



INTERNATIONAL

Dreenacreenig Wind Farm Overhead Line Grid Connection County Cork

Appropriate Assessment Screening Report

Document No.: DG282 / AA Screening

Date: May 2016

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Dreenacreenig Wind Farm Overhead Line Grid Connection: AA Screening

File Reference:	DG282 / AA Screening	
Client Recipient:	/ ESB Networks	
Project Title:	Dreenacreenig Wind Farm OHL Grid Connection	
Report Title:	Appropriate Assessment Screening Report	
Report No.:	DG282 / AA Screening	
Revision No.:	0	
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Template Used: T-020-007-ESBI Report Template

Change History of Report

Date	New Revision	Author	Summary of Change

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1 Introduction

1.1 Background

This screening report provides relevant material to inform a decision, as required under Article 6.3 of the EU Habitats Directive, as to whether a proposed 20kV overhead line (OHL) between the permitted 7-turbine Dreenacreenig Wind Farm and Ballylickey substation in County Cork is likely to have significant effects on any Natura 2000 sites, in view of these sites' Conservation Objectives.

Glengarriff Harbour and Woodland SAC lies 5.5 km west of Ballylickey, and includes Glengarriff Harbour, an inlet of Bantry Bay. The OHL route lies within the surface catchments of the Mealagh and Owvane Rivers, both of which discharge to the east side of Bantry Bay.

Derryclogher (Knockboy) Bog SAC is situated under the summit of Knockboy Mountain in Co. Cork, 6.5 km north of the proposed OHL route. Caha Mountains SAC comprises the upland habitat associated with the ridge of mountains along the Beara peninsula, and at its closest point lies 7.5 km west of Ballylickey.

1.2 Regulatory context

The EU Habitats Directive 92/43/EEC provides legal protection for habitats and species of European importance through the establishment of a network of designated conservation areas known as the Natura 2000 Network. The Natura 2000 network includes sites designated as Special Areas of Conservation (SAC) under the EU Habitats Directive and Special Protection Areas (SPA) designated under the EU Birds Directive 79/209/EEC.

The Habitats Directive was initially transposed into Irish national law in 1997, with the European Communities (Natural Habitats) Regulations, SI 94/1997. These Regulations have since been amended by SI 233/1998 & SI 378/2005. The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010.

The requirements for an Appropriate Assessment are set out under Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC which state:

6(3) Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have 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 sites 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.

Definitions of conservation status, integrity and significance used in this assessment are defined in accordance with 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (European Commission, 2000).

- The conservation status of a natural habitat is defined as the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species.
- The conservation status of a species is defined as the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population.
- The integrity of a Natura 2000 site is defined as the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified.
- Significant effect should be determined in relation to the specific features and environmental conditions of the protected site concerned by the plan or project, taking particular account of the site's conservation objectives.

1.3 Appropriate Assessment process

Key stages in the Appropriate Assessment process are set out below, as per European and Irish Government guidance (EC 2000, EC 2001 and DoEHLG 2009). Stages 1 and 2 relate to Article 6(3) of the Habitats Directive and Stages 3 and 4 relate to Article 6(4). The outcome of each successive stage determines if a further stage in the process is required.

Stage 1. Screening for Appropriate Assessment

The first step in the Screening process is to determine if the plan or project is directly connected to or necessary for the management of a Natura 2000 site. The process then identifies whether a plan or project, either alone or in combination with

other plans or projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

Stage 2. Appropriate Assessment

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. A Natura Impact Statement (NIS) must be prepared as part of this stage of the process. The AA is carried out by the competent authority, and is supported by the NIS.

Stage 3. Alternative Solutions

If Stage 2 of the process concludes that there is likely to be significant effects to a Natura 2000 site, Stage 3 then examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a Natura 2000 site.

Stage 4. Imperative Reasons of Overriding Public Interest (IROPI)/Derogation

Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a Natura 2000 site to proceed in cases where it has been established that no less damaging alternative solution exists.

2 Methodology

2.1 Desk review

A desktop study was conducted to examine the potential zone of impact of the proposed development and to identify any nature conservation sites within that area which could be impacted.

The National Parks and Wildlife Service (NPWS) website was reviewed in relation to designated areas and relevant reports. GIS data was accessed using the NPWS and Department of Environment, Community and Local Government mapviewers. The OHL route was mapped using ArcGIS and superimposed on aerial photography and satellite imagery to get an overview of habitats found along the proposed OHL route. It should be noted that the route assessed for the purposes of the AA Screening is indicative; poleset locations and construction access routes were not finalised at the time of the report.

Available published literature and distribution databases were checked to establish known local distributions of habitats and species listed as Qualifying Interests or of the identified Natura 2000 site. IFI publications relating to the Mealagh and Owane rivers were also consulted.

An Environmental Impact Statement (EIS) was submitted as part of the planning application for the Dreenacreenig Wind Farm in 2010. The flora and fauna chapter of the EIS involved the ecological survey of the wind farm site and an assessment of the potential water quality impacts of the development (the site drains to the Ilen and Mealagh rivers). Subsequent specialist surveys were carried out to establish the presence or absence of Kerry slug (*Geomalacus maculosus*) and Geyer's whorl snail (*Vertigo geyeri*). The EIS included specific mitigation measures to reduce and eliminate impacts to terrestrial and aquatic habitats around the wind farm site.

2.2 Potential zone of impact

The guidance states that '*A distance of 15km is currently recommended in the case of plans and derives from UK guidance (Scott Wilson et al., 2006). For projects, the distance could be much less than 15km and in some cases less than 100m, but this must be evaluated on a case-by-case basis....*' (DoEHLG, 2009)

Given the size and nature of the proposed project the potential zone of impact was determined to be within a 10km radius. Therefore, all Natura 2000 sites within a 10km radius and those with a direct hydrological connection to the OHL route have been included for assessment in this report.

