



## **Rampion Offshore Wind Farm**



### **ES Section 24 – Terrestrial Ecology Appendix 24.1**

**RSK Environment Ltd**

**Document 6.3.24i**

**December 2012**

**APFP Regulation 5(2)(a)**

**Revision A**

**E.ON Climate & Renewables UK Rampion Offshore Wind Limited**

## **APPENDIX 24.1**

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## ***1 INTRODUCTION***

### ***1.1 General***

The purpose of this document is to define the ecological scope of works necessary to complete ecological surveys required as part of the detailed design stage of the onshore cable route for Rampion Offshore Wind Farm.

Please note this document only describes any revised methodologies subsequent to a review of the Desktop Biodiversity Report (Sussex Biodiversity Record Centre (SBRC) 2010) and therefore it should be read in conjunction with the methods outlined in the September 2010 Scoping Report which still stand.

### ***1.2 Scheme Description***

The proposed cable route is approximately 29 km long running south to north from East Worthing to Bolney substation near Twineham. Construction activities will be undertaken within a fenced strip of land, known as the working width. The working width is expected to be no wider than 40m, comprising 15m for the cable easement, and 25m for additional areas for storage of excavated material and access along the cable trench. The cable easement will not necessarily be central to the working width. Therefore, for the purposes of the ecological surveys, a working width of 65m has been allowed for at this stage (ie 25m working area on either side of the cable easement).

Further details of the scheme are provided in the Rampion Offshore Wind Farm - Scoping Document produced by RSK Group Plc in September 2010.

### ***1.3 Ecological Context***

The area through which the proposed cable route passes is principally rural in nature with a large section comprising the South Downs National Park.

It crosses a mix of agriculturally improved, semi-improved and unimproved grassland, often with an associated hedge, tree-line or watercourse. Woodlands are generally avoided by the proposed cable route, although there are areas where woodland edge habitats may be affected.

Every effort has been made to avoid known sensitive areas. The route corridor does not cross any statutory designated sites however it does cross the following non statutory designated sites:

- Applesham Farm Bank Site of Nature Conservation Importance (SNCI) - The bank supports areas of unimproved chalk grassland with a species rich sward;
- Old Erringham Farm Valley and Road Cutting SNCI - The site includes a shallow valley which has rich grassland on its sides, an area of storm-damaged woodland, a road cutting, derelict ponds and a disused quarry (White-letter hairstreak colony occurs on the Elms); and
- A283 Steyning Road - Notable Road Verge

## **2 PHASE 2 ECOLOGICAL SURVEYS**

### **2.1 Protected Species Surveys**

#### **2.1.1 Badger**

No change has been made to the methodology outlined in the September 2010 Scoping Report.

#### **2.1.2 Bats**

In general, there has been no major change to the methodology outlined in the Scoping Report in regards to roosting bats. However, after further consideration of the potential for disturbance of roosts within woodland parcels it is felt that where the cable route runs parallel to a woodland edge it will not be necessary to look at the whole 30 m buffer. It is felt that a buffer of 10 m into the woodland is more than adequate, bearing in mind that any trees at a greater distance will be shielded from disturbance by the trees that are closer to the works. Also, bats roosting in woodlands are likely to have several dispersal / commuting options to foraging areas.

Following recently published guidelines from Natural England (Technical Advice Note (TIN051) Bats and onshore wind turbines, 2009) and The Bat Conservation Trust (BCT) (BCT's Guidelines on Surveying for Onshore Wind Farms – consultation draft February 2011) the criteria for selecting linear features for bat activity survey for the proposed cable route has been redefined as follows;

- Linear features with trees that are within 200 m (rather than 500 m) of known maternity roosts
- Linear features with trees that are within 200 m (rather than 500 m) of potential roost sources (woodland blocks or groups of buildings (villages, towns, farms, not individual properties))

Natural England's Technical Information Note about Bats and Onshore Wind Farms states that: 'bats become fairly well dispersed in the landscape within a few hundred metres of the roost, though this depends in part on the species and the type of roost' and the new draft wind farms chapter of the Bat Survey Guidelines suggests surveying for roosts within 200 m of your wind farm development. Based on these findings/recommendations it is felt the above criteria are robust and appropriate for use.

Finally, the Song Meter SM2, which has recently become available in the UK, may be used to record bat activity in place of the Anabat SD2.

### 2.1.3 *Dormouse*

No change has been made to the methodology outlined in the September 2010 Scoping Report.

