



An
Bord
Pleanála

Inspector's Report

ABP-303086-18

Development	Construction of up to 25 number wind turbines, one permanent meteorological mast, one 110kV substation and all associated site development works.
Location	Townlands of Ardderroo, Letter and Finnaun, County Galway
Planning Authority	Galway County Council
Applicant	Ardderroo Windfarm Ltd.
Type of Application	Section 37E, SID
Prescribed Bodies	Geological Survey Ireland (A division of the Department of Communications, Climate Action and Environment). Inland Fisheries Ireland. Transport Infrastructure Ireland. An Taisce. Irish Water Department of Culture, Heritage and the Gaeltacht (Development

Applications Unit)

Observer(s)

Derek Walsh

Doon East Resident Association

M. Uí Mhuirín

Seamus Murphy

Morgan Ó Concubhair

John Rushe and Annette Collins

Date of Site Inspection

20th May 2019

Inspector

Erika Casey

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1.0 Introduction

- 1.1 This is a direct application to the Board under Section 37E of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006. The application is being made by Ardderroo Windfarm Ltd. to erect 25 no. wind turbines, 1 permanent meteorological mast, a 110kV electrical substation, underground cabling, new access roads and all associated development works.
- 1.2 As provided for under Section 37B of the Planning and Development Act 2000, as amended, the applicant entered into discussions with the Board which are detailed on file reference 07.PC0227. The application meets the threshold for wind energy set out in the Seventh Schedule of the Planning and Development Act 2000. On foot of an assessment and recommendation from the reporting inspector that the proposed development did constitute Strategic Infrastructure within the meaning of the acts, the Board issued a direction on the 5th of May 2017 that the development as proposed constitutes Strategic Infrastructure. The current application is made on foot of this decision.
- 1.3 The application is for a 10 year permission with a 30 year operational life. It is accompanied by an Environmental Impact Assessment Report and a Natura Impact Statement. A revised Natura Impact Statement was submitted to the Board on the 19th of March 2019.

2.0 Site Location and Description

- 2.1 The site of the proposed wind farm has a stated area of 1,493ha and is located in a rural area to the north west of Galway City in the townlands of Ardderroo, Killaguile, Letter and Finnaun, Co. Galway. The proposed new access road from the development onto the N59 is located in the townlands of Knockaunranny and Doon. Oughterard is located approximately 6.6km to the north of the site and the village of Moycullen is located c. 6.9km to the east. The site is within the Connemara Gaeltacht. The site is located in a very sparsely populated area, with one dwelling recorded within the site boundaries.
- 2.2 The proposed development site is accessed via the L53453 Doon Road. Significant upgrade works to the Doon Road and its junction with the N59 have taken place under PL. Ref. No. 13/658 to facilitate access to other permitted wind farm developments in the vicinity. The proposed development will benefit from these upgrades to the local road network. The area is also served by a network of existing forestry roads.
- 2.3 The proposed wind farm is located on the eastern slopes of the east Connemara Mountains. To the north, the topography is upland and mountainous ranging in elevation from 100 metres O.D to a peak of 227 metres O.D. The area to the south of the site consists of low lying coniferous forestry. Much of the area is bogland and blanket peat is the dominant soil type. There are residential areas to the north and east of the site, associated with local roads off the N59 and include the settlement of Doon. There is a cluster of telecoms masts and associated structures on the top of Buffy Hill to the north of the site. Within the wider landscape, commercial forestry, agriculture and renewable energy are the main land uses in the area.
- 2.4 The site is drained by two rivers - the Owenboliska River to the west and the Ardderroo River to the east. There are a number of lakes within the site including Lough Fadda and Lough Naweelen. There are also several smaller unnamed lakes and localised areas of waterlogged peat and surface water ponding throughout the site.
- 2.5 The development site is not within a Natura 2000 site. The closest Natura 2000 site is the Connemara Bog Complex SAC (002034) and SPA (004181). The SAC runs adjacent to the proposed development site and straddles the southern boundary of

the proposed site, while the SPA is located within the SAC and approximately 800 metres from the proposed site boundary. The Oughterard District Bog NHA (002431) is located to the north of the site. The Moycullen District Bog NHA (002364) is located c. 2.6km to the southeast of the boundary of the proposed development site.

2.6 The site is part of an area known as the ‘Galway Wind Park’ due to its status in the Co. Galway Wind Energy Strategy (WES). Several wind farms have already been permitted in the vicinity – refer to Planning History in Section 4 below for further detail. A summary of existing and permitted windfarms is set out below:

Name	Status	No. of Turbines
Inverin	Constructed	5
Lettergunnet	Constructed	10
Shannagurraun (Letterpeak)	Constructed	7
Knockalough	Under Construction	7
Ugool	Constructed	16
Lettercraffroe	Under Construction	8
Seecon	Under Construction	23
Cloosh	Under Construction	22
Knockranny	Permission Granted	11
Total		109

3.0 Proposed Development

3.1 The proposed development comprises the construction of a wind farm with 25 turbines and all associated works. The proposed development has a total stated footprint of 43.2 ha and the wind farm measures c. 1,493 hectares. The proposed windfarm is intended to accommodate approximately 91.25MW and has the potential to produce 279,973MWh of electricity per year. The project has a Gate 3 grid connection offer (TG62) which has yet to be accommodated. The development will be the last substantial wind farm development for which planning permission is required in west County Galway to accommodate the Gate 3 grid connection capacity assigned to the area.

