



Ecological Assessment of Site Preparation Works

Hinkley Point C Proposed Nuclear Power
Development

Graham D Boswell

1/31/2011

The purpose of this report is to analyse the potential ecological impact of the proposed Site Preparation Works at Hinkley Point and to assess whether these have adequately taken account of appropriate management and mitigation measures as part of the application for planning permission.

Executive Summary

Consent is sought by EDF Energy from West Somerset Council to carry out Site Preparation Works at Hinkley Point, Somerset for the construction of a new nuclear power station – Hinkley Point C. The purpose of this report is to analyse the potential ecological impact of the proposed works and to assess whether appropriate management and mitigation measures have been proposed as part of the application for planning permission.

A desk top assessment was undertaken of the existing information regarding the ecology of the designated site and surrounding land and a short field visit carried out.

Biodiversity is declining rapidly in the UK. It is of paramount importance that any proposed development benefits wildlife, rather than contributing to its ongoing loss. Furthermore, both international and national policies reflect the need to ensure that no net loss in biodiversity results from such development.

The findings of this assessment conclude that EDF have failed to present a proposal that reflects their stated 'environmental responsibility' and are driving forward an application which in fact exacerbates the local trend of wildlife decline.

As an example of this, nowhere in the application is the total biodiversity loss clearly stated. Baseline ecological data for many major groups are missing. Notable omissions are those for small mammals, bryophytes, lichens, fungi and soil arthropods. How can EDF demonstrate that there has been no net loss in biodiversity under Planning Policy Statement 9 (PPS9) if baseline data has not first been established?

Effects on surrounding habitats are largely unknown. I do not share EDF's confidence in the opinion of its ecological consultants about the species presence and abundance at the development site. The estimates regarding the impact on wildlife at the site are also largely unsubstantiated. It is of extreme concern that EDF find it acceptable to 'best guess' the expected ecological impact on the surrounding habitats. This is especially so when the proposed development area is surrounded by so many sites of international and national ecological importance.

A Habitat Regulation Assessment (HRA) is an important part of any Environmental Impact Assessment (EIA) and it is a requirement for the applicant to provide an HRA to West Somerset Council. To date we can find no evidence that this has been done.

The EIA does not follow good practice guidelines and does not take account of the cumulative and interactive effects of the several overlapping projects relating to this development. Specifically, overall infrastructure development has been split between the Site Preparation Works and a separate Temporary Jetty Application. It is generally acknowledged to be poor practice to divide large infrastructure development into stages or separate components because it precludes the opportunity to assess their cumulative and interactive impacts.

Stop Hinkley requests that West Somerset Council insists that EDF demonstrate that all appropriate processes have been adhered to in presenting their application and that no net loss of biodiversity - and preferably a net increase - is incorporated into this application before it is given further consideration.

1. Background

Consent is sought by EDF Energy from West Somerset Council for Site Preparation Works at Hinkley Point, Somerset, by way of planning permission under the Town & Country Planning Act 1990 (as amended). The site preparation works are proposed to support the construction of a new nuclear power station at Hinkley Point – Hinkley Point C. EDF have also submitted an application to the Marine Management Organisation for a Temporary Jetty through The Harbours Act 1964 (as amended). EDF Energy is also seeking a Development Consent Order (DCO) to authorise the construction and operation of Hinkley Point C from the Infrastructure Planning Commission (IPC) under the Planning Act 2008. The works entail extensive land clearance and construction of some infrastructure.

Both the Environmental Impact Assessment and the Ecological Impact Assessment are presented separately for the Site Preparation Works and Temporary Jetty applications. Nevertheless, the two applications have considerable overlap, a point that should not be obscured by the fact that they are being considered by separate statutory bodies.

2. Terms of Reference

To produce a report which considers the potential ecological impact of the Site Preparation Works at Hinkley Point, the report to be based primarily on the analysis of existing data but to include a field visit if necessary.