2.3 Assessment criteria

This assessment has been undertaken in accordance with the best practice methodologies recommended in the following guidance documents:

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- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (DEHLG, 2009);
- 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, EC (2001);
- Managing Natura 2000 Sites. (European Commission, 2000) Assessment of plans and projects significantly affecting Natura2000 sites. (European Commission, 2001)

3 Screening for Appropriate Assessment

3.1 Introduction

Screening determines whether appropriate assessment is necessary by examining:

1. Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of the site, and
2. The potential effects of a project or plan, either alone or in-combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives and considering whether these effects will be significant (DoEHLG, 2009).

The proposed development is not directly connected with or necessary to the management of any Natura 2000 site.

Screening for AA involves the following:

1. Description of project
2. Identification of relevant Natura 2000 sites and compilation of information on their qualifying interests and conservation objectives
3. Assessment of likely effects – direct, indirect and cumulative
4. Screening statement with conclusions.

3.2 Description of the proposed development

The proposed 20kV OHL will connect the permitted 7-turbine Dreenacreenig Wind Farm to the existing Ballylickey 110kV substation in County Cork (see Figure 1). The circuit will consist of 12.6 km of OHL, and comprise 149 standard 20kV single poles in total, with an average span distance of 85m. Three electrical conductors will be supported by each structure. Stay wires, required for increased stability, will be attached to poles at locations where the line changes direction and where there are poor ground conditions.

Pole and line installation works will be standard for a 20kV OHL:

- Poles are carried from adjacent roadways to each erection site and placed into an excavated hole using a wheeled or tracked excavator fitted with a pole grab attachment. Poles are rested on the ground while the pole hole is excavated.
- The excavation for each pole is carried out using a wheeled or tracked excavator fitted with 12 inch bucket and to a depth of approximately 2m.
- Poles are lined up with excavated holes and the machine operator then drives forward while rotating the pole grab attachment until the pole is in a vertical position. The pole remains controlled by the pole grab attachment on the excavator until it is supported by the backfill material.
- The pole hole is manually backfilled and tamped down to a minimum depth of 1.0m until the backfill is capable of supporting the pole; the excavator then continues the backfilling and tamping.

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- Where rock is encountered, the pole hole is formed using a hydraulic rock-breaker attachment mounted on the excavator.
- Where the line changes direction and at poleset locations with poor ground conditions, staywires will be required. These wires are supported by means of stayblocks, which are made of wooden sleepers and are buried underground.
- Stringing of the conductor involves pulling out polypropylene rope along the route by hand, attaching the conductors and then pulling into position with stringing machine. Conductor stringing would require a Manitou or other mobile elevated work platform (MEWP), following the same pole access routes as the excavator.

It is envisaged that access to pole locations in enclosed and improved agricultural areas will use existing farm access points. In the more upland areas along the eastern sector of the route, where open bog and heath habitats will be encountered, construction materials will be transported by means of tracked machinery along demarcated access routes, which will be defined in advance based on site-specific geotechnical and ecological surveys. Low ground pressure machinery will be used in peat areas and bog mat access routes will be installed in areas of particularly poor bearing. These bog mat routes will be removed on completion.

Felling of forest corridors at a number of locations along the proposed OHL route will be carried out by licensed forestry operators in accordance with the relevant Forest Service Guidance documents.

Originating at the wind farm, the proposed OHL route travels uphill across an area of blanket bog and wet heath occurring on the south-facing slopes of the ridge at Dreenacreenig West. Descending from the crest of the ridge, the route cuts through 300m of first and second rotation forestry before passing through an area dominated by rough unenclosed grazing. The route then travels west along the Mealagh River valley, predominantly through areas of improved pasture and wet grassland.

The route turns northwest at Glanareagh hill and crosses the Mealagh River 1km southeast of Ardrah Bridge, before rising up the north side of the valley to Ardrah townland. From here, the route turns southwest again and descends steadily towards Shandrum, crossing areas of improved and unimproved grassland with occasional areas of heath and mature coniferous forestry. Between Shandrum and Ballylickey substation, the route environs are dominated by improved grassland. The makeup of the habitats along the route is reflected in the aerial image presented in Figure 2 and roadside imagery shown in Figure 3.

The geographic relationship of the OHL route to the Natura 2000 sites in the identified potential zone of impact is presented in Figure 4.

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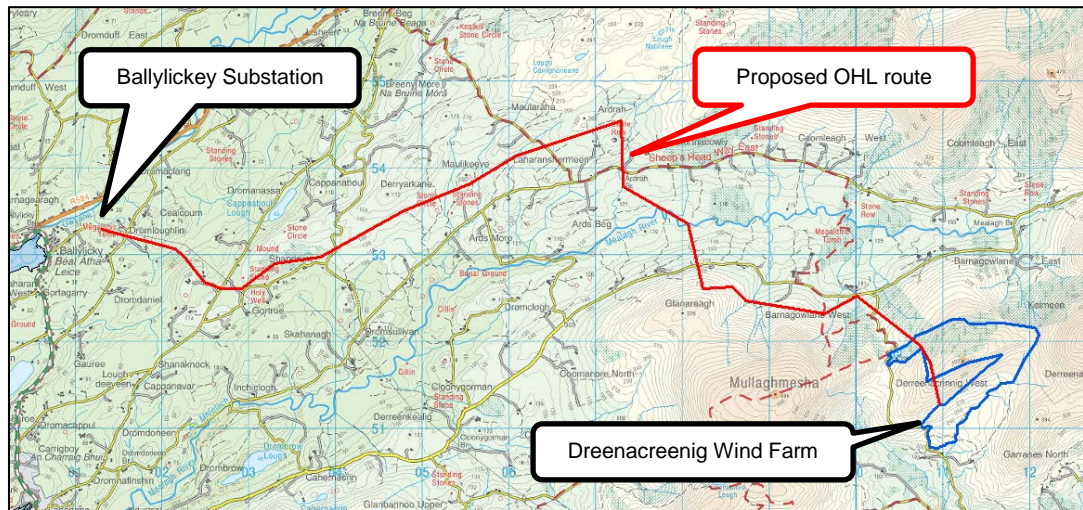