3.2 The grid connection between the proposed development and the national electricity grid will originate at the proposed on site substation and will run east along the Doon Road to the existing Knockranny Electricity substation located approximately 330 metres northeast of the proposed substation.

3.3 The constituent elements of the proposed development are:

- **Wind Turbines:** Construction of up to 25 no. wind turbines with a maximum overall blade tip height of up to 178.5 metres. It is assumed that each wind turbine will have an output of 3.65MW. The turbines will be grey mat in colour. Each wind turbine will be secured to a reinforced concrete foundation.
- **Anemometry Mast:** 1 no. permanent free standing meteorological mast with a maximum height of up to 112 metres. The mast will be equipped with wind monitoring equipment at various heights.
- **Substation:** 1 no. 110 kV electrical substation with 2 control buildings with welfare facilities, 6 no. battery containers, all associated electrical plant and equipment, security fencing, all associated underground cabling, waste water holding tank (with wastewater being tankered off site) and all ancillary works. The substation is located within an area of forestry adjacent to the existing Doon Road. The footprint of the substation compound is c. 6,360 sq. m. It will be surrounded by a 24 metre high steel palisade fence. Control Building 1 will be 19.2m by 10.4m and have a height of 6m. Control Building 2 will be 18m by 7.8m and is also 6m in height. The battery containers will typically measure

12.5m (L) x 2.5m (W) x 4.5 (H). Each of the containers will house a modular array of batteries, control systems and other electrical components. Each container will also have a transformer and ancillary infrastructure for connection to the control building.

- **Cabling:** Underground cabling connecting the turbines to the proposed substation and connection from the proposed substation to the national grid at the existing Eirgrid substation in the townland of Letter. Each turbine will be connected to the on-site electricity substation via an underground 20 or 33 kV electricity cable. Fibre optic cables will also connect each wind turbine to the wind farm control building in the on-site substation compound. The electricity and fibre optic cables running from the turbines to the on-site substation compound will be run in cable ducts approximately 1.3 metres below the ground surface, along the sides of roadways.
- **Roads:** The proposed development site is accessed from the northeast via the L53453 (Doon Road) which forms a junction with the N59 National Secondary Road. The development provides for the upgrade of existing tracks, roads and provision of new site access roads and hardstanding areas. The development will make use of approximately 16.8km of existing roads and tracks. Approximately 11.3km of the existing roads and tracks will require upgrade to facilitate the construction of the wind farm. It is proposed to construct approximately 12.25km of new site roads as part of the wind farm development. The delivery of all turbine components and construction materials to the site will be via the N59/Doon Road Junction. From there, the vehicles will use the upgraded Doon Road and internal site roads to access the proposed infrastructure locations within the site.
- **Borrow Pits:** 3 no. borrow pits are proposed. The majority of all rock and hardcore material that will be required during the construction of the proposed development will be from the on-site borrow pits. The 3 borrow pits are located adjacent to existing site roads. Borrow Pit 1 is located approximately 70m south of Turbine no. 4 and has an area of 31,700 sq. m. Borrow Pit 2 is located adjacent to Turbine no. 3 and has an area of c. 15,300 sq. m. Borrow Pit 3 is located c. 990 metres northwest of Turbine no. 23 and measures c. 12,850 sq. m. Hardcore material will be extracted principally by means of rock breaking.

Blasting may also be used in some circumstances. Once the required volume of rock has been extracted from the borrow pits, it is intended to reinstate these areas with peat and overburden excavated from the works areas of the proposed development.

- **Construction Compounds:** 2 no. temporary construction compounds are proposed. One of the compounds is located in the eastern section of the site adjacent to the existing access road and has an area of c. 8,160 sq. m. The construction compound will accommodate temporary site offices, staff facilities and car parking areas for staff and visitors. Once the wind farm has been commissioned, the construction compound will serve as a car parking area for the amenity and recreation proposal. The second temporary construction compound is located adjacent to an existing road approximately 260m northwest of Turbine no. 9 in the southwest of the proposed site. This will have an area of c. 4,800 sq. m.
- **Site Drainage and Water Protection Measures:** To include features such as interceptor drains, swales, check dams, level spreaders, piped slope drains, vegetation filters, silting ponds, silt busters, silt bags, culverts (3 new water course culverts and 9 potential culvert upgrades) and silt fences. There will also be forestry felling, borrow pit, floating road and cable trench drainage measures.
- **Bridge Crossing:** It is proposed to construct a 5 metre wide clear span bridge over the Owenbolishka River. The bridge crossing will form part of the internal site road network providing access to the southwestern part of the site.
- **Forestry Felling:** The development will require the felling of approximately 149.6 hectares of commercial forestry, approximately 65.7 hectares of which will require replanting elsewhere as required by the Forestry Act. Approximately 25.4ha of trees will be required to facilitate infrastructure construction and turbine erection. The areas proposed for replanting elsewhere include Ballyduff Beg. Co. Clare, Curragherd Co. Roscommon, Claraghtlea North, Co. Cork, Rahalisk, Co. Cork and Knockavrogeen East Co. Kerry. AA screening for these sites has been carried out – refer to Appendix 4.3 of the EIAR.