3. Comment

When considering ecological and environmental processes it is of paramount importance to understand that such processes do not confine themselves to legislative boundaries. The wind will blow, seed and pollen are dispersed and animals migrate regardless of lines on a map.

4. Methodology

Desk Study and Data Gathering from Statutory and Non-Statutory Consultees

A desk top assessment has been undertaken and the following existing information regarding the ecology of the designated sites and surrounding land was gathered from the following organisations:

- EDF Energy: Site Preparation Works application, Volume 4 Technical Appendices (including full planning application), November 2010
- EDF Energy: Temporary Jetty application, Technical Appendices (including full suite of application documents), December 2010
- Somerset Environmental Records Centre
- Somerset Wildlife Trust
- Somerset County Council
- Natural England
- Other ecological consultants
- Standard literature search

A considerable quantity of reports and survey work has been presented in the two above applications by EDF and their appointed consultants.

Field Survey

A field survey was undertaken but restricted to a half day walk-over of the site to familiarise myself with the survey area. The observations were undertaken in daylight, with clear sky and a temperature of 4°C

5. Site Designation and Status

The application site is located adjacent to the Severn Estuary Special Area of Conservation (SAC), the Severn Estuary Special Protection Area (SPA) and the Severn Estuary Ramsar site. The site also adjoins Bridgewater Bay Site of Special Scientific Interest and National Nature Reserve. The site itself is mostly agricultural land, includes some woodland and with a local nature reserve and County Wildlife Site in the north east sector. The area is interconnected by a series of species rich hedgerows. There are two streams running through the site (see site map, Appendix 1).

The applicant recognises that the proposals need to comply with the measures set out in European Council Directive 1992/43/EC on the conservation of natural habitats and wild flora and fauna (the 'Habitats Directive'), as transposed into UK law through the Conservation of Habitats and Species Regulations 2010 (the 'Habitats Regulations'). Although the applicant has carried out a "Habitats Regulations Assessment" this does not constitute an appropriate assessment under the Habitats Regulations.

6. Environmental Impact Assessment

a) An Environmental Impact Assessment (EIA) for these works is required under European Council Directive 85/337/EEC. This was transposed into the Town and Country Planning Act by the EIA Regulations 1999. The EIA is the procedure reported on through an Environmental Statement (ES), which is a requirement under Article 5 of the above Directive. The Environmental Methodology and Monitoring Procedure make up the final part of the Environmental Management Plan which can in turn be used for mitigation measures.

A Habitat Regulation Assessment (HRA) is an important part of any EIA. Requirement for an HRA was transposed into UK law by the Conservation of Habitats and Species Regulations 2010. It is a requirement of EDF to provide an HRA to West Somerset Council, which they have not done. **Stop Hinkley requests that the Council require EDF to produce an HRA.**

b) As part of the Department for Communities and Local Government's guidelines on procedures for the protection of sites designated as of European conservation/ecological significance, a three stage process is recommended as part of an appropriate assessment. The three stages are:

1. Screening to determine if there is a significant effect, including taking into account other related schemes/projects.
2. An appropriate assessment to determine if there is an adverse effect (or the risk of) on the conservation objectives of a European site.
3. Where an adverse effect is shown, there should be an examination of mitigation measures and alternative solutions. If there is no mitigation or alternatives presented, it is necessary to establish 'imperative reasons of overriding public interest' (IROPI).

Stop Hinkley is not aware that IROPI has been satisfactorily demonstrated in this case.

c) Natural England's Habitat Regulations Guidance Notes detail the procedure which should be followed to apply best practice. There are nine parts to this procedure. These are:

1. Define the need for appropriate assessment
2. Consultation with relevant nature conservation agencies
3. Consultation with other agencies
4. Definition of the designated status of the site, the qualifying interests and the site conservation objectives
5. Provision of further information, including both information already available and new information from surveys and assessments of a technical nature
6. Consideration of the potential effects
7. Assessment of the influence of any potential impacts on the integrity of the site
8. Avoiding adverse effects
9. Conclusions regarding the potential of the scheme to adversely affect the integrity of the designated site

Stop Hinkley is not aware that the above procedure has been adhered to and request evidence to verify that West Somerset Council have undertaken an appropriate assessment.