Figure 1: Overview of proposed OHL route

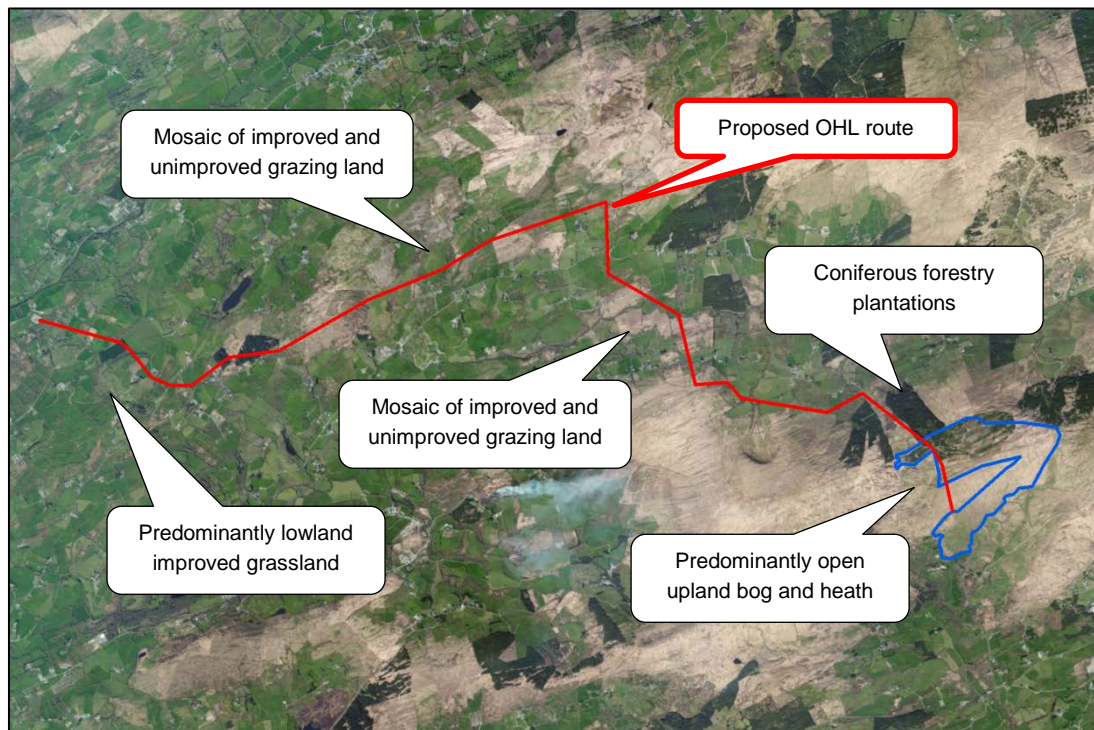


Figure 2: Aerial imagery of habitats along proposed OHL route

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Figure 3: Range of habitats along proposed OHL route