- **Permanent Signage:** To include different forms of information and waypoint signage across the recreation and amenity area.
- **Site Works:** All associated site development works.
- **Community Gain:** The development also proposes the creation of recreation and amenity walks as a community gain. This would involve upgrading the existing tracks within the site and creating new walkways as marked trails with associated signage, including the existing disused Slí Chonamara walkway. There would be 3 separate marked trails, i.e. a 'Hill Climb' on the northern side of the Doon Road, a 'Lake Loop' south of the Doon Road at the centre of the site and a 'Lowland Loop' at the south western end of the site. One of the temporary construction compounds would be converted into a permanent amenity car park with 25 spaces with a toilet/shelter building with associated waste water holding tank.
- A Community Benefit Package is being proposed as part of the project. It is intended that Ardderroo Windfarm Ltd. will make an initial contribution of €6,250 per MW upon commissioning of the proposed turbines. Based on an estimated installed capacity of 91.25MW, this initial payment could total approximately €570,300. This amount would then be immediately available through the liaison committee to local groups and organisations through grants. Further payments of €1,250 per MW will be paid annually over the estimated 30 year operational period of the development resulting in further annual payments of approximately €114,000 per annum. This represents a contribution in the region of 4 million euro over the lifespan of the development. The fund will be managed by a Community Fund Liaison Committee. The types of projects that could be supported include youth, sport and community facilities, schools, educational and training initiatives and wider amenity, heritage and environmental projects. A portion of the fund could be dedicated to local residents living within an agreed range of any wind turbine through a Renewable Energy Fund. Such a proposal could see direct payments being made to local residents from the fund on an annual basis to cover the cost of their annual electricity bill from a renewable energy supplier and may also fund renewable energy upgrades to their property and installation of domestic renewable energy technologies.

- **Construction Phase:** It is estimated that the construction phase of the proposed development will take approximately 12-18 months from starting on site to the commissioning of the electrical system.
- **Decommissioning:** The wind turbines as part of the proposed development are expected to have a lifespan of approximately 30 years. Following the end of their useful life, the wind turbines may be replaced with a new set of turbines, subject to planning or the proposed development may be decommissioned fully. Turbine foundations would remain in place underground and would be covered with earth and reseeded as appropriate. The onsite substation and battery storage facility will remain in place as it will be under the ownership of the ESB/Eir Grid.

Principal Revisions to the Development from that Proposed Under 07.PA0036

3.4 The Board should be aware that a wind farm similar to the current proposal was previously refused by the Board under Appeal Reference 07.PA0036 in December 2015. The principal amendments to the previously proposed wind farm layout are as follows:

- Omission of previously proposed turbines 1, 2, 24 and 25.
- Layout of remaining turbines optimised.
- Increase of turbine size envelope including an additional 22m in overall blade tip height from 156.5m to 178.5m.
- Increased set back from neighbouring dwellings.
- Relocation of proposed anemometry mast and temporary construction compound.
- Reduced substation footprint.
- New link road between the central and south-western turbine clusters to improve connectivity and reduce traffic movements within the site.
- Consideration of an alternative construction phase access roadway to reduce potential impacts on the Doon Road residential area. During the public consultation process, residents living along the L53453 local road raised concerns regarding potential nuisances during the construction phase. An

alternative access road was identified. The alternative construction access junction, off the N59 would be located in the townland of Knockaunranny and would run northwest for approximately 830m before emerging onto the local road, west of the residential area, in the townland of Doon. Following further public consultation, the consensus was that the use of the existing road would be more favoured, provided the needs of the local residents were respected. This aspect of the proposal is not included in the planning application as part of the development proposal but is considered and assessed as part of the EIAR and revised NIS.

Application Documentation

3.5 The application was accompanied by the following information:

- Complete planning application form.
- Detailed drawings.
- Copies of the site notice erected on site and the published newspaper notice.
- Letters of consent from relevant landowners.
- Details of prescribed bodies to which details of the application were sent.
- Environmental Impact Assessment Report including a Non-Technical Summary.
- Natura Impact Statement.

Note

The applicant's Response to the Submissions and Observations submitted to the Board on the 19th of March 2019 included a Revised Natura Impact Statement. Having regard to the fact that the Revised NIS was amended and included new survey data, it was considered that it contained significant additional information on the effects of the proposed development on the environment, and in accordance with Section 37 (F) (2) of the Planning and Development Act, 2000 as amended, the applicant was requested to publish new public notices and issue a copy of the documentation to prescribed bodies. On foot of the revised notices, further submissions were received from prescribed bodies and third parties which are summarised in the report. For further detail refer to section 12 of the report.

4.0 Planning History

4.1 The following proposed and permitted wind farms and associated infrastructure are located in the immediate vicinity of the site, combining to create an area known as the 'Galway Wind Park'. These permissions primarily relate to the permitted Ugool, Cloosh, Seecon and Lettercraffoe wind farms which are accessed via or through the proposed development site. Other key applications within the site include improvements to the Galway Wind Park turbine delivery route along the Doon Road and a 110/38kV electricity substation to act as a connection node for the wind farms in the area.