Environmental Impact Assessment and good practice

The proposals have been split into several components for purposes of the EIA, partly because of claimed urgency on the part of the applicants, an issue addressed elsewhere by Stop Hinkley. Nonetheless, it is generally acknowledged to be poor practice to divide large infrastructure developments into stages or separate components for purposes of EIA, as this precludes the opportunity for an effective assessment of cumulative and interactive effects and tends to underplay their significance. The combined effects of earlier and later phases of development cannot be assessed in detail if engineering design for later phases is at a preliminary stage, for example.

It is unrealistic to consider the ecological impact of the site preparation works in isolation. These works are being undertaken as part of a much larger scheme involving a number of interlinked projects. The European Court of Justice in its Waddenzee Ruling (c-127/02) makes it clear that other connected plans and projects must be included for consideration. In this case a major ecological impact will occur as a result of the construction and operation of the Hinkley C power station. Ecological impacts will occur across a wide spectrum, ranging from the local to the regional and at a national and international level. The overall development of Hinkley C, in addition to the site preparation works, includes the construction of a jetty and the alteration of a wharf, and a number of habitats will be destroyed or altered by the development of the related transport infrastructure.

In addition to the spatial aspects of the ecological impact there is also a temporal dimension. Any habitat that undergoes disturbance will take time to recover. The recovery time is linked to the speed of ecological succession associated with a given habitat and any mitigation and amelioration measures put in place. There are a number of different habitat and community types associated with this project, including grassland, woodland and marine communities, each taking tens of years to recover. In the case of the soil and regolith being stripped from the site preparation area, the re-establishment and recovery of soil back to its current state could take in excess of one hundred years.

Consideration of alternatives

EIA requires consideration of alternatives. Alternatives to the proposed advance works have not been adequately explored, including the “do nothing” alternative or that of delaying the works until mitigation can be put in place. This is particularly important from an ecological perspective because removal of habitat for one or more breeding seasons can disrupt breeding cycles and cause local populations to crash. Many of the species affected are already declining both locally and nationally and need continuity of habitat. It is not necessary to divide the proposal into preparatory (Stage 1) and Stage 2 phases; it is merely expedient on the part of the developer.

Interpretation of the magnitude and significance of impacts

The EIA report refers to impacts of land clearance as temporary and localised. Although the works themselves are temporary, the ecological effects are effectively permanent. As pointed out by others, restoration success cannot be assured with any confidence in cases where soil is stripped to bedrock.

7. Habitat Regulation Assessment

Has an appropriate assessment been undertaken?

The competent authority in this case is West Somerset Council. No appropriate assessment appears to have been undertaken by West Somerset Council to date. It should be completed and consulted on with statutory authorities before planning consent is given. This is in order to allow any necessary mitigation to be developed in the event of significant adverse effects on the integrity of any European site.

Comments on compliance with the requirements of the Habitats Directive

Article 6 of the Habitats Directive sets out a series of site management and site protection provisions. The European Court of Justice has confirmed that the underlying purpose of Article 6 is to prevent adverse effects on the integrity of Natura 2000 sites (European Court of Justice, 2004). The right to develop or manage land is recognised, provided it is done responsibly by avoiding damage to Natura 2000 sites or European protected species. Consent to alter land use or develop Natura 2000 sites should only be granted when "...there is no reasonable scientific doubt as to the absence of adverse effects..." (see paragraph 58, European Court of Justice, 2004 and paragraph 24, European Court of Justice, 2006). Article 6 (4) does provide for exceptions to this general rule, provided strict tests on alternative solutions and overriding public interest are met. In this case the proposed development is adjacent to, rather than within a Natura 2000 site, but the burden of proof nevertheless rests with the proponent to demonstrate that there will not be any adverse effects.