### 2.1.4 *Otter*

No change has been made to the methodology outlined in the September 2010 Scoping Report.

### 2.1.5 *Water Vole*

No change has been made to the methodology outlined in the September 2010 Scoping Report.

### 2.1.6 *Nesting Birds*

As stated in the Scoping Report (September 2010) no specific surveys for birds are proposed. However, incidental sightings of any Schedule 1 species made during other protected species surveys, such as Barn Owl during the bat surveys, will be recorded and reported where appropriate.

It is proposed that all suitable areas due to be impacted by works are to be made unsuitable for nesting birds prior to the main nesting season i.e. all vegetation cleared after August and before March.

### 2.1.7 *Reptiles*

At potential hedgerow breaches or for other features with sub-optimal habitat for reptiles a suitable mitigation strategy can be implemented to ensure that reptiles are not adversely affected. Therefore it is not proposed to survey sub-optimal reptile habitat for reptile presence/absence.

Areas of optimal reptile habitat will be surveyed for reptile presence/absence and to give an estimate of population size. Reptiles often shelter under debris that is exposed, or partially exposed to the sun (Gent & Gibson 1998). For the purposes of these surveys, artificial refuges (squares of corrugated metal) will be placed in areas of suitable reptile habitat. The refuges will be checked on 5 occasions at an optimal time of year (August to October) and during suitable weather conditions.

### 2.1.8 *Great Crested Newt*

Our background data search revealed 12 records in and around West Sussex, although it was noted in the Desktop Biodiversity Report by SBRC that populations were scarce in West Sussex.

Four records were found within our 250 m buffer (taken from the edge of the potential working width) however no records were found outside of this buffer zone, measured out to 500 m. It is therefore proposed to concentrate our initial scoping survey and any further targeted surveys to within a 250 m buffer from the proposed works only.

The methods by which we will undertake the scoping survey and further targeted surveys remains the same as outlined in the 2010 Scoping Report. However it is not proposed to survey residential garden ponds, only ponds which are identified from aerial photography, Ordnance Survey maps or during the initial animal walkover of the survey corridor.

### 2.1.9

#### *Terrestrial Invertebrates*

Invertebrate records from the Desktop Biodiversity Report (SBRC 2010) suggest that the habitats present may support a number of terrestrial invertebrate species of conservation interest within the vicinity of the route (although not necessarily within the route itself) and it is necessary to investigate this to determine which, if any, invertebrate species are likely to be affected.

Terrestrial species identified from the records are listed below with the best survey times (months):

- Adonis Blue (*Lysandra bellargus*) – mid May to mid June; mid August to mid September.
- Chalk Hill Blue (*Lysandra bellargus*) – late July and early August.
- Brown Hairstreak (*Thecla betulae*) – late July and August, eggs visible in January and February.
- Duke of Burgundy (*Hamearis lucina*) – mid May to late June
- Pearl-bordered Fritillary (*Boloria euphrosyne*)\* – late April to late July.
- Small Blue (*Cupido minimus*) – mid May to late June; late July to early August
- White-letter Hairstreak (*Satyrus w-album*) – early July to mid August.
- Stag Beetle (*Lucanus cervus*)\* - late May to mid June
- Wart-biter (*Decticus verrucivorus*)\* - late May to early September

\*species expected to be absent

This list is not exhaustive and the habitats crossed by the route are likely to support other Red Data Book and Nationally Scarce invertebrates.

The Wart-biter is fully protected under UK law; however, the likelihood of encountering Wart-biter is minor, since it is believed that all UK stations for it are known. The nearest known site, just west of the Ouse Gap to the east, will be unaffected by the proposal, but invertebrate surveys will include a determination of the presence or absence of the specific habitat requirements of this protected species and if they are present a survey for the species itself will be undertaken.

The remaining species listed above are protected from damage by development through international (Stag Beetle (*Lucanus cervus*)) and national legislation (Wildlife and Countryside Act 1981, Schedule 5) as well as various planning regulations – the most relevant being PPS9 which covers the UK BAP species.

Specific larval food-plants and basic habitat types will be identified by botanists during the Phase 1 survey. This data will be combined with the results from an initial walk-over survey by experienced entomologists in order to identify areas where target species might be found.

These target areas will then be visited at appropriate seasons to specifically search for the target species (and others).