Ardderroo Windfarm

4.2 As detailed above, permission was previously refused by An Bord Pleanála in December 2015 for a windfarm at Ardderroo under Reference **07.PA0036** (applicant: Ardderroo Windfarm Ltd.). The reason for refusal related specifically to the bird and bat surveying methodologies adopted and that they were insufficient to rely upon to complete an EIA or AA. The reason for refusal specifically stated:

"1. The subject site is located within 15 kilometres of ten statutorily designated European sites. Bird species in the vicinity of this site, and utilising water bodies in the area, are the subject of conservation objectives for special protection areas in this area (Connemara Bog Complex Special Protection Area (site code 004181), Lough Corrib Special Protection Area (site code 004042) and Inner Galway Bay Special Protection Area (site code 004031)). The site also hosts a bat species that is the subject of conservation objectives for special areas of conservation in the vicinity (Ross Lake and Woods Special Area of Conservation (site code 001312) and Lough Corrib Special Area of Conservation (site code 000297)). It is considered that the information in the Natura Impact Statement and other documentation supporting the planning application is not adequate to support a conclusion that the integrity of these European Sites would not be adversely affected by the proposed development, in particular, by reason of disturbance, barrier effects to movement and collision risk arising from the proposed wind farm for birds of special conservation interest that may traverse the site and the network of Special Protection Areas in the vicinity, including Cormorant, Merlin, Golden Plover, Common Gull, Teal,

Grey Heron and Red Grouse, or for the Lesser Horseshoe Bat, which is known to be present at the proposed development site. Furthermore, the Board is not satisfied that bird flight lines in the vicinity or cumulative effects with permitted wind farms in the area have been adequately identified or analysed. In addition, the Appropriate Assessment screening documentation screens out sites that host qualifying interests that could have connectivity with and could be subject to impacts from the proposed development, namely the Lough Corrib Special Area of Conservation, the Lough Corrib Special Protection Area and the Inner Galway Bay Special Protection Area. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

2. *Notwithstanding the location of the subject site largely within an area designated in the Galway County Development Plan 2015 – 2021 as a strategic area for wind energy development, it is considered that the information submitted on birds and bats in the environmental impact statement and further information is inadequate. In particular, the duration and scope of surveys are insufficient, and flight lines in the vicinity and cumulative impact on birds arising from permitted wind farm development in the area have not been adequately assessed. The Board is, therefore, unable to complete an environmental impact assessment. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.”*

Cloosh Wind Farm

- 4.3 The Cloosh Windfarm is located to the south west of the proposed development, accessed via the Doon Road, which partially overlaps with the western boundary of the subject site. Under **Planning Authority Reference 06/5626**, Finavera Renewable Ltd. sought permission to construct a 34 turbine wind farm at Finnaun, on a site that included an area on the south western corner of the subject site. Galway County Council refused permission. Coillte Teoranta were subsequently granted permission under **Planning Authority Reference 10/303** to construct a wind farm of 22 no. turbines, each with a total tip height of 140.5m, along with associated works including a permanent meteorological mast, a substation, expansion of 3 no. existing borrow pits, 2 new borrow pits and new internal access roads. 20 of the 22 permitted turbines have been constructed and are operational.

- 4.4 Under **Planning Authority Reference 14/533** permission was granted in August 2014 to SSE Renewables (Ireland) Ltd. for the relocation of a 90 metre high permitted permanent meteorological mast and the provision of associated hardstandings, fencing, gates and access tracks.
- 4.5 Under **Planning Authority Reference 17/577** permission was granted in July 2017 to SSE Renewables (Ireland) Ltd. for modifications to the previously approved 110kV substation comprising modifications to the layout of the substation, modification to the building design, reduction in the number of buildings on site and modifications to associated infrastructure.
- 4.6 Under **Planning Authority Reference 18/1014**, a planning application for the development of a 9 turbine wind farm was withdrawn in September 2018 (applicant SSE Renewables (Ireland) Ltd.). The development comprised the change of use to the dimensions of nine previously consented turbines, adjustment to the location of 3 turbines, provision of new internal wind farm access roads, localised upgrades to existing access roads and all underground cabling and associated infrastructure. The development also provided for 3 new borrow pits.

Uggool Wind Farm

- 4.7 The western boundary of the proposed Ardderroo wind farm site runs adjacent to the eastern and southern boundaries of the permitted Uggool wind farm. Permission was granted to Provento Ireland Plc. under **Planning Authority Reference 03/6992** in October 2004 for wind farm comprising 20 turbines of hub height 70m and rotor diameter 80m, a 70m meteorological mast, a control building incorporating a transformer substation and associated site roads. Permission was granted to Comhlacht Gaoithe Teoranta to extend the duration of **Planning Authority References 03/6992 under 09/1987**. Permission was granted in April 2012 to SSE Renewables Ltd. for a redesigned wind farm of 16 turbines with a tip height of up to 140.5m under **Planning Authority Reference 11/1735**. Further minor amendments were permitted under **Planning Authority References 13/460 and 14/971**. The Uggool wind farm has been constructed.