Habitat Destruction and Mitigation

Habitat destruction within the proposed site will be almost total. All plant communities above ground will be removed and all available habitats to animals lost for many years. Soil and regolith will be removed, along with all soil dwelling organisms. The total number of species lost from this site is likely to be in excess of 1,000; a more precise figure is not available as baseline surveys for all groups of organisms have not been undertaken.

Our research shows that no systematic surveys have been undertaken for bryophytes, lichens, fungi and soil arthropods and a number of other groups. If such surveys were undertaken, the species richness of the site would be considerably enhanced. **Stop Hinkley requests that a wider and more thorough ecological survey is undertaken so as to gain a better understanding of the true ecological value of this site before the habitats are devalued.**

Effects on surrounding habitats are largely unknown. I do not share EDF's confidence in the opinion of its ecological consultants about the species presence and abundance at the development site. The estimates regarding the impact on wildlife at the site are largely unsubstantiated. It is of extreme concern that EDF find it acceptable to 'best guess' the ecological impact on the surrounding habitats, especially when the proposed development area is surrounded by so many sites of national and international ecological importance.

Without more ecological data it is difficult to see how EDF have applied the principles of sustainable development to the proposed development site. Avoidance, minimisation, mitigation and compensation for ecological impacts are made difficult without appropriate ecological data to inform the process. Habitat creation is a challenging process at the best of times, but is almost impossible if you lack a full understanding of the species composition and relative abundance of a site in the first place.

8. Biodiversity Offsetting and Compensation

Where very large habitat disturbance is expected, long rehabilitation times are likely to ensue. Biodiversity offsetting or some sort of ecological compensation is therefore appropriate. Biodiversity offsetting is already practiced in Sweden, Germany and the USA. The Department for Environment, Food and Rural Affairs commissioned a scoping study to move this concept forward in the UK (see Treweek, 2009). This study concluded that this process could go a long way to halting national biodiversity loss in the UK and make a significant contribution to ecosystem services. The process of offsetting should only be considered where there is no alternative to a proposed project.

The concept of biodiversity offset and compensation is to compensate for the residual biodiversity loss incurred by a development at one location, by maintaining an equivalent amount of biodiversity at another location, preferably close by. Biodiversity offsetting is a market based conservation tool (similar in application to carbon offsetting) currently in use in a number of countries and is being given careful consideration by the UK government. For an update and overview of current thinking see Houses of Parliament, Parliamentary Office of Science and Technology PostNote No. 369, January 2011.

Where damage is permitted to a Natura 2000 site for reasons of overriding public interest, the Habitats Directive, article 6 (4), requires European Union Member States to take all necessary compensatory measures to ensure that the overall coherence of the Natura 2000 network is protected. **There is no evidence of biodiversity compensation being applied in this application. This is particularly surprising given that the Government is committed to ‘no net loss of biodiversity and preferably a net gain’.**

Stop Hinkley recognises the importance of biodiversity and its contribution to ecosystem function and services and how vital this is for human well-being. We request that EDF produce a compensation and offset scheme for these Site Preparation Works and all related applications connected to the Hinkley C proposal. **The current government is committed to “no net loss of biodiversity” as a result of infrastructure development; we would like to see EDF demonstrate this principle for the Hinkley C proposal.**

9. Proposed Removal of Viable Habitats

As already stated, all viable habitats will be removed from this site. **Stop Hinkley considers that any mitigation proposed for the replacement of these viable habitats is weak.** Nowhere in the application is the total biodiversity loss clearly stated. Baseline ecological data for many major groups are missing. Notable omissions are those for small mammals, bryophytes, lichens, fungi and soil arthropods. How can EDF demonstrate that there has been no net loss in biodiversity under Planning Policy Statement 9 (PPS9) if baseline data has not been adequately established?