In parallel, several sampling visits will be undertaken across the season from May to early October to undertake general invertebrate survey. A minimum requirement will include visits in (approximately according to weather and seasonal advancement) mid-May, early June and the last week of July in order to record the listed target species.

The overall time input is in excess of the Natural England recommendation of 5 days minimal survey input to adequately record invertebrates on a site (Surveying terrestrial and freshwater invertebrates for conservation evaluation, Natural England Research Report NERR005, 2007).

Sample methods will be selected from the following list (as appropriate to the site):

- sweep-netting;
- beating trees and bushes;
- pan-trapping;
- pitfall trapping;
- MV light-trapping;
- actinic trapping;
- malaise trapping; and
- suction sampling.

Potential target taxa in this survey will include the following:

- selected families of Beetles (Coleoptera) – potentially Chrysomelidae (leaf beetles) and if pitfall trapping proves practical, ground beetles (Carabidae);
- True Bug (Heteroptera);
- Bees, solitary wasps and ants (aculeate Hymenoptera);
- Moths (Lepidoptera) if overnight light trapping is an option; and
- Grasshoppers and crickets (Orthoptera).

Only those adequately represented in the sample will be identified. A separate tranche of species, notably butterflies and dragonflies, will be identified in the field if present.

#### 2.1.10 *Aquatic Invertebrates*

Invertebrate records from the Desktop Biodiversity Report (SBRC 2010) suggest that the aquatic habitats present may support a number of fully or partially aquatic invertebrate species of conservation importance. Due to the potential direct impact on watercourses as a result of the proposed works it is proposed to undertake a baseline survey of the aquatic invertebrate fauna to investigate if any species of conservation interest are likely to be affected.

The Environment Agency, county recorders and Sussex Wildlife Trust will be contacted for any aquatic invertebrate records they may hold for watercourses within our survey corridor; specifically 100 m upstream and downstream of the proposed crossing point.

Where existing baseline data are not available within the 200 m survey corridor and a watercourse is to be crossed using an open cut method then a one off spring sample will be taken at the proposed crossing point using the standard Environment Agency (EA) kick/sweep methodology for running water (EA 1999).

The Natural England protocol for shallow water will be followed for any still-water environments (i.e. ditches) encountered; this involves bank-sorting three qualitative hauls for ten minutes each, giving 30 minutes of sorting at each sample point (Surveying terrestrial and freshwater invertebrates for conservation evaluation, Natural England Research Report NERR005, 2007).

It is not envisaged that any ponds will be lost as a result of the proposed works, however if any pond/s are identified as at risk they will also be surveyed for aquatic invertebrates using the standard three minute hand-net sampling methods developed for the National Pond Survey (Pond Action, 1998). The number of samples required would be determined by the size of the pond/s.

Samples will be identified in the laboratory and an assessment of the biological water quality will be made from the data collected based on the Biological Monitoring Working Party (BMWP) and Average Score Per Taxon (ASPT) scoring systems as well as the overall taxon richness encountered. As well as providing a baseline assessment of the quality of the water bodies an attempt will be made to establish whether any scarce or priority species are present also. Based on the findings of the Biodiversity Desktop Assessment it is proposed that the following groups will be identified to species level, if encountered:

- Coleoptera;
- Hemiptera; and

- Odonata.

The results of this single data set will be used to identify areas of 'potential aquatic invertebrate diversity'. This will be defined using the following criteria outline by the Institute of Environmental Assessment (1995);

- sample contains 26 or more families of invertebrates;
- biological Monitoring Working Party (BMWP) score of 150 or greater; and
- average Score per Taxon (ASPT) score of 6.48 or greater

Any watercourse sample which achieves one or more of these criteria 'is considered equivalent to the top 10% of samples from the 1990 survey of the UK' (IEMA 1995) and will be subject to a further autumn survey visit to enable an inventory list (using one or two representatives from each group) to be made on which to base an overall appraisal of aquatic habitat quality.

#### *2.1.11 Fish*

No specific fish surveys are proposed however we will contact the Environment Agency and local angling groups for any records they may hold for within our study area.

## **2.2 Phase 2 Botanical Surveys**

There is no change to the methodology outlined in the Scoping Report. The following botanical surveys will be undertaken from the start of April 2011:

- hedgerow survey;
- River Corridor Survey/stream survey;
- botanical survey of drains and ponds;
- botanical survey of important grassland and woodland habitats; and
- targeted bryophyte survey.