Seecon Wind Farm

- 4.8 The Seecon Wind Farm site is located to the west of Uggool and Cloosh wind farms, approximately 2km to the west/northwest of the Letter substation and also served by

the Doon Road. The Board granted permission to Coillte Teoranta and SSE Renewables Ltd. under **PL07.239118 (Planning Authority Reference 11/429)** for a wind farm consisting of 23 turbines (each with a total tip height of 140.5m) and associated works including 2 permanent 90m meteorological masts, a substation, expansion of one existing borrow pit and 3 new borrow pits, new internal access roads. Under **Planning Authority Reference 14/533**, permission was granted for relocation of one permitted permanent meteorological mast at Cloosh wind farm and of another such permitted permanent meteorological mast from Seecon wind farm to Cloosh wind farm. Of the 23 no. permitted turbines, 16 no. have been constructed and are operational.

Lettercraffoe Wind Farm

- 4.9 Lettercraffoe Wind Farm is located to the northwest of Seecon wind farm. Under **Planning Authority Reference 06/5623**, permission was refused in April 2007 to Western Power for a 14 turbine wind farm. Permission was subsequently refused by An Bord Pleanála under **Appeal Reference PL07.231437 (Planning Authority Reference 07/5148)** to Western Power Ltd. for an 8 turbine wind farm. Permission was granted to SSE Renewables Ltd for an 8 turbine wind farm and associated infrastructure under **Planning Authority Reference 10/1454** in December 2010. Minor amendments were permitted under **Planning Authority Reference 13/375** in July 2013.

Doon Road Upgrade

- 4.10 Permission granted by Galway County Council in July 2013 under **Planning Authority Reference 13/658** for the modification and improvement to 8.069km of the Doon Road (L53453), including the junction with the N59. This permission has been implemented. 4.86km of this improved road infrastructure is within the proposed development site boundary.
- 4.11 Permission was refused in January 2016 under **Planning Authority Reference 15/813** for the development of a 'Doon Area Bypass' including the retention of an existing 975m long construction access road, parking area and a temporary junction with the N59. The reason for refusal related to the fact that the development would be contrary to national policy in relation to the control of frontage development on national roads and would endanger public safety by reason of a traffic hazard.

West Galway (Letter) 110/38kV Electricity Substation

- 4.12 Permission was granted to Eirgrid PLC by An Bord Pleanála in October 2013 under Reference PL07.VA0016 for the construction of a 110/38kV substation at Letter, on the northern side of the Doon Road. The permission included the construction of a loop connection comprising 2 no. kV XLPE underground cable circuits linking the substation to the permitted Screen-Salthill 110kV overhead line where it crosses the Doon Road, c. 2km to the east of the site. The purpose of this substation which has been constructed is to facilitate the connection of wind farm developments that have accepted their grid connection offers in west Galway to connect to the national grid. The permission also provides for underground cabling works and new overhead line structures further east of the Ardderroo site.
- 4.13 Under **Planning Authority Reference 15/1195** permission was granted in January 2016 to Comhlacht Gaoith Teoranta for retention of the lowering of the rear (northwest) section of the compound from a level of 114.5m O.D to 112.5m O.D; the erection of all associated electricity equipment, fencing and other installations on this compound at the lower levels and all associated amendments and alterations.

Other Electricity Infrastructure Applications in the Vicinity

- 4.14 Under **Reference PL07.VA0004**, the Board granted permission to ESB networks in December 2009 for an upgrade of the Screeb 38 kV substation in the townland of Glencoh to a 110/38 kV substation and to erect a new 110 kV overhead electricity line from Lenabower to Screeb, a distance of c. 48km. This line runs generally parallel to the N59 to the north and west of the subject site and c. 1.8km from the nearest turbine location.
- 4.15 Under **Planning Authority Reference ED13/29**, Galway County Council granted a Section 5 declaration of exempted development to SSE Renewables in October 2013 in respect of a 110 kV underground cable between the permitted Uggool substation on the Doon Road to the west of the development site, heading northeast, joining the N59 and travelling along the road corridor for approximately 13.6km to the Galway City administrative boundary. The cable is to run within the Doon Road carriageway and along the N59, a total distance of approximately 20.5km.

Other Wind Farms in the Vicinity

- 4.16 In addition to the wind farms within the Galway Wind Park, there have been several applications for smaller individual wind farms on sites further to the south and east of the subject site. These are summarised below.

Knockranny Windfarm

- 4.17 This site lies to the immediate east of the subject site but is accessed from the N59 via a separate local road. Under **Appeal Reference PL07.239053 (Planning Authority Reference 11/375)**, the Board refused permission to Western Power Developments Ltd. for a wind farm comprising 14 no. turbines and ancillary works at the site for 2 no. reasons related to (1) archaeological impacts, in particular impacts on the recorded monument GA067-029 and (2) potential geotechnical/peat slippage risks. Under **Planning Authority Reference 13/829/Appeal Reference PL07.243094**, the Board granted permission to Western Power Developments Ltd. in February 2016 for a development comprising 11 turbines, mast, 110 kv substation, new entrance, roads and site works.