Stop Hinkley also notes that there has been no attempt to calculate the loss of energy and nutrient flux through the removal of habitats. Calculating the loss of standing biomass and net primary

production for each habitat will help to establish the total ecological impact and help inform the significance of habitat loss for species which, for example, currently feed from this site but nest and roost elsewhere.

The sections below highlight the significance of the loss of each habitat type.

Hedgerows

Hedgerows are a very important ecological and landscape feature of the proposed site. Three quarters of the hedgerow length is described as important under the Hedgerow Regulations 1997 (Entec Habitat Survey 2010). Two thirds of hedgerows on the site are species rich and of ecological importance (see above report). Hedgerows provide good connectivity throughout the site and connect with other sites in the area for foraging species. Hedgerows also provide good habitat for arthropods; hence the high incidence of bat feeding throughout the site. Removal of the hedgerows, and subsequent replacement with a different hedgerow pattern, will severely disrupt foraging for bat and bird species. More than 90% of trees and hedgerows are going to be removed during the proposed Site Preparation Works.

A recent field survey noted that some sections of hedgerow have already been removed prior to submission of the Site Preparation Works application. Clarification from West Somerset Council confirmed that consent was given by Natural England to block badger setts on the site, involving the removal of hedges. The hedgerows were cut back to ground level. If they do not re-grow they will need to be replaced under the Hedgerow Regulations 1997. **Stop Hinkley wishes to be kept informed of progress on the re-establishment of these hedgerows.**

Woodlands

The woodlands and hedgerows were surveyed to BS 5837 2005 Arboriculture standard by ADAS (UK). This survey reported on the condition of tree and shrub species. ADAS found that, with the exception of elms, the condition of trees and shrub species across the site was fair to good. The woodlands were further surveyed by ENTEC, who commented on their ecological value and allotted each woodland a National Vegetation Classification category (Rodwell, 1991). There are nine woodlands in total, some of which are relatively species rich (see ENTEC Woodland Survey). The woodlands are connected by an extensive network of species rich hedgerows, which form a mosaic of ecological corridors throughout the site and extend into the wider countryside. The removal of the woodlands and other ecological communities from this site will leave a huge gap in the landscape and annihilate all the ecosystem services currently contributed by these habitats. The especially important ecological services provided are food, migration routes, roosts and nesting sites; the contribution of some of these services has not been satisfactorily investigated for some protected species.

Freshwater Habitats

There are five water features on the proposed development site - two streams and three ponds. These water features contribute important ecosystem services by providing a habitat for a number of species, distributing nutrients and by retaining moisture and higher humidity, especially in drier periods. While aquatic invertebrate diversity is on the whole low, abundance of some species is

moderate (see ENTEC entomological report). The extent to which the aquatic invertebrates on this site contribute to the trophic input of protected species migrating from the adjacent Natura 2000 sites and from the Quantock SAC site to feed is unknown. **Stop Hinkley requests that such a survey be undertaken.**

Arable Habitat

About 50% of the fields in the proposed development site support an arable habitat. This habitat is intensively managed for wheat and maize, and from time to time seeded with grass. Such a habitat tends to be species poor due to the practice of intensive agricultural management. Weed species are supported in this habitat, however, which, along with crop species, provide food to higher trophic levels. The extent to which this habitat contributes to the ecological value of the site is unknown.

Grassland Habitats

There are two broad types of grassland habitat on the proposed development site, which occupy 50% of the total field area. The methodology employed by the consulting ecologists to establish the ecological value of this habitat was a Phase 1 survey and restricted to the identification of plant species. The two grassland habitats are Improved and Poor Semi Improved Grassland and Semi Improved Calcareous Grassland.

Although the Improved and Poor Semi Improved Grasslands areas are species poor they do, however, make an important contribution to the standing crop biomass and net primary production of the proposed development site. Three of these fields in the northern part of the area are within an environmental stewardship scheme, for example, and are being managed to encourage reversion to calcareous grassland, which is more species rich. The resources put into the ecological improvement of these grasslands will clearly be lost if the proposed development goes ahead.