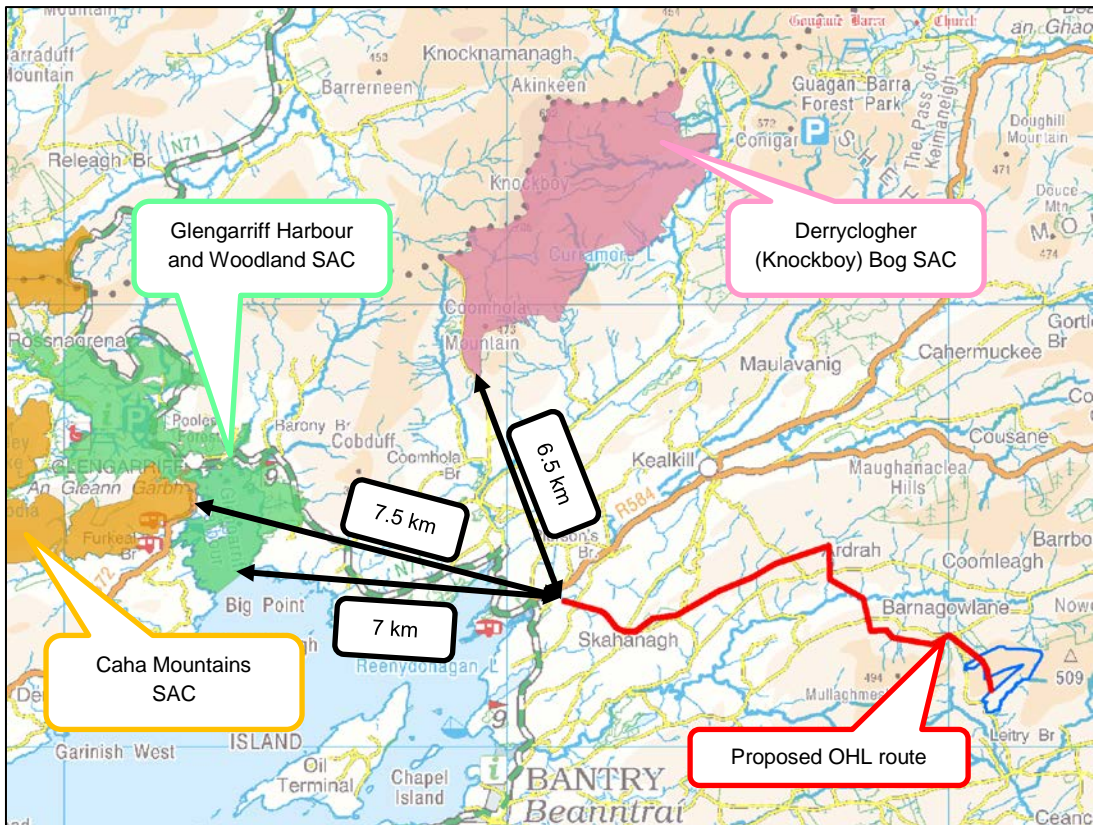


Figure 4: Proximity of OHL route to Natura 2000 sites

4 Description of Natura 2000 sites

The nearest Natura 2000 site to the proposed OHL is Glengarriff Harbour and Woodland SAC which lies 7 km to the west of Ballylickey substation, at the westernmost extent of the route; the OHL lies within the surface catchments of the Mealagh and Owvane rivers which discharge to Bantry Bay, which Glengarriff Harbour also forms a part of. Derryclogher (Knockboy) Bog SAC is situated under the summit of Knockboy Mountain in Co. Cork, 6.5 km north of the proposed OHL route. Caha Mountains SAC comprises the upland habitat associated with the ridge of mountains along the Beara peninsula, and at its closest point lies 7.5 km west of Ballylickey.

Glengarriff Harbour and Woodland SAC

Located to the south and north-west of Glengarriff Village in west Cork, Glengarriff Harbour and Woodland SAC consists of a glacial valley opening out into a sheltered bay with rocky islets. The valley contains old oak woodland and alluvial forest. This site is of importance because it is the only sizeable area of old oak woodland remaining in west Cork and is considered second only to Killarney as an example of Oceanic Sessile Oak/Holly woodlands. Furthermore, the site supports populations of a number of animal species listed on Annex II of the Habitats Directive.

Derryclogher (Knockboy) Bog SAC

This site is of conservation interest for its blanket bog habitat (a type listed with priority status on Annex I of the E.U. Habitats Directive), which shows gradations to heath, grassland and stream flushes. The areas of active mountain blanket bog occur as a complex mosaic with other upland habitats, namely grassland, heath, stream flushes and exposed rock. The bogs are mostly small (1-2 ha) but they occur with regularity on a series of gently sloping shelves across the mountainside.

Caha Mountains SAC

The Caha Mountains consist of Old Red Sandstone and form part of the dramatic backbone of the Beara Peninsula, between Turner's Rock (on the Glengarriff-Kenmare Road) and the Healy Pass. Within the site there are a series of peaks and ridges up to 630m high, radiating out from Caha Mountain itself. The southerly directed ridge forms a broad boggy plateau studded with small lakes - at about 420m. The area also features glacial valleys and corries, such as the one within which Barley Lake occurs. Generally, the terrain is rocky with many of the slopes featuring rock faces interspersed with grassy shelves. Substantial cliffs are present in the north-western half of the site. The site is of high scientific interest due to the presence of a number of habitats listed on Annex I of the E.U. Habitats Directive, including one priority habitat.

An outline of the Natura 2000 sites, listing their respective Conservation Objectives and Qualifying Features is provided below in Table 1. The NPWS Site Synopses for the three sites are presented in Appendix 1.

Table 1. Natura 2000 sites in the potential zone of influence of the proposed OHL

Natura 2000 site	Distance from proposed development	Conservation Objective	Qualifying features
Glengarriff Harbour and Woodland SAC	7 km from western extent of OHL	To <i>maintain</i> the favourable conservation condition of the following Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:	<p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]</p> <p><i>Geomalacus maculosus</i> (Kerry Slug) [1024]</p> <p><i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]</p> <p><i>Lutra lutra</i> (Otter) [1355]</p> <p><i>Phoca vitulina</i> (Common Seal) [1365]</p>
Derryclogher (Knockboy) Bog SAC	6.5 km north of OHL	To <i>maintain or restore</i> the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:	Blanket Bogs (Active)* [7130]
Caha Mountains SAC	7.5 km north of OHL	To <i>maintain or restore</i> the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:	<p>Oligotrophic to Mesotrophic Standing Waters [3130]</p> <p>Dystrophic Lakes [3160]</p> <p>Wet Heath [4010]</p> <p>Alpine & Subalpine Heaths [4060]</p> <p>Blanket Bogs (Active)* [7130]</p> <p>Siliceous Rocky Slopes [8220]</p> <p>Kerry Slug (<i>Geomalacus maculosus</i>) [1024]</p> <p>Killarney Fern (<i>Trichomanes speciosum</i>) [1421]</p>

5 Assessment of likely effects

5.1 Direct Impacts to Natura 2000 sites

The proposed OHL route is over 5 km from any Natura 2000 sites. Consequently, there will be no direct impacts to the respective habitats and species associated with the Glengarriff Harbour And Woodland SAC, Derryclogher (Knockboy) Bog SAC and Caha Mountains SAC.