Knockalough Wind Farm

- 4.18 Permission granted in April 2012 to Knockalough Wind Farm Ltd. under **Planning Authority Reference 11/1573** for a wind farm comprising 12 turbines with an overall maximum height of up to 126m, anemometry mast and associated works. The Board granted permission for 7 no. turbines on appeal, **Appeal Reference PL07.240612**. Permission granted in October 2017 under **Appeal Reference PL07.247605 (Planning Authority Reference 14/1273)** to Knockalough Wind Farm Ltd. for the relocation of one turbine and the provision of an additional access road.

Lettergunnet Wind Farm

- 4.19 Permission granted to Coir na Gaoithe Teo in May 2004 for an 8 turbine wind farm under **Planning Authority Reference 03/4656**. The same applicant received permission in March 2010 for turbine amendments to increase hub height from 60m to 64m under **Appeal Reference PL07.235051 (Planning Authority 09/1326)**. Permission was granted to the same applicant for a 10 turbine wind farm under **Planning Authority Reference 10/1214** in March 2011.

Letterpeak (Shannagurran) Wind Farm

- 4.20 Permission granted to Enerco Energy Ltd. in October 2011 to construct a windfarm comprising 7 turbines under **Appeal Reference PL07.238762 (Planning Authority Reference 10/1225)**.

Inverin Wind Farm

- 4.21 Under **Planning Authority Reference 96/1684** permission granted to Fuinneamh Teo in January 1997 to construct a windfarm comprising 5 wind turbines.

Lealetter Wind Farm

- 4.22 Permission was refused in June 2006 to Cruachan Wind Energy Ltd. for a 9 turbine wind farm under **Appeal Reference PL07.214698 (Planning Authority Reference 05/199)**. Permission was granted to the same applicant for a 6 turbine wind farm under **Planning Authority Reference 07/4365** but again refused on appeal, **Appeal Reference PL07.229362**. Permission was granted to the same applicant for a 4 turbine wind farm under **Planning Authority Reference 09/1698**, however, this was again overturned on appeal, **Appeal Reference PL07.236195** in August 2010.

Other Planning Applications in the Vicinity

- 4.23 The majority of other planning applications in the immediate vicinity of the site related to the provision /alteration of telecommunications masts and wind monitoring masts.
- 4.24 **Planning Authority References 00/3561, 00/3564, 05/4713, 06/5223, 08/3813, 09/2148, and 12/171** all relate to applications for wind monitoring equipment and meteorological masts. **Application References 01/5277, 07/1032, 08/1703, 09/978 and 13/410** relate to telecommunications masts, equipment and antenna support structures.

5.0 Policy Context

5.1 A summary of key relevant policy is set out below:

5.2 National Policy

National Planning Framework 2018

5.2.1 The National Planning Framework (NPF), 2018, is the overarching national planning policy document for Ireland. It is a high level strategic plan that sets out a vision for Ireland to 2040, expressed through ten National Strategic Outcomes (NSO). One of the key goals of the NPF (National Strategic Outcome 8) is that of Transition to a Low Carbon and Climate Resilient Society. It acknowledged that Ireland's energy policy is focussed on the pillars of sustainability, security of supply and competitiveness. It is stated:

“In the energy sector, transition to a low carbon economy from renewable sources of energy is an integral part of Ireland’s climate change strategy and renewable energies are a means of reducing our reliance on fossil fuels.”

5.2.2 It is an objective that:

“40% of our electricity needs will be delivered from renewable sources by 2020 with a strategic aim to increase renewable deployment in line with EU targets and national policy objectives out to 2030 and beyond.”

5.2.3 National Policy Objective 55 states:

“Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.”

National Mitigation Plan 2017

5.2.4 The first National Mitigation Plan represents an initial step towards achieving the level of decarbonisation required. The Plan does not provide a complete roadmap to achieve 2050 decarbonisation objectives, but begins the process of developing medium to long-term mitigation choices for the next and future decades. The Plan recognises that onshore wind has to date been the most cost-competitive renewable electricity technology in Ireland, accounting for 22.8% of overall electricity generation in 2015. Furthermore, the Plan envisages that our electricity system will be one

where onshore wind remains a key part of Ireland's electricity generation portfolio out to 2030 and possibly beyond.

Wind Energy Development Guidelines for Planning Authorities 2006

- 5.2.5 The guidelines provide advice on wind energy development in terms of the Development Plan and development management processes. Guidance is given on matters such as noise, shadow flicker, natural heritage, archaeology, architectural heritage, ground conditions, aircraft safety and windtake. Whilst a setback distance is not established, it is stated that noise is unlikely to be a significant problem where the distance to the residential property is more than 500m. In respect of noise, the recommended standard is a lower fixed limit of 45dBA or a maximum increase of 5dBA above background noise and nearby noise sensitive locations, apart from very quiet areas where the daytime level is limited to 35-40dB(A). A night time limit of 43 dB(A) is recommended.
- 5.2.6 In terms of shadow flicker, the recommended standard is a maximum of 30 hours per year or 30 minutes per day for dwellings and offices within 500m. It is further stated that at distances of greater than 10 rotor diameters, the potential for shadow flicker is very low.
- 5.2.7 Chapter 6 provides guidance on siting and design of wind energy development in the landscape. This includes advice on siting, spatial extent and scale, cumulative effect, spacing of turbines, layout of turbines and height of turbines. Advice is also given regarding landscape character types as a basis for the application of the guidance on siting and design.