The Semi Improved Calcareous Grasslands areas are much more species rich and have a greater diversity of other taxonomic groups associated with them. This grassland habitat adds considerable biodiversity value to the proposed development site. Once lost, grassland habitats can be very difficult or even impossible to restore (Briggs et al, 2009). The habitat mitigation for the proposed site suggests that re-establishment of habitats will be achieved in seven years. **Stop Hinkley would like ecological evidence to support the timescale suggested for habitat establishment on the proposed site.**

Bats

The ENTEC report (Chapter 11, Vols 2 & 4, Site Preparation Works) identifies nine or more bat species which feed in this area. Three of these species - Barbastelle and Lesser and Greater Horseshoe - are Annex II Habitat Directive listed species. Three additional bat species - Soprano Pipistrelle, Noctule and Brown Long Eared - are identified in the Natural Environment and Rural Communities Act 2006, Section 41 and are UK Biodiversity Action Plan protected species. The Barbastelle uses the survey area on a regular basis for foraging and commuting, and the ENTEC report also identified a temporary roost in the survey area. The Annex II listed bats, which feed on lepidoptera, diptera and small beetles, are all rare. Populations of Barbastelle bats are known to roost in the Quantock and Exmoor woodland Special Conservation Areas. The extent to which the bats depend on the proposed development site for foraging and commuting is unknown and

requires further investigation. **Stop Hinkley would like an assurance that further investigations will be undertaken to assess the off-site effects on bat species that use the proposed development site for feeding, roosting and migration.**

The habitat loss resulting from the proposed development will remove almost all available food and roosting opportunities and severely disrupt the commuting activities of bats through the site. The ENTEC bat survey makes clear the extent to which the proposed development area is used as a means of commuting to other feeding sites to the east of the proposed Hinkley C location.

Ornithological Interests

The skylark, lesser whitethroat and nightingale are all deemed to be of conservation importance under the NERC Act 2006. Stop Hinkley is concerned that these three species have not been given proper consideration.

The ENTEC ornithological survey commissioned by EDF clearly identifies the importance of the proposed development site to these three species (Ornithological report, August 2010). The report identifies that the lesser whitethroat only breeds at 76 sites in Somerset, and a number of breeding sites are located on the proposed development site.

Stop Hinkley requests that a more thorough field survey is undertaken to establish the exact number of breeding pairs on this site.

It is well established in ornithological literature that any site with more than 1 % of the breeding population is very significant for conservation of a bird species (Balance, 2006). Similarly, there are five or six breeding pairs of nightingale reported in the ENTEC survey out of a total Somerset population of 116. This is a significant proportion of the breeding population. The phraseology used by ENTEC to describe the distribution and abundance of skylark could be considered misleading, especially given the degree of decline the species has undergone since the 1960s.

Skylark and lesser whitethroat are species of principal conservation importance, and as such their protection and enhancement must be given due regard by West Somerset Council under the NERC Act 2006 and under the provision of PPS9 to achieve no net loss in biodiversity. No convincing measures of mitigation have been supplied for these species and Stop Hinkley is not satisfied that the proposal will have anything other than an adverse effect upon local populations.

Stop Hinkley is in strong agreement with Somerset Wildlife Trust, which says that 'biodiversity is declining rapidly in the UK, as elsewhere in the world. It is of paramount importance that development benefits wildlife, rather than contributing to its ongoing losses'. EDF have failed to present a proposal that reflects their stated 'environmental responsibility' and are driving forward an application which exacerbates the local trend of wildlife decline. **Stop Hinkley requests that West Somerset Council insist that EDF demonstrate that no net loss of biodiversity - and preferably a net increase - is incorporated into this application before it is given further consideration.**

