CORK LOWER HARBOUR ENERGY GROUP

WIND TURBINE DEVELOPMENT AT JANSSEN BIOTECHNOLOGY (IRELAND) RINGASKIDDY, CO CORK

SCREENING REPORT AND NATURA IMPACT STATEMENT

IN COMPLIANCE WITH EU HABITATS DIRECTIVE ARTICLES 6(3) AND 6(4)

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1. INTRODUCTION

Natura Environmental Consultants were commissioned by Arup Consulting Engineers to carry out an 'Appropriate Assessment' for the proposed wind energy project at the site of the Janssen Biotechnology (Ireland) (hereafter called Janssen) facility at Ringaskiddy, County Cork.

The purpose of this report is to determine the effects, if any, the proposed development will have on Cork Harbour SPA (site code 004030) and to further assess if any of the predicted impacts have the potential to have significant negative impacts on the qualifying interests or on the conservation objectives of this Natura 2000 site.

2. REGULATORY CONTEXT

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) formed a basis for the designation of Special Areas of Conservation (SACs). Similarly, Special Protection Areas are legislated for under the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds). Collectively, SACs and SPAs are referred to as Natura 2000 sites. In general terms, they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community. Under Article 6(3) of the Habitats Directive an Appropriate Assessment must be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An Appropriate Assessment is an evaluation of the potential impacts of a plan or project on the conservation objectives of a Natura 2000 site. Where necessary, mitigation or avoidance measures should be proposed to preclude negative effects.

Article 6, paragraphs 3 of the Habitats Directive state that:

" 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".

The statutory agency responsible for Natura 2000 sites is the National Parks and Wildlife Service of the Department of Environment, Heritage and Local Government.

The European Court of Justice ruling C 418/04 against Ireland found that Ireland had failed in its statutory duty to confer adequate protection on designated areas. Following on from this the Circular Letter 1/08 & NPWS 1/08 on Appropriate Assessment of Land Use Plans (from the Department of the Environment, Heritage and Local Government) states that all plans and projects will be subject to critical assessment to ensure that they comply with all relevant legislation.

The Stages in an Appropriate Assessment

There are 4 stages in an Appropriate Assessment as outlined in the European Commission Guidance document (2001). The following is a brief summary of these steps.

Stage 1 - Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 Site and considers whether it can be objectively concluded that these effects will not be significant

Stage 2 - Appropriate Assessment: In this stage, the impact of the project on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. The report of this stage is known as a Natura Impact Statement (NIS).

Stage 3 - Assessment of Alternative Solutions: Should the Appropriate Assessment determine that adverse impacts are likely upon a Natura 2000 site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts.

Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura site will be necessary.

3. METHODOLOGY

3.1 Desk study and consultations

A desk study was carried out to collate the available information on the ecological environment. The National Parks and Wildlife Service (NPWS) database was consulted concerning designated conservation areas and their qualifying interests in the vicinity of the proposed development. The NPWS, Divisional Ecologist and Head of Birds Unit, were also consulted with regard to the proposed site and works. This assessment was carried out with reference to the relevant guidance, in particular:

- *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 Commission (2001);
- *Managing Natura 2000 Sites:* The Provisions of Article 6 of the 'Habitats Directive' 92/43/EEC, European Commission (2000);
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (2007);
- *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government. Dublin (2009, revised February 2010).

3.2 Review of other plans and projects

In order to identify potential 'In Combination Effects', other key non-domestic plans and projects were identified for the study area. The following have been considered:

- Indaver Waste-to-energy facility, Ringaskiddy. Arup Consulting Engineers Nov 2008. Chapter 13 Ecology
- Adopted Amendment to the Carrigaline Electoral Area LAP 2005: Ringaskiddy
- Planning Application Ref. 1052019 (Cobh Town Council) - Harbour Flights Ireland Ltd.
- Planning Application Ref. 1052015 (Cobh Town Council) - Cove Sailing Club.
- Planning Application Ref.114171 (Cork County Council)

- Planning Application Ref. 9317/ABP Ref. PL04.236980 – Monkstown Bay Marina Company Co. Ltd.
- Planning Application Ref. No.105684 – GlaxoSmithKline (Cork) Ltd. Application for construction of coast protection works along part of site (rock armour).
- Environmental Report (November 2010) of the *Carrigaline Electoral Area Local Area Plan (Draft for Public consultation)*

4. STAGE 1 – SCREENING REPORT

This stage of the process identifies the likely impacts of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant.

