moving around and potentially accessing adjoining heathland during the construction phase. The potential for such effects would depend on the proximity of the development to the site and/or supporting habitats. The potential for such effects would depend on the location of the site entrance relative to the European site and the effectiveness of security fencing. The provision of suitable welfare facilities on the site would also mean that construction workers do not need to move off the site to eat and presumably this could be conditioned if necessary. Woodlark have been shown to be sensitive to disturbance by people walking across their nesting

APPENDIX B: Potential Effects on the prospective SPA		
Potential Effect	Nightjar	Woodlark
	Nightjar have been shown to be sensitive to disturbance by people walking across their nesting grounds, especially when accompanied by dogs that are not under close control or on a lead, and this leads to reduced nest density and breeding success The potential for effects would therefore depend on the proximity of any development to potential nesting sites. This would need to be established through project level AA.	grounds, especially when accompanied by dogs that are not under close control or on a lead. This disturbance deters male birds from establishing territories and reduces the density of breeding Woodlark. The potential for effects would therefore depend on the proximity of any development to potential nesting sites. This would need to be established through project level AA.
e) Disturbance by construction vehicle movements	Nightjar might flush from the nest by the movement of a vehicle (a person on foot will not flush an incubating or brooding Nightjar until within a few metres). The peak periods of vehicle movement to and from the proposed construction sites should not coincide with those hours in the late spring and summer when Nightjar are foraging or the males defending their territories (the maximum period being from ~20.30hrs to ~06.00hrs). The peak numbers of vehicles arriving and leaving a construction site are likely to be later in the morning and earlier in the evening than the period of Nightjar activity. As a result the peaks in vehicle movements will probably not occur at the time that Nightjar are foraging or males engaging in territorial activity.	The peak periods of vehicle movement to and from a construction site will probably not coincide with those hours in the spring and summer when Woodlark are most actively foraging to feed chicks or the males defending their territories. The maximum intensity of these activities occurs in the first few hours after dawn.
Operational Phase		
a) Direct land-take within or adjacent to the prospective SPA	This could result in the loss of habitat for Nightjar within or adjacent to the prospective SPA. There is potential for losses to be mitigated by provision of replacement habitat but this would need to be confirmed through project level AA.	This could result in the loss of habitat for Woodlark within or adjacent to the prospective SPA. There is potential for losses to be mitigated by provision of replacement habitat but this would need to be confirmed through project level AA.
b) Degradation of adjacent semi-natural habitats by air pollution	For the population of Nightjar in the area to be affected there would need to be significant effects on vegetation that led to consequential changes that had an effect on the species. This could be through accelerating the growth of vegetation generally or by favouring the growth of particular species over others to make the area unsuitable as nesting habitat. It could be through more indirect effects resulting from changes in vegetation growth or the balance between plant species that resulted in the habitat	For the population of Woodlark in the area to be affected there would need to be significant effects on vegetation that led to consequential changes that had an effect on the species. This could be through accelerating the growth of vegetation generally or by favouring the growth of particular species over others to make the area unsuitable as nesting habitat. It could be through more indirect effects resulting from changes in vegetation growth or the balance between plant species that resulted in the habitat producing fewer of the invertebrates

APPENDIX B: Potential Effects on the prospective SPA		
Potential Effect	Nightjar	Woodlark
	producing fewer of the invertebrates that are prey for these birds. For industrial processes, the current guidance that is used when assessing point source emissions is the IPPC H1 Guidance for the Environmental Assessment and Appraisal of BAT (available to download from http://www.environment-agency.gov.uk/business/topics/pollution/37231.aspx). Not all industrial processes/emissions will require assessment. A simple screening tool is provided with the guidance to determine which pollutants emitted from a process are released in significant amounts and which are not. For those pollutants which are emitted in significant amounts, detailed modelling may be required if the process is located near to sensitive receptors/locations of relevant exposure. The H1 document indicates that designated sites (including European sites) which are located within 10 km of the pollutant source should be considered as a sensitive receptor within an assessment. For major emitters (large power stations, refineries, or iron and steelworks) this distance increases to 15km. The potential for effects associated with point source emissions would therefore need to be assessed through project level AA.	that are prey for these birds. For industrial processes, the current guidance that is used when assessing point source emissions is the IPPC H1 Guidance for the Environmental Assessment and Appraisal of BAT (available to download from http://www.environment-agency.gov.uk/business/topics/pollution/37231.aspx). Not all industrial processes/emissions will require assessment. A simple screening tool is provided with the guidance to determine which pollutants emitted from a process are released in significant amounts and which are not. For those pollutants which are emitted in significant amounts, detailed modelling may be required if the process is located near to sensitive receptors/locations of relevant exposure. The H1 document indicates that designated sites (including European sites) which are located within 10 km of the pollutant source should be considered as a sensitive receptor within an assessment. For major emitters (large power stations, refineries, or iron and steelworks) this distance increases to 15km. The potential for effects associated with point source emissions would therefore need to be assessed through project level AA.
c) Degradation of adjacent semi-natural habitats by water pollution	Potential avoidance/mitigation measures include bunding of any liquid tanks and the storage of all materials to the requirements of Environment Agency guidance. Drainage and washdown water could be recycled on site and any excess be treated in a dedicated water treatment plant prior to release to the sewer system to the conditions set by an effluent discharge consent Rainwater could be directed to the surface water drainage system, via separators/interceptors in the case of roads and parking areas, for subsequent discharge into infiltration ponds on the site. Nightjar nesting is not associated with water related or dependent habitat or habitats otherwise particularly sensitive to water pollution. Studies of Nightjar nesting in Clipstone Forest have shown that they forage along the interface between the planted deciduous fringe of conifer	Woodlark nesting is not associated with water related or dependent habitat or habitats otherwise particularly sensitive to water pollution. During the breeding season they feed on invertebrates picked off the ground and off low vegetation and have a strong dependence on bare ground to forage. The impact of any incident would depend on the proximity of nesting or foraging birds and would need to be assessed through project level AA.