10. Meetings and discussions with Statutory and Non-statutory bodies

Volume 2 Chapter 11 of the application reports on a wide range of meetings with the bodies listed below. **Why was West Somerset Council not included in these meetings when it is they who have to consider the planning application for the Site Preparation Works and it is they who have to assess and respond to the EIA presented by EDF or its consultants?**

1. Environment Agency
2. Somerset County Council
3. RSBP
4. Natural England
5. Somerset Wildlife Trust

11. Multiple applications and Cumulative Effects

Stop Hinkley is aware that the Temporary Jetty application is being considered by the Marine Management Organisation and is presented as a separate application to this one. We note that the Environmental Impact Assessment (Chapter 25) considers cumulative effects, however, and therefore feel it appropriate to comment on the effects of the Temporary Jetty as part of this application.

The section on Terrestrial Ecology and Ornithology in the Temporary Jetty application states that 'no additional impacts on terrestrial or freshwater habitats and the species that these habitats support would arise from the jetty development and hence no cumulative impact would occur in this regard'. We consider that this statement is not ecologically sound. Artificial lighting installed on the proposed jetty, for example, will attract flying insects which in turn will attract their aerial predators, thus affecting the ecology of the foraging species. The species most likely to be affected are one or more of the nine species of bats which forage in this area and the numerous species of crepuscular birds which also feed there.

The above example highlights the fact that EDF acknowledge that cumulative effects may occur but have failed to treat the project development as one combined application. Stop Hinkley request that West Somerset Council lobby the government (or other relevant authority) to ensure that the development of this project is treated as one single application, thus giving clarity to all concerned.

12. Summary of key findings

1. There is no justification for separating the development into different applications, i.e. Site Preparation Works, Temporary Jetty and the main Hinkley C power station construction.
2. It is not possible to undertake an effective EIA where a single development is separated into different projects. This is also not considered 'best practice' under European law.
3. The ecological damage and loss of ecosystem services resulting from the proposed development are understated.

4. Ecological impact is acknowledged to be medium to high for a number of species and habitats.
5. In some cases where ecological impact is acknowledged there is no mitigation.
6. There is no recognition of the concept of ecological compensation or offsetting, let alone a practical proposal.
7. Potential damage to a Special Area of Conservation protected by European law has not been mitigated for.
8. The removal of 99% of vegetation and soil from 173 hectares of land will annihilate the biodiversity interest from this site.
9. The development of such a large project adjacent to (and on) the Severn Estuary Special Area of Conservation, the Severn Estuary Special Protection Area, and the Severn Estuary Ramsar site, a Site of Special Scientific Interest and National Nature Reserve is not justifiable

References

Balance, D K (2006), "A History of Birds in Somerset", Isaballine Books, Cornwall

Briggs, B.D.J. et al (2009), "Habitat Banking - how it could work in the UK", *Journal of Environmental Management*, 17, 112-122

Rodwell, J. S. et al (1991), "British Plant Communities", Cambridge University Press