Revised Wind Energy Guidelines Proposed Revisions to the Wind Energy Development Guidelines

- 5.2.8 These are a targeted review in relation to noise, proximity and shadow flicker. A consultation period was allowed up to the 21st February 2014. A SEA will be undertaken by the Department on the preferred draft approach to the revised Guidelines. Subject to the SEA process, it is envisaged the new statutory Guidelines will be finalised and issued to Planning Authorities. The proposed revisions involve:-
- Although the use of a defined setback of turbines from noise sensitive properties is not considered appropriate due to a lack of correlation between

separation distance and wind turbine sound levels, it is stated that there should be a minimum separation distance of 500m between wind turbines and the curtilage of the nearest dwelling, for reasons of amenity, e.g. visual obtrusion.

- A revised absolute outdoor noise limit (daytime and night time) of 40 dB(A) to be applied within the curtilage of noise sensitive properties. These are defined as including dwelling houses, (including those for which planning permission has been granted but not yet built), nursing homes, hospitals, school, and places of worship.
- The potential for shadow flicker is extremely low for dwellings located at distances of greater than 10 rotor diameters (RD) of a wind turbine. However, if shadow flicker is likely to occur, the developer would be required to mitigate this by, for example, shutting down the operation of the particular turbine for the period necessary to eliminate the shadow flicker. The 10 RD should inform the study area.

Circular PL5/2017 Wind Energy Development Guidelines 2006 – Update on Review

- 5.2.9 The interim Guidelines do not replace or amend the existing Wind Energy Development Guidelines 2006, but it is intended that the administrative provisions contained therein will be incorporated into the revisions to the 2006 Guidelines when finalised.
- 5.2.10 The key aspects of the preferred draft approach are:
- The application of more stringent noise limits, consistent with World Health Organisation noise standards, in tandem with a new robust noise monitoring regime, to ensure compliance with noise standards;
 - A visual amenity set back 4 times the turbine height between a wind turbine and the nearest residential property, subject to a mandatory minimum distance of 500 metres between a wind turbine and the nearest residential property;
 - The elimination of shadow flicker and
 - The introduction of new obligations in relation to engagement with local communities by wind farm developers along with the provision of community benefit measures.

Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy, and Climate Change (2017)

- 5.2.11 These guidelines were issued under Section 28 of the Act. They focus on administrative procedures and do not replace or amend the existing WEDG 2006, which remain in place pending the completion of ongoing review. Section 28 of the Act requires both Planning Authorities and An Bord Pleanála to have regard to these interim guidelines and apply any specific planning policy requirements of the interim Guidelines in the performance of their functions.
- 5.2.12 The Guidelines provide specific guidance on making, reviewing, varying or amending a Development Plan, or a Local Area Plan, with policies or objectives that relate to wind energy developments. A Planning Authority shall acknowledge and document specific national strategy relating to energy policy, indicate how the implementation of the Development Plan or Local Area Plan over its effective period would contribute to realising overall national targets on renewable energy and climate change mitigation. Furthermore, the Planning Authority are required to demonstrate detailed compliance with the above in any proposal to introduce or vary a mandatory setback distance or distances for wind turbines from specified land uses or classes of land use in a Development Plan or Local Area Plan. This is reaffirmed in Departmental Circular PL5/2017.

Code of Practice for Wind Energy Development in Ireland on Guidelines for Community Engagement (DCCAE, 2016)

- 5.2.13 In December 2016, the DCCAE published a Code of Practice for Wind Energy Development in Ireland on Guidelines for Community Engagement. The Code cites ten key areas for delivery on the part of wind energy developers and includes measures relating to the various project phases and a guide regarding annual reporting.

Draft Renewable Electricity Policy and Development Framework 2016

- 5.2.14 A key objective of the Energy White Paper is to publish a 'Renewable Electricity Policy and Development Framework' (REPDF) to underpin planning and development of larger scale renewable electricity generation development on land. It is envisioned that the REPDF will contribute towards meeting Ireland's future energy needs, particularly up to 2030 and beyond, as informed by national and European

policy. It will set out policy in respect of environmental considerations, community engagement and will seek to broadly identify suitable areas where large scale projects (over 50MW) can be developed. It is stated that these can subsequently be incorporated into a revised NSS, RPG's and development plans. It would also supplement the guidance contained in the Wind Energy Guidelines.

- 5.2.15 The Draft SEA scoping report for the framework was published for consultation. The said consultation process has closed and submissions are under review.

Adapting to Climate Change and Low Carbon Act 2015

- 5.2.16 This Act sets a statutory framework for the adoption of plans to ensure compliance with Ireland's commitments to European and international agreements on climate change. It commits to a carbon neutral situation by 2050 and to also match Ireland's targets with those of the EU. It requires that the Minister for Communications, Climate Action and the Environment must make and submit to Government a series of successive National Mitigation Plans and National Adaptation Frameworks.