The first step in the screening process is to determine whether the project or plan is directly connected with or necessary to the management of the Natura 2000 site. In this case the proposed project is not directly connected to or necessary to the management of Cork Harbour SPA. Hence, the screening process must continue through the next steps.

The next steps of the screening process are to describe the elements of the project, the characteristics of the Natura 2000 site, the potential impacts of the project and finally assessing the potential significant impacts associated with the project on a Natura 2000 site.

4.1 BRIEF DESCRIPTION OF THE PROJECT

The Janssen facility is located on a prominent hill and is situated approximately one kilometre west of the village of Ringaskiddy. It is proposed to locate the single wind turbine at grid reference Easting 176490; Northing 64220 in the western portion of the existing Janssen Biologics (Ireland) facility at Ringaskiddy. The wind turbine layout is shown on Figure 3.1**.** of the EIS Chapter. The proposed turbine location is situated approximately 700m from the nearest boundary of the SPA.

Main features of the development

The main features of the development include:

- 1 wind turbine,
- Associated transformer located within or adjacent to the turbine,
- Buried electrical and fibre-optic cabling,
- Crane pad.

Turbine structure

The proposed turbine will have a capacity of between two and three megawatts. The turbine will have a hub height of up to 100m with a rotor radius of approximately 50.5 m.

The turbine will be of a typical modern design incorporating a tubular tower and three blades attached to a nacelle, housing the generator, gearbox and other operating equipment.

The colour of the proposed turbines will be a suitable neutral colour.

The transformer will be housed within or adjacent to the turbine.

Turbine Foundations

The foundations will comprise a reinforced concrete pad. The dimensions of the pad may vary from 14m to 18m in overall length or diameter, however the dimensions of the pad depend on the ground conditions and turbine size

The wind turbine will require an area of hardstanding adjacent to the turbine foundation to provide a stable base on which to lay down turbine components ready for assembly and erection and to site the two cranes necessary to lift the tower sections, nacelle and rotor into place. The area of the crane pad will be approximately 40m x 60m. The crane pad will remain in situ following construction, in order to facilitate any future maintenance operations which may require cranes. It is likely that the existing construction car park will be suitable for this purpose.

Cabling

Underground cables will link the turbine to the Janssen facility. Typically the cables will be laid in a trench one metre deep and one metre wide.

Operational phase

It is projected to have an operating lifetime of 25 years. The wind turbine operations will be controlled from the Janssen facility.

4.2 IDENTIFICATION OF NATURA 2000 SITES

Cork Harbour SPA is the only Natura 2000 within 5km of the proposed development site and is therefore considered to be the only Natura 2000 site potentially affected by the proposed project. The Cork Harbour SPA (Special Protection Area) was designated primarily due to its bird populations. The site includes a number of areas, which are interrelated, with bird populations moving between different areas at different times. Lough Beg along with Monkstown Creek and the Owenboy Estuaries are all within the Cork Harbour SPA boundary. Monkstown Creek which is within the Cork Harbour SPA (Special Protection Area) is located less than1km north of the site.

4.3 IDENTIFICATION OF POTENTIAL IMPACTS

This section identifies impacts associated with the construction and operational phases of the proposed development which could potentially have significant negative impacts on the qualifying features and conservation objectives of Cork Harbour SPA.

A number of factors were examined at this stage and dismissed or carried forward for AA as relevant. The potential impacts from the single turbine at the Janssen site were examined in the context of the following:

Habitat loss or degradation

There will be no habitat loss within the boundary of the SPA. The turbine on this site is located at least 700m from the nearest boundary of Cork Harbour SPA. The proposed turbine will result in a loss of arable land which is of very low ecological value. Due to the distance from the SPA there is no potential for indirect hydrological impacts. This impact is not considered further in this report.

Barrier effects

Wind farms, especially large establishments with tens of individual wind turbines, may force birds to change direction, both during migrations and, more locally, during regular foraging activities. Whether or not this is a problem depends on a range of factors such as the size of the wind farm, the spacing of turbines, the extent of displacement of species and their ability to compensate for increased energy expenditure as well as the degree of disruption caused to linkages between feeding, roosting and breeding sites (EU Commission, 2010).

The proposed wind turbine is not situated within a regularly used flight path of any of the bird species for which the SPA has been designated. A single wind turbine is not likely to have a barrier effect. This impact is not considered further in this report.