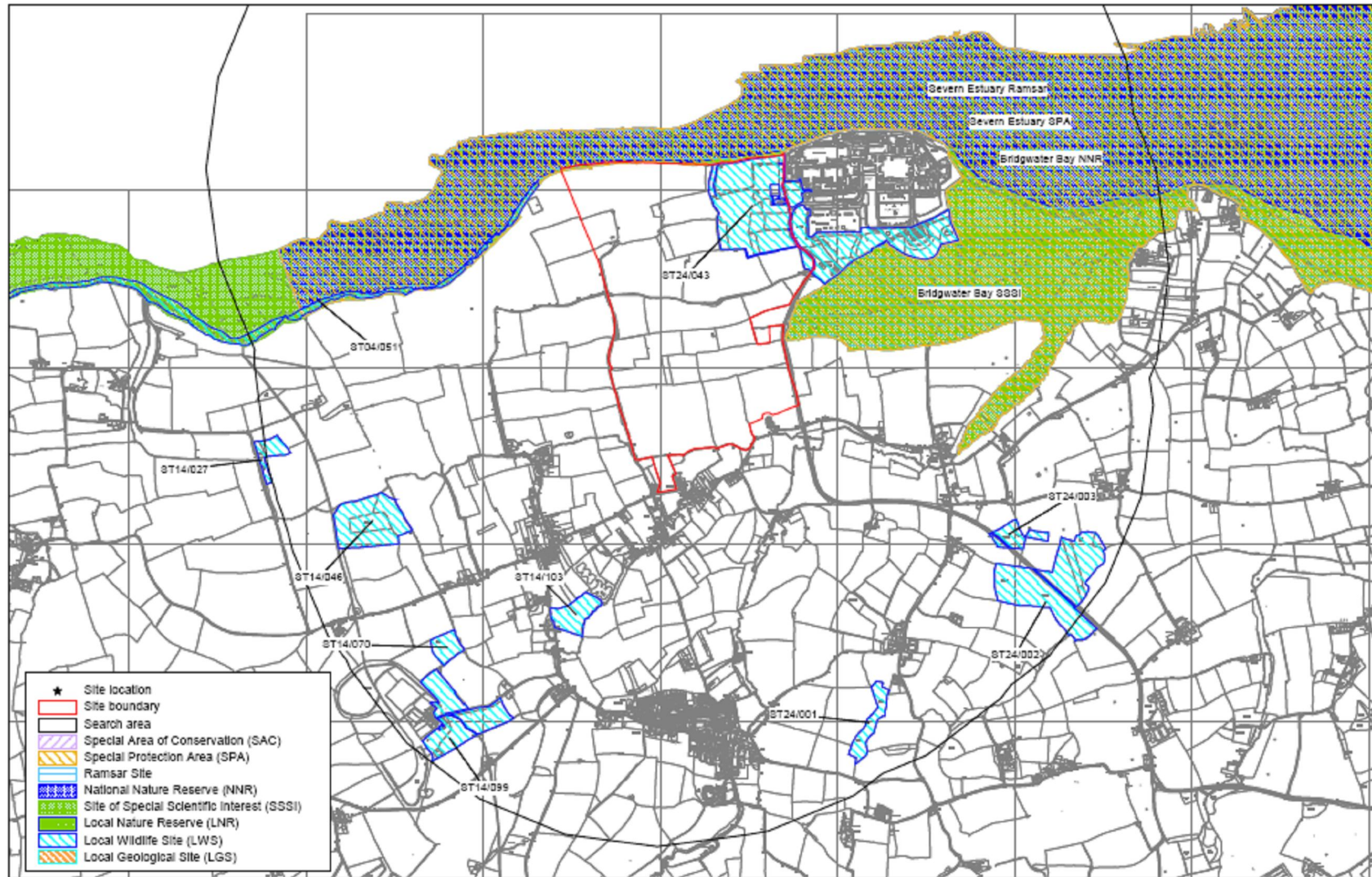
Treweek, J. et al (2009), "Scoping study for the design and use of biodiversity offsets in an English context", Department for the Environment, Food and Rural Affairs

Acknowledgments

My thanks go to a wide range of organisations and fellow ecological consultants for information and comment. Somerset Environmental Records Centre, Natural England and Somerset Wildlife Trust provided an extensive amount of baseline data. Comment and points of clarification were provided by West Somerset Council, Natural England, Somerset County Council and the Marine Management Organisation. Editorial comment was provided by Wendy Stephenson.

The Author

Graham Boswell holds degrees in Environmental Science, Geology and Education. A lecturer in environmental science for over 20 years, he now works as a freelance consultant. He has written and delivered environmental courses up to post-graduate level. He has a special interest in lichens as environmental indicators and currently sits on the council (and is a trustee) of the British Lichen Society.



Evaluated Sites found within search area: 2km buffer around site at ST201452

For G Boswell, January 2011

Job no: 1827

Client ref: Hinkley

Reproduced from Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationary Office by Somerset County Council under Licence No. 100019309 © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.