5.2 Indirect Impacts to Natura 2000 sites

There are no significant impact pathways between the proposed OHL route and the Derryclogher (Knockboy) Bog SAC and Caha Mountains SAC; these are 6.5 km and 7.5 km from the route and are hydrologically separated from the sub-catchments through which the OHL runs. There will be no indirect impacts to the respective habitats and species associated with the Derryclogher (Knockboy) Bog SAC and Caha Mountains SAC.

The proposed OHL traverses the surface catchments of the Mealagh and Owvane rivers, which both discharge to Bantry Bay; Glengarriff Harbour And Woodland SAC is located on the opposite side of the bay, 6.5 km from the mouth of the Owvane River and 7.5 km from the mouth of the Mealagh River, just north of Bantry.

Uncontrolled construction works have the potential to reduce water quality and impact upon aquatic habitats and water-dependent species through petrochemical spills or siltation which may be transmitted via rivers or other waterbodies into sensitive receptor sites. Tree felling operations required to open OHL corridors through existing forestry compartments also have the potential to give rise to increased sediment-loaded run-off from exposed soils during and after felling.

The proposed works are very limited in nature and are unlikely to give rise to any significant volumes of sediment in run-off; the use of standard construction methods mean that the risk of impacts to the Mealagh River and Owvane River due to aquatic pollution arising during construction is insignificant. Similarly, felling of forest corridors at a number of locations along the proposed route will be carried out by licensed forestry operators in accordance with Forest Service guidelines, which include measures specifically aimed at protecting water quality.

The marine habitats of the Glengarriff Harbour and Woodland SAC are over 6.5 km from the western extent of the proposed OHL, in a discrete inlet of a significant marine waterbody. The Common seal colony within Glengarriff Harbour is therefore not considered to be at risk of impact from the proposed pole installation works along the OHL route; the same is also the case for any coastal populations of otter which may occur within Glengarriff Harbour.

Given the linear distance to the Natura 2000 site of more than 6.5 km, and functional absence of impact pathways, there is no potential for any indirect impacts to the habitats and species for which the Glengarriff Harbour and Woodland SAC is designated.

5.3 Cumulative Impacts to Natura 2000 sites

As noted in Sections 5.1 and 5.2, the physical distance between the proposed OHL route and the Natura 2000 sites is a major factor in the screening out of potential impacts.

The environs of the proposed route are dominated by agriculture, with a small degree of commercial forestry. The eastern extent of the route traverses a more upland area with more unenclosed or unimproved grazing of sheep and drystock cattle rearing. The section in the lower Mealagh valley and the western extent of the route crosses more improved agricultural land with increased fertiliser usage, though stocking densities are unlikely to be very high. It is highly unlikely that the erection of the OHL through this agricultural landscape will lead to significant in-combination effects on the respective Natura 2000 sites.

The permitted 7-turbine Dreenacreenig Wind Farm is located over 12 km from any of the Natura 2000 sites and lies in the surface catchments of the Ilen and Mealagh rivers. The construction of the wind farm will be subject to a suite of mitigation measures targeting the protection of water quality. A second permitted wind farm is located along the Mealagh valley at Barrboy; the application for this development included an appropriate assessment screening which concluded that significant direct, indirect and in-combination impacts in light of the conservation objectives of the respective Natura 2000 sites were not likely to arise. A number of other wind farm applications in the region have been refused (e.g. Ardrah Wind Farm, Coomanore Wind Farm), but this has primarily been on the basis of possible significant negative impacts on the landscape and visual amenities of the area and its amenity, tourism and recreational potential. No cumulative impacts on Natura 2000 sites arising from the construction of the proposed OHL in combination with wind energy developments in the region are therefore envisaged.

The NPWS site synopsis for Glengarriff Harbour and Woodland SAC lists the main pressures to the harbour as the mariculture (rope grown mussels) and tourism (boats visiting Garinish Island) industries. Neither activity appears to have affected seal numbers, although increased disturbance may pose a threat. As indicated in section 5.2, no impacts to water quality in Bantry Bay are expected to arise as a result of the construction of the proposed OHL, and it will therefore not contribute in any way to increasing the above pressures on the SAC.

Overall, potential in-combination impacts to the identified Natura 2000 sites are considered to be negligible.

6 Screening Statement and Conclusion

This screening process has examined the details of the project and has considered the risk and significance of potential impacts to Glengarriff Harbour And Woodland SAC, Derryclogher (Knockboy) Bog SAC and Cahal Mountains SAC.

The examination has shown that the proposed works will not have any significant impacts on these Natura 2000 sites, or on their Qualifying Interests in light of their respective Conservation Objectives. Cumulative effects with other plans or projects are also expected to be non-existent.

The screening process therefore concludes that the project alone, or in-combination with other projects **will not have any significant direct or indirect adverse impacts on Glengarriff Harbour And Woodland SAC, Derryclogher (Knockboy) Bog SAC and Cahal Mountains SAC.**

In this regard, the requirement for Stage 2 of the Appropriate Assessment process, namely a **Stage 2 Appropriate Assessment is not considered necessary.**

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Appendix 1: Natura 2000 Site Synopses

Site Name: Glengarriff Harbour and Woodland SAC

Site Code: 000090

Located to the south and north-west of Glengarriff Village in west Cork, this site consists of a glacial valley opening out into a sheltered bay with rocky islets. The valley contains old oak woodland and alluvial forest. The underlying rock of the area is Old Red Sandstone, with the soil varying from acid brown earths to alluvial brown earths and peat.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[91A0] Old Oak Woodlands

[91E0] Alluvial Forests*

[1024] Kerry Slug (*Geomalacus maculosus*)

[1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)

[1355] Otter (*Lutra lutra*)

[1365] Common (Harbour) Seal (*Phoca vitulina*)

Glengarriff woodland consists of a sizeable area of broadleaved semi-natural woodland comprised of oak (*Quercus* sp.) and Holly (*Ilex aquifolium*), with much Downy Birch (*Betula pubescens*) and Rowan (*Sorbus aucuparia*). A little Yew (*Taxus baccata*) occurs and Strawberry Tree (*Arbutus unedo*) is scattered through the woods. The most frequent ground plants are Heather (*Calluna vulgaris*), Great Wood-rush (*Luzula sylvatica*), Bilberry (*Vaccinium myrtillus*) and the ferns *Pteridium aquilinum*, *Blechnum spicant* and *Dryopteris aemula*.