APPENDIX B: Potential Effects on the prospective SPA		
Potential Effect	Nightjar	Woodlark
	plantations and the open rides. These studies have shown that they do not use water related habitats for foraging. The potential impact of any incident would depend on the proximity of nesting or foraging birds and would need to be assessed through project level AA.	
d) Disturbance by noise	The effect of noise, above an identified threshold, would be to mask the territorial calls of Nightjar. If the threshold were exceeded over habitat that is regularly used by territorial Nightjar then this may disrupt territory establishment and hence reduce the chance of successful nesting. A threshold noise level of 55dB LAeq. has been identified as significant in this context. Nightjar call between the hours of ~20.30 and 06.00 in late spring and late summer and for a shorter period in the height of summer so provided there was no noise during this period there should be no significant effect. However this would need to be confirmed through project level Appropriate Assessment.	The effect of noise, above an identified threshold, would be to mask the territorial singing of Woodlark. If the threshold were exceeded over habitat that is regularly used by territorial Woodlark then this may disrupt territory establishment and hence reduce the chance of successful nesting. A threshold noise level of 55dB LAeq. has been identified as significant in this context. Avoiding the breeding season or limiting the duration of operations during the breeding season, including to the afternoons when song activity is reduced in Woodlark, would avoid potential noise impacts. If this was not practicable then there would be potential for significant potential effects. However this would need to be confirmed through project level Appropriate Assessment.
e) Disturbance by light pollution	The level of illumination equivalent to that of a full moon – 1 Lux – could be used as the target level not to be exceeded in the design of the detailed lighting scheme for the land outside of the boundary of any proposals and where that land is habitat with potential to be used by breeding Nightjar. The effect of lighting on Nightjar would either be to deter them from feeding across lit areas or to reduce the availability of flying insect food in lit areas. Limiting external lighting associated with operation could help avoid lightspill onto habitats used by Nightjar at the time of year and time of night when Nightjar will be using those habitats. However the potential for harm would need to be confirmed through project level Appropriate Assessment.	Woodlark is not active at night, feeding by sight by day and singing by day. It is not known to be sensitive to artificial lighting. Woodlark will not be active in winter when bright lighting is needed to permit operational activity to continue during normal working hours during the short winter days. No significant effect associated with lighting is therefore predicted.
f) Disturbance by human activity	Nightjar have been shown to be sensitive to disturbance by people walking across their nesting grounds, especially when accompanied by dogs that are not under close control or on a lead, and this leads to reduced nest density and	Woodlark have been shown to be sensitive to disturbance by people walking across their nesting grounds, especially when accompanied by dogs that are not under close control or on a lead. This disturbance deters male birds from establishing territories and reduces the density of breeding

APPENDIX B: Potential Effects on the prospective SPA		
Potential Effect	Nightjar	Woodlark
	breeding success. The potential for effects would therefore depend on the proximity of any development to potential nesting sites. This would need to be established through project level AA.	Woodlark. The potential for effects would therefore depend on the proximity of any development to potential nesting sites. This would need to be established through project level AA.
g) Disturbance by operational and staff vehicle movements;	Nightjar might flush from the nest by the movement of a vehicle (a person on foot will not flush an incubating or brooding Nightjar until within a few metres). The peak periods of vehicle movement to and from sites should not coincide with those hours in the late spring and summer when Nightjar are foraging or the males defending their territories (the maximum period being from ~20.30hrs to ~06.00hrs). The peak numbers of vehicles arriving and leaving a site are likely to be later in the morning and earlier in the evening than the period of Nightjar activity. As a result the peaks in vehicle movements will probably not occur at the time that Nightjar are foraging or males engaging in territorial activity, however this would need to be confirmed through project level AA.	The peak periods of vehicle movement to and from a construction site will probably not coincide with those hours in the spring and summer when Woodlark are most actively foraging to feed chicks or the males defending their territories. The maximum intensity of these activities occurs in the first few hours after dawn; however this would need to be confirmed through project level AA. .