White Paper – Transition to a Low Carbon Energy Future for Ireland 2015-2030

- 5.2.17 The aim of this document is to set out strategies for the state to adapt to a low carbon future and to provide for Ireland meeting its international and E.U. commitments on greenhouse gas reductions.
- 5.2.18 It is stated that a radical transformation of Ireland's energy sector is required to meet climate policy objectives. A low carbon future will involve, inter alia, greater use of electricity from renewable sources of which the country has a plentiful supply and greater use of electricity for heating and as a fuel for transport. The White Paper repeats the target of generating 40% of the country's electricity from renewable sources by 2020.
- 5.2.19 It envisages on-shore wind driven plants continuing to be the main contributor to renewable electricity. It is stated in Chapter 4 that to achieve the target in relation to renewable energy the average rate of build of on-shore wind generation will need to increase up to 260MW per year from the current rate of about 170MW. A total of 3500-4000MW of on-shore renewable electricity generation is required in comparison to the December 2015 figure of 2500MW.

Strategy for Renewable Energy 2012-2020

- 5.2.20 It is a strategic goal of the strategy to seek progressively more renewable electricity from onshore and offshore wind power for the domestic and export markets. The Strategy states that further strategic deployment of onshore wind projects will develop a base of indigenous and foreign companies and create employment in the short-term in wind farm construction, possible turbine component manufacturing and servicing, the opportunity to capture international supply chain opportunities and the manufacture of niche onshore renewable energy generating equipment.
- 5.2.21 Key actions include the supporting of the delivery of the 40% target for renewable electricity through the existing GATE processes. A further targeted Gate may be developed, if necessary, following a review of the take-up of Gate 3 offers, while developing a next phase plan led approach for additional onshore capacity in future.

Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure, 2012

- 5.2.22 This document notes that Ireland needs to deliver a world class electricity transmission system in all the regions which meets the needs of Ireland in the 21st century which will, inter alia, enable Ireland to meet its renewable energy targets and reducing the country's dependence on imported gas and oil and reduce CO2 emissions.

National Renewable Energy Action Plan 2010

- 5.2.23 Directive 2009/28/EC on the promotion of the use of energy from renewable sources establishes the basis for the achievement of the EU's 20% renewable energy target by 2020. Under the terms of the Directive, each Member State is set an individually binding renewable energy target, which will contribute to the achievement of the overall EU goal.
- 5.2.24 The National Renewable Energy Action Plan sets out the Government's strategic approach and measures to deliver on Ireland's overall target to achieve 16% of energy from renewable sources by 2020. The Government has set a target of 40% electricity consumption from renewable sources by 2020.
- 5.2.25 Ireland's Fourth Progress Report was submitted in February 2018. Ireland has met the interim target set by the Renewable Energy Directive for 2015-2016, reporting an

average final energy consumption of 9.5% over the two year period, against a target level of 8.92%. To meet the renewables energy target for 2020, the Action Plan states that it is expected that between 3,900 MW and 4,300 MW of wind needs to be connected.

Grid 25: A Strategy for the Development of Ireland's Electricity Grid for a Sustainable and Competitive Future

- 5.2.26 GRID25 provides an outline design for how the transmission network will be developed in the long-term to meet the challenges ahead. The overall goal of GRID25 is to develop the network economically to reliably meet anticipated transport needs of users of the grid. In achieving this goal, GRID25 supports the Government's priority actions of increasing the penetration of renewable energy technologies and of improving energy efficiency and energy savings.
- 5.2.27 Generation from renewable energy sources is a key plank in the Strategy to meet the government target of meeting at least 33% of electricity demand from renewable generation by 2020. Significant reinforcement of the grid will be required to cater for the new power flows from renewable generation. Wind is expected to make up most of the renewable portfolio, the amount of conventional generation capacity must be adequate to ensure a reliable power supply for those hours when wind generation output is low. The 'North West' region where the site is located is expected to make up 35% of national renewable energy capacity. Area B of the region, i.e. Galway, is expected to have up to 880 MW of wind generation.

5.3 Regional Policy

Regional Planning Guidelines for the West Region 2010-2022

- 5.3.1 The Guidelines note that the West region has the potential to harness opportunities in wind energy and related technologies. There are several policies to support the development of the wind energy sector and the grid network, ref. policies EDP20, 21 and 22. Objective ED08 aims to support the deployment of renewable energy infrastructure in appropriate locations. Policy EDP71 aims to promote a green economy in the region through the sustainable development of renewable energy resources. Objective EDO23 aims to support eco projects, renewable energy and green business development in appropriate locations.

5.3.2 Infrastructure policy set out in the Guidelines states the following with regard to wind energy, ref. section 5.5.4:

“The West Region contains Ireland’s premier wind resource and holds the potential for the region to become a sustainable exporter of renewable energy. Areas identified for wind farms must have regard to the level of the resource, the nature of the landscape, the status of surrounding lands and the Department of the Environment, Heritage and Local Government’s Wind Energy Development Guidelines 2006.”

5.3.3 Objective IO54 aims to support the sustainable development of wind energy schemes through the initiation of a regional policy on wind farm location.

Draft Regional Spatial and Economic Strategy – Northern and Western Regional Assembly

5.3.4 Section 8 of the draft strategy addresses Energy Infrastructure and states:

“Our region is rich in energy resources, which through innovation and wise investment can lead to new employment, sustainable communities and attract additional people to the region. In fact this region can be a leader in clean, smart and responsible energy – leading ideas and leading innovation. Ensuring the necessary investment in the transmission and distribution networks to meet the needs of a growing economy and the transition from fossil