Wet woodland occurs along parts of the Canrooska and Glengarriff rivers. This is dominated by willows (mainly *Salix cinerea* subsp. *oleifolia*) and Downy Birch, with Alder (*Alnus glutinosa*) also frequent. A rich herb layer is found, characterised by such species as Bugle (*Ajuga reptans*), False Brome (*Brachypodium sylvaticum*), Meadowsweet (*Filipendula ulmaria*) and Wood Sanicle (*Sanicula europaea*). The rivers flood regularly, depositing silt within the woodlands.

However, there is much small-scale variation in the habitat from heathy places with Heath Bedstraw (*Galium saxatile*), Star Sedge (*Carex echinata*) and Purple Moor-grass (*Molinia caerulea*), to rocks with Goldenrod (*Solidago virgaurea*), Navelwort (*Umbilicus rupestris*) or Filmy-fern (*Hymenophyllum* sp.). Common woodland herbs include Bugle, Enchanter's-nightshade (*Circaea lutetiana*), Irish Spurge (*Euphorbia hyberna*), Common Cow-wheat (*Melampyrum pratense*) and Foxglove (*Digitalis purpurea*).

Although this is the site of an ancient woodland, it was once part of an estate and much of the oak was planted around 1807-1810. Some exotic species were also introduced, such as Beech (*Fagus sylvatica*), Sycamore (*Acer pseudoplatanus*) and Rhododendron (*Rhododendron ponticum*). The latter has invaded parts of the

woodland, posing a serious problem. However, it is being systematically removed. Other areas within the woodland have been planted with conifers including Sitka Spruce (*Picea sitchensis*), Scots Pine (*Pinus sylvestris*) and Western Hemlock (*Tsuga heterophylla*).

In addition to the woodlands, the harbour is of great interest. This sheltered inlet of Bantry Bay has a rocky shore vegetated with brown seaweeds (*Pelvetia caniculata*, *Fucus* spp. and *Ascophyllum nodosum*). The inlet also features rocky islets.

Adding to the diversity of the site is a wet meadow, adjacent to the woodlands, which supports species such as Ragged-Robin (*Lychnis flos-cuculi*). Smooth Brome (*Bromus racemosus*), an uncommon grass which is listed as 'Vulnerable' in the Red Data Book, occurs within this habitat.

The site is notable for the presence in the woodlands of several rare species of Myxomycete fungus, namely *Echinostelium colliculosum*, *Cribraria tenella*, *Arcyria affinis*, *Stemonitis nigrescens*, *Symphytocarpus impexus*, *Fuligo muscorum*, *Diderma deplanatum* and *D. lucidum*.

Overall, the site supports a diversity of fauna. The rocky islets in the harbour support the largest colony of Common Seals in the south-west of Ireland (maximum count of 151 in the all-Ireland survey of 2003). This legally protected species is listed on Annex II of the E.U. Habitats Directive. Lesser Horseshoe Bat, also an Annex II species, were formerly recorded in high numbers in Glengarriff Castle (e.g. 300+ recorded during summer 1985, 268 in winter 1989). However numbers decreased at the Castle from the late 1990's onwards. Since then, summer roosts within the SAC boundary have been found in three buildings. The highest combined counts for the three summer sites were taken in July 2002 with a total of 228 bats. Bats have also been confirmed hibernating in one of the buildings and have used two purpose-built hibernacula. A total of 114 hibernating bats were counted in winter 2002/2003. This site is of international importance for both summer roosting and hibernating Lesser Horseshoe Bats. Given the combination of winter, summer and foraging sites, the site is one of the most important for the species in the south-west. An important roost of approximately 100 Long-eared Bats (*Plecotus auritus*) is also present within the site. Both bat species are listed on Annex IV of the E.U. Habitats Directive. The woods, and the river flowing through it, are home to a range of other mammal species, including Otter (listed in Annex II of the E.U. Habitats Directive), Stoat, Red Squirrel, Badger and Sika Deer. Bird life is also diverse, with species such as Sparrowhawk, Peregrine, Long-eared Owl, Woodcock, Heron, Jay, Dipper, Willow Warbler, Chiffchaff and Wood Pigeon.

Invertebrates, too, are well represented. Species found include the Kerry Slug (*Geomalacus maculosus*) a legally protected species, listed on Annex II of the E.U. Habitats Directive; damselflies, such as the Beautiful Demoiselle (*Calypteryx virgo*, Order Zygoptera), and butterflies (Order Lepidoptera), such as Silver-washed Fritillary (*Argynnis paphia*), Green Hairstreak (*Callophrys rubi*), Purple Hairstreak (*Quercusia quercus*), Large Heath (*Coenonympha tullia*), Holly Blue (*Celastrina argiolus*) and Wood White (*Leptidea sinapis*). Freshwater Pearl Mussel (*Margaritifera margaritifera*) has been recorded from rivers in the site. Other invertebrates reflect the ancient nature of the woodland. For example, Ireland's only

arboreal ant (*Lasius fuliginosis*, Order Hymenoptera), a longhorn beetle (*Laptura aurilenta*, Order Coleoptera) and a hoverfly (*Microdon analis*, Order Diptera). Meanwhile, the association between woodland and bog provides the necessary requirements for species such as the Large Marsh Grasshopper (*Stethophyma grossum*, Order Orthoptera) and a horse-fly (*Hybonutra mohlfeldi*, Order Diptera).