Disturbance and displacement of species

Bird disturbance leading to displacement or exclusion, and hence loss of habitat use, is a matter which may be of concern for onshore and offshore wind developments (EU Commission 2010). Bird species may be displaced from areas within and surrounding wind farms due to visual, noise and vibration impacts. Disturbance may also arise from increased human activity during construction work and maintenance visits. Disturbance distances (the distance from wind turbines up to which birds are absent or less abundant than expected) have been recorded up to 800m (including zero) for wintering waterfowl (Petersen and Poulsen 1991). Therefore there is potential for disturbance to wintering and breeding birds for which the SPA has been designated.

Collision risk

Birds may collide with various parts of the wind turbine. The level of collision risk depends very much on site location and on the species present, as well as on weather and visibility factors (EU Commission, 2010). Some 10 species were recorded flying over land within 500m of the proposed turbine location (see Table 7.8 of EIS). Six of these bird species are either qualifying interests or special conservation interests of Cork Harbour SPA. The rotor swept area, will be a circle of 50.5m in radius so only those species recorded within 200m are considered to be at risk of collision and considered further in this assessment.

4.4 CONCLUSIONS

The proposed turbine within the Janssen site is located approximately 700m from the nearest boundary of Cork Harbour SPA. The proposed development has the potential to cause significant impacts to bird species which are the qualifying interests of Cork Harbour SPA as a result of disturbance and/or collision mortality during the construction and operational phases of the development and as such there is a possibility that the integrity of the SPA could be affected.

Conclusion of screening stage

The initial screening assessment has concluded that the proposed project is not directly connected with or necessary for the management of the Natura 2000 site, and that some effects of the project could potentially have significant negative impacts on *Cork Harbour SPA.* Therefore the Appropriate Assessment process must proceed to Stage 2. Appropriate Assessment.

5. STAGE 2 – NATURA IMPACT STATEMENT

The main objective of Stage 2 of the Appropriate Assessment process is to consider the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other plans and projects, with respect to the conservation objectives of the site and where appropriate to identify and assess mitigation measures against any adverse effects the plan or project are likely to cause.

5.1 DESCRIPTION OF NATURA 2000 SITE

Cork Harbour SPA (site code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries – principally those of the Rivers Lee, Douglas and Owenacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas Estuary, inner Lough Mahon, Lough Beg, Whitegate Bay and the Rostellan inlet.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva lactua* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Laxflowered Sea-lavender (*Limonium humile*) and Sea Arrowgrass (*Triglochin maritima*). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The five-year average annual core count for the entire harbour complex was 34,661 for the period 1996/97-2000/01. Of particular note is that the site supports an internationally important population of Redshank (1,614) – all figures given are average winter means for the 5 winters 1995/96-1999/00. A further 15 species have populations of national importance, as follows: Great Crested Grebe (218), Cormorant (620), Shelduck (1,426), Wigeon (1,750), Gadwall (15), Teal (807), Pintail (84), Shoveler (135), Red-breasted Merganser (90), Oystercatcher (791), Lapwing (3,614), Dunlin (4,936), Black-tailed Godwit (412), Curlew (1,345) and Greenshank (36). The Shelduck population is the largest in the country (9.6% of national total), while those of Shoveler (4.5% of total) and Pintail (4.2% of total) are also very substantial. The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145), Golden Plover (805), Grey Plover (66) and Turnstone (99). Other species using the site include Bar-tailed Godwit (45), Mallard (456), Tufted Duck (97), Goldeneye (15), Coot (77), Mute Swan (39), Ringed Plover (51), Knot (31), Little Grebe (68) and Grey Heron (47). Cork Harbour is an important site for gulls in winter and autumn, especially Common Gull (2,630) and Lesser Black-backed Gull (261); Black-headed Gull (948) also occurs.

A range of passage waders occur regularly in autumn, including Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter. The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds (NPWS site synopsis, 2004).

Conservation objective

To maintain or restore the favourable conservation condition of the bird species listed as Qualifying Interests and Special Conservation Interests for this SPA (NPWS, 2011).

The favourable conservation status of a species is achieved when:

• population data on the species concerned indicate that it is maintaining itself, and

• the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and

• there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The Qualifying Interests and Special Conservation Interests for the Cork Harbour SPA are listed below in Table 1.

Table 1. Qualifying Interests and Species of Conservation Interest

	Common name	***Scientific name***	***Annex of EU Birds Directive***
Qualifying interests	Cormorant	*Phalacrocorax carbo*	not listed
	Shelduck	*Tadorna tadorna*	not listed
	Oystercatcher	*Haematopus ostralegus*	not listed
	Golden plover	*Pluvialis apricaria*	Annex 1
	Lapwing	*Vanellus vanellus*	not listed
	Dunlin	*Calidris alpine*	not listed
	Black-tailed godwit	*Limosa limosa*	not listed
	Bar-tailed godwit	*Limosa lapponica*	not listed
	Curlew	*Numenius arquata*	not listed
	Redshank	*Tringa totanus*	not listed
	Common tern	*Sterna hirundo*	Annex 1
Special Conservation Interests	Little grebe	*Tachybaptus ruficollis*	not listed
	Great crested grebe	*Podiceps cristatus*	not listed
	Grey heron	*Ardea cinerea*	not listed
	Wigeon	*Anas penelope*	not listed
	Teal	*Anas crecca*	not listed

	Common name	***Scientific name***	***Annex of EU Birds Directive***
	Pintail	*Anas acuta*	not listed
	Shoveler	*Anas clypeata*	not listed
	Red-breasted merganser	*Mergus serrator*	not listed
	Grey plover	*Pluvialis squatarola*	not listed
	Black-headed gull	*Larus ribundus*	not listed
	Common gull	*Larus canus*	not listed
	Lesser black-backed gull	*Larus fuscus*	not listed

5.2 POTENTIAL SIGNIFICANT IMPACTS

Disturbance and displacement of species

Disturbance can lead to displacement and exclusion, resulting in the short-term and long-term loss of habitat use. Short-term habitat loss can occur as a result of disturbance during the construction stage. The temporary disturbance associated with the erection of the turbine at Janssen will not have a significant impact on water birds due to distance from the SPA boundary.

Longer term displacement of birds from areas within and surrounding wind turbines, due to visual intrusion and disturbance, can theoretically amount to habitat loss. Displacement may occur during operation of wind turbines, and may be caused by the presence of the turbines themselves, through visual, noise and vibration impacts, or as a result of vehicle/vessel and personnel movements related to site maintenance (Drewitt and Langston, 2006).

There are no significant feeding or roosting sites for any of the birds species which are qualifying interests or special conservation interests of the SPA within 700m of the Janssen site. Therefore, disturbance and/or displacement will not result in significant impacts to these bird species.

The base of the proposed turbine at Janssen is approximately 700m from the nearest boundary of Cork Harbour SPA. This is a sufficient distance to avoid any disturbance impacts on non-breeding birds on the tidal area. From the available evidence, given above, there is unlikely to be any significant displacement of water birds or raptors from the area immediately around the proposed turbine. Displacement of birds is therefore not significant.

Collision risk

Five species for which Cork Harbour SPA has been designated were recorded flying within 200m of the proposed turbine CEN1 and therefore potentially at risk of collision with the turbine rotors.

Studies of bird collisions at coastal windfarms in Blythe Harbour (North-east England) and Zeebrugge (Belgium) reported collision rates in excess of one bird per turbine per year, with most casualties at both sites being gulls (Laridae) (Percival, 2005). However, both windfarms involved lines of multiple turbines (9 and 25 respectively) located on piers or breakwaters (Everaert and Steinen, 2007; Lawrence *et al.,* 2007) which give birds less opportunity for avoidance than the single turbine proposed for the Janssen site.

Musters *et al.* (1996) monitored the bird casualties around an array of five wind turbines (each 30m in height with rotor swept area of 25m diameter) in an estuary site in the Netherlands. During a one-year period, the bodies of 26 birds of 17 different species were found. Six birds were certainly killed by the turbines. The species that were certain or probable collision victims included Brent Goose, Mallard, Teal, Gadwall, Oystercatcher, Grey Plover, Snipe and Black-headed Gull. From this sample it was calculated that the average number of all certain and possible victims amounted to 0.01 per wind

turbine per day, On this basis, the average number of collision victims from the proposed turbine at Janssen would, theoretically, be on average 3.7 birds per year. It should be noted that the proposed turbine at Janssen is at least 700m from the nearest estuarine habitat and so is unlikely to cause this level of mortality.

Studies using radar-tracking at existing windfarms have shown that birds are generally able to avoid collisions with wind turbines and do not fly into them blindly. Reported collision rates are typically in the range of 1 per 1,000 - 10,000 bird flights through a wind farm (Percival, 2005). The probability of birds avoiding a single wind turbine is much greater than where there are multiple turbines closely spaced in a windfarm. In the case of CEN1, many birds already fly at a greater height than normal to avoid the high buildings in the surrounding industrial complexes, close to which the proposed turbine will be located.

Of those species recorded flying within 200m of the proposed turbine location (Table 7.9 Chapter 7) Cormorant and Black-tailed Godwit are considered to have a small or insignificant risk of collision with wind turbines (European Commission, 2010). In addition, it is likely (from published information e.g. Everaert and Steinen, 2007) that Black-headed Gull, Lesser Black-backed Gull and Great Black-backed Gull would also have a potential collision risk. Curlew is considered at no risk of collision (European Commission, 2010). Ducks and waders generally have a low risk of collision. Of those species with a potential collision risk, Cormorant and Black-tailed Godwit are Qualifying Interests and Black-headed Gull and Lesser Black-backed Gull are Special Conservation Interests for Cork Harbour SPA.

The risk of collision by susceptible species recorded at the Janssen site is slight given the high probability of avoidance and the fact that the turbine will be located in close proximity to existing high buildings in an industrial plant. The turbine location is not within any significant flight paths recorded during visual and radar surveys in 2009-11. In a worst-case scenario, if the proposed turbine did result in 1 to 10 casualties per year, in total, this would *not* have a significant impact on the populations of any of those species recorded at the turbine site. Compensatory mortality due to cold weather and food shortage is likely to be greatly in excess of any mortality due to collision.

The potential impact of collision during operation of CEN1 for all susceptible bird species is considered to be slight, except in the case of Curlew, where it is considered to be imperceptible. In a worst case scenario, the loss of a small number of birds of these species (less than 10 per year), due to collision with the proposed turbine, would not be significant in terms of the populations of any these species in Cork Harbour or in Ireland. The majority of those susceptible species which have been recorded in the vicinity of the Janssen site have increasing or stable populations in Ireland (where these trends are known).

5.3 CUMULATIVE IMPACTS

The EC (2001) guidelines on the provision of Article 6 of the Habitats' Directive state that the phrase 'in combination with other plans or projects' in Article 3(3) of the Habitats Directive refers to the cumulative impacts due to plans or projects 'that are currently under consideration together with the effects of any existing or proposed projects or plans.' Direct and indirect impacts have already been identified in section 5.2

As part of the Cork Lower Harbour Wind Energy Group Wind Energy Project, six turbines have been proposed within the Ringaskiddy area, including the turbine proposed at the Janssen site. Assessing the cumulative impacts of all six turbines it has been concluded that there will be no barrier effects, as the six wind turbines are widely spaced from each other. The cumulative collision risk of all six turbines will have no measurable impact on the populations of those susceptible species that are qualifying interests or special conservation interests of Cork Harbour SPA. Hence, there will be no additional cumulative impacts of all six proposed turbines on the integrity of the SPA.

A review of other non-domestic projects within the study area described below in Table 2, shows that none of these projects will have a significant impact on the Cork Harbour SPA.

Table 2. Non-domestic planning applications for developments in Cork Harbour

Planning Reference	***Project name and location***	***Was EIA or AA carried out for this development? Yes/No***	***Predicted impacts on SPA***
1052019 (Cobh TC)	Harbour Flights Ireland Ltd. – Planning granted for the installation of floating pontoons, etc for the berthing of a sea plan at the Quays Bar and Restaurant, Westbourne Place, Cobh, Co. Cork.	Screening for AA (full AA not required)	No potential impact on the qualifying interests of either Natura 2000 site.
1052015 (Cobh TC)	Cove Sailing Club – Planning granted for the installation of 74 berth marina etc at Whitepoint, Cobh, Co. Cork	Screening for AA	No significant impact
CCC Planning Ref.114171	Application by Michael O'Regan. Construction of marina to include 123 berths, two storey marina building etc at Garranekinnefeake, East Ferry, Co.Cork.	No EIS required. No AA Screening undertaken, however letter from the DAU DoEHLG to Cork CC on (9/3/11) to recommended AA screening be carried out.	Not available
CCC Planning Ref.9317. ABP Ref.PL04.236980	Marina Company Co. Ltd. - Planning granted to Monkstown Bay Marina Company Ltd. for for 285 berth marina etc. at Strand Road, Monkstown, Co. Cork.	Sub threshold EIS and also Stage 2 Appropriate Assessment undertaken.	The conclusion of the AA was as follows: "*The proposed Marina at Monkstown will not result in the loss of any feeding areas or roosting sites for wintering waterfowl or waders. There will therefore be no impact on the qualifying interests for Cork Harbour*

Planning Reference	***Project name and location***	***Was EIA or AA carried out for this development? Yes/No***	***Predicted impacts on SPA***
			SPA, or on the integrity of the Spa. There will be no negative impacts on marine mammals (including otters)."
CCC Planning Ref. 105684	GlaxoSmithKline (Cork) Ltd. Planning granted for the construction of coast protection works along part of site (rock armour) at Curraghbinny, Carrigaline, Co. Cork.	Appropriate Assessment undertaken	The conclusion of the AA was that residual impacts are unlikely to be significant.

The Environmental Report (November 2010) of the *Carrigaline Electoral Area Local Area Plan (Draft for Public consultation)* states in relation to potential threats to Cork Harbour SPA

"This is a very important habitat and one of the largest in the county. With its location adjoining Cork city and other harbour area settlements the site would be sensitive to land use changes, population increase, recreational demands, intensification of uses and surface water run off. This site does not form part of any of the settlements in this electoral area. This SPA bounds the coast along the Rochestown Road, at Douglas and continues onto the edge of Passage West. Discharges to Cork Harbour and coastal developments will impact on the quality and integrity of this designation."

The proposed development at Janssen will not have a significant impact on the SPA and will not contribute any discharges to the Cork Harbour.

The cumulative impact assessment concludes that the proposed project will not contribute significantly to a negative cumulative impact on the Cork Harbour SPA.

5.4 MITIGATION

The mitigation measures necessary to avoid or reduce the significance of any adverse impacts on flora and fauna are outlined in this section. These measures are over and above those already incorporated into the project design, which has sought to avoid areas of particular sensitivity for rare and protected species by eliminating or relocating turbines.

Lighting

In order to comply with national and international regulations on health and aviation/shipping safety there will be a light on the turbine. A flashing white strobe light will be used as this type of lighting has been proposed to be less attractive for birds that e.g. solid or pulsating red light (EU Commission 2010).

Monitoring

Following construction, bird populations within 1km of the turbine, will be monitored on a monthly basis over three years, by a competent ornithologist to determine if any effects of displacement disturbance can be detected. In addition, regular searches for bird casualties will be undertaken within a radius of 100m of the turbine to monitor the actual number of collisions. Any casualties will be logged and identified to species by a competent ornithologist.

5.5 RESIDUAL IMPACTS

The residual impacts are the expected impacts that remain after mitigation has been taken into account. Following the proposed mitigation measures, to be implemented during the construction phase of the project, the expected impacts on the conservation objectives of the Cork harbour SPA will not be significant.

5.6 CONCLUSION OF STAGE 2 APPROPRIATE ASSESSMENT

Overall, impacts of the proposed wind turbine at Janssen will, at worst, have only slight effects on five bird species for which the SPA has been designated. There will be no displacement of any species which is a qualifying interest (QI) or special conservation interest (SCI) of the SPA. The risk of collision during operation of turbine CEN1 is slight for four of the species and imperceptible for Curlew.

Favourable conservation status of a species is achieved when (a) population data on the species concerned indicate that it is maintaining itself; (b) the natural range of the species is neither being reduced or likely to be reduced in the near future; and (c) there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis. Each of these criteria is satisfied for all of the five QI or SCI species concerned. The only exception is Criterion (a) relating to Curlew, for which the All-Ireland non-breeding population trend is a 10.5% decrease (Crowe et al 2008). However, analysis of the mean annual peaks for Curlew in Cork Harbour, show that the wintering populations of this species within the SPA are stable between 2003/04 and 2008/09 (IWeBS data). This indicates that the species concerned is maintaining itself in Cork Harbour SPA. There is no collision risk to this species (EU Commission, 2010).

Hence, the predicted slight or imperceptible impacts for these species will be of no significance to the favourable conservation status of the bird populations, which are the qualifying interests or special conservation interests of the SPA. Thus, there is no likely significant impact of the proposed development on the integrity of the SPA.

5.7 RESULTS OF CONSULTATIONS

The table below lists a number of agencies, and their responses, consulted as part of the EIA and AA stages.

Name of agencies consulted As part of the preparation of this Appropriate Assessment	Summary of responses
BirdWatch Ireland	Supply of IWeBS wetland bird counts from Cork Harbour
National Parks and Wildlife Service (NPWS) of the Department of Environment, Heritage and Local Government (DoEHLG)	Meetings were held on the 1st October 2009, 28th April 2010 and 10th February 2011 with NPWS personnel including: Dr. Jervis Good NPWS Divisional Ecologist Southern Division David Tierney NPWS Birds Unit Danny O'Keeffe NPWS Conservation Ranger, South-west Region

9. REFERENCES

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