Most of the woodlands are a National Nature Reserve and as such are primarily managed for nature conservation and amenity purposes. However, some commercial forestry still occurs within the site. The harbour supports mariculture (rope grown mussels) and tourism (boats visiting Garinish Island) industries. Neither activity appears to have affected seal numbers, although increased disturbance may pose a threat. One of the main threats to the site, however, is housing developments within the woodland.

This site is of importance because it is the only sizeable area of old oak woodland remaining in west Cork and is considered second only to Killarney as an example of Oceanic Sessile Oak/Holly woodlands. Furthermore, the site supports populations of a number of animal species listed on Annex II of the Habitats Directive.

SUMMARY OF CONSERVATION OBJECTIVES

Conservation Objective	Qualifying interests
To maintain the favourable conservation condition of the following Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:	91A0 Old Oak Woodlands 91E0 Alluvial Forests 1024 Kerry Slug (<i>Geomalacus maculosus</i>) 1303 Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) 1355 Otter (<i>Lutra lutra</i>) 1365 Common (Harbour) Seal (<i>Phoca vitulina</i>)

Site Name: Derryclogher (Knockboy) Bog SAC

Site Code: 001873

Derryclogher (Knockboy) Bog SAC is situated under the summit of Knockboy Mountain (707 m) in Co. Cork. The western boundary is marked by the ridge which runs from the summit northwards to a subsidiary summit (695 m) and a further ridge which runs westwards to Lough Boy (578 m). These ridges run along the county border. The extreme southern point of the site falls to 240 m while the extreme eastern point falls sharply to less than 150 m.

The Cummeendarrig River rises on the eastern flank of the Knockboy ridge as a series of parallel streams which coalesce and flow southwards to the head of Bantry Bay as the Coomhola River. The southern part of the site contains the headwaters of the Derryduff River. Two medium sized lakes occur, Lough Nambrackderg and Curramore Lough, as well as several small loughs.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7130] Blanket Bogs (Active)*

The areas of active mountain blanket bog occur as a complex mosaic with other upland habitats, namely grassland, heath, stream flushes and exposed rock. The bogs are mostly small (1-2 ha) but they occur with regularity on a series of gently sloping shelves across the mountainside. The largest expanses of bog are beneath the two lakes. Slope appears locally to define the composition of the bog vegetation, with the flattest areas being the wettest. The vegetation is dominated by Deergrass (*Scirpus cespitosus*), Purple Moor-grass (*Molinia caerulea*), cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*) and a good diversity of mosses including *Campylopus atrovirens*, *Racomitrium lanuginosum*, and a variety of bog mosses (*Sphagnum* spp.). The *Racomitrium* forms hummocks in the drier places. Some linear pools occur, with *Sphagnum cuspidatum* and *S. tenellum*, and White Beak-sedge (*Rhynchospora alba*) around the margins.

The more nutrient-rich areas which surround the bogs are dominated by Purple Moor-grass, often with *Sphagnum palustre*, Soft Rush (*Juncus effusus*), Star Sedge (*Carex echinata*) and the moss *Polytrichum commune*. *Sphagnum auriculatum* and *S. recurvum* are a feature of many of the flushed areas, with Bulbous Rush (*Juncus bulbosus*), Bogbean (*Menyanthes trifoliata*) and White Beak-sedge, particularly at the lower levels. Nearer the stream banks species such as Sharp-flowered Rush (*Juncus acutiflorus*), Common Sedge (*Carex nigra*), Sweet Vernal-grass (*Anthoxanthum odoratum*) and Common Sorrel (*Rumex acetosa*) occur, with Blinks (*Montia fontana*), Bog Pimpernel (*Anagallis tenella*) and the moss *Campylium stellatum* close to springs. The Large-flowered Butterwort (*Pinguicula grandiflora*) occurs locally.

Although sheep grazing occurs throughout, it is at low density and has only caused some localised damage to an area south of Curramore Lough. The site has not

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been burnt in the recent past. Some afforestation occurs outside of the site boundary and this is probably the main threat to the site.

This site is of conservation interest for its blanket bog habitat (a type listed with priority status on Annex I of the E.U. Habitats Directive), which shows gradations to heath, grassland and stream flushes.

SUMMARY OF CONSERVATION OBJECTIVES

Conservation Objective	Qualifying interests
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:	7130 Blanket bogs (* if active bog)

Site Name: Caha Mountains SAC

Site Code: 000093

The Caha Mountains consist of Old Red Sandstone and form part of the dramatic backbone of the Beara Peninsula, between Turner's Rock (on the Glengarriff-Kenmare Road) and the Healy Pass. Within the site there are a series of peaks and ridges up to 630 m high, radiating out from Caha Mountain itself. The southerly directed ridge forms a broad boggy plateau studded with small lakes - at about 420 m. The area also features glacial valleys and corries, such as the one within which Barley Lake occurs. Generally, the terrain is rocky with many of the slopes featuring rock faces interspersed with grassy shelves. Substantial cliffs are present in the north-western half of the site. The site is of high scientific interest due to the presence of a number of habitats listed on Annex I of the E.U. Habitats Directive, including one priority habitat.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3130] Oligotrophic to Mesotrophic Standing Waters

[3160] Dystrophic Lakes

[4010] Wet Heath

[4060] Alpine and Subalpine Heaths

[7130] Blanket Bogs (Active)*

[8220] Siliceous Rocky Slopes

[1024] Kerry Slug (*Geomalacus maculosus*)

[1421] Killarney Fern (*Trichomanes speciosum*)

The best examples of blanket bog in the site occur on the Glenlough plateau and in the saddle to the east of Knockastumpa. Knockastumpa bog has been described as one of the best saddle bogs in the country, due to its level of intactness, deep peat and wetness, little evidence of erosion, diversity of habitats and diverse flora. Glenlough Bog occupies an undulating plateau sprinkled with small lakes. The terrain is rocky but there are many patches of shallow, flushed peat and occasional ombrotrophic domes on the more even slopes. There are some very wet areas ponded against ridges and on these, scraws have developed. At the east of this area of bog some of the lakes are surrounded by a *Sphagnum* (bog moss) carpet where the shelter allows it. The bog areas support typical blanket bog vegetation, including the three Sundew species (*Drosera rotundifolia*, *D. anglica* and *D. intermedia*) and Bog Sedge (*Carex limosa*), with several noteworthy mosses (*Sphagnum imbricatum*, *S. molle*, *S. magellanicum* and *Campylopus shawii*).

Plant species of alpine heath and siliceous rocky slopes are associated with the summits and include Heather (*Calluna vulgaris*), Roseroot (*Rhodiola rosea*), Hard Fern (*Blechnum spicant*), Fir Clubmoss (*Huperzia selago*), Brittle Bladder-fern (*Cystopteris fragilis*), Bell Heather (*Erica cinerea*), Crowberry (*Empetrum nigrum*),

St. Patrick's-cabbage (*Saxifraga spathularis*), Heath Bedstraw (*Galium saxatile*), Dwarf Willow (*Salix herbacea*) and Viviparous Fescue (*Festuca vivipara*). Of particular note in these habitats are the following plants, which are considered rare or restricted in their distribution: Recurved Sandwort (*Minuartia recurva*), Wilson's Filmy-fern (*Hymenophyllum wilsonii*), Green Spleenwort (*Asplenium viride*), and the moss *Cyclodictyon laetevirens*.

Wet heath is frequent at the site and occurs as a mosaic, often in association with blanket bog and upland grassland. The heath is often wet in character and has Cross-leaved Heath (*Erica tetralix*). Heather, Sedges (*Carex* spp.), Rushes (*Juncus* spp.), Milkwort (*Polygala serpyllifolia*) and Tormentil (*Potentilla erecta*) are also found.

The upland grassland is dominated by Purple Moor-grass (*Molinia caerulea*) but other grasses present include Mat Grass (*Nardus stricta*), *Festuca* spp. and *Agrostis* spp.

Lakes are frequent throughout the site and especially on the Glenlough Mountain plateau. Most of the small lakes which occur within the bog and wet heath habitats are dystrophic in character. These have peat bottoms and often peat-stained water. Plant species are few, with White-beaked Sedge (*Rhynchospora alba*), Common Cottongrass (*Eriophorum angustifolium*), Bogbean (*Menyanthes trifoliata*) and bog mosses being the main species. The larger lakes, including Barley Lake, Glenkeel Lough, Lough Shanoge and Lough Dereenadarodia are typical upland oligotrophic systems. Plant species found in these lakes include Shoreweed (*Littorella uniflora*), Quillwort (*Isoetes lacustris*), Bog Pondweed (*Potamogeton polygonifolius*), and Branched Bur-reed (*Sparganium erectum*).

The site contains Killarney Fern (*Trichomanes speciosum*), a species listed on Annex II of the E.U. Habitats Directive. It also supports the only known population of Recurved Sandwort within Ireland and Britain. Both of these species are listed in the Irish Red Data Book and are legally protected under the Flora (Protection) Order, 1999.

Kerry Slug (*Geomalacus maculosus*) and Otter, species listed on Annex II of the E.U. Habitats Directive, are found within the site. Other important species present within the site include the Irish Hare, Common Lizard and Frog. Brown Trout occurs within some of the lakes of the plateau. These lakes were originally stocked by Lord Bantry in the 19th century but the populations have naturally maintained themselves.

A number of bird species listed in Annex I of the E.U. Birds Directive occur: Peregrine Falcon, Hen Harrier and Chough. The Peregrine breeds within the site, while the others probably breed. All these species are listed in the Irish Red Data Book, as is another bird found within the site, the migratory Ring Ouzel.

The main land use within the site is sheep grazing, with over-grazing noticeable on many of the slopes, especially in the western edge of the site. Other land uses are generally small-scale and localised in nature. They include angling, water abstraction, drainage and peat extraction.

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This large site is of outstanding scientific interest due to the diverse range of good quality habitats which occur, including blanket bog, heaths, screes, lakes and grasslands over a range of altitudes. Many rare species of plant and animal occur here, a number of which are legally protected at national and European level.

SUMMARY OF CONSERVATION OBJECTIVES

Conservation Objective	Qualifying interests
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:	<p>3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea</p> <p>3160 Natural dystrophic lakes and ponds</p> <p>4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>4060 Alpine and Boreal heaths</p> <p>7130 Blanket bogs (* if active bog)</p> <p>8220 Siliceous rocky slopes with chasmophytic vegetation</p> <p>1024 Kerry Slug <i>Geomalacus maculosus</i></p> <p>1421 Killarney Fern <i>Trichomanes speciosum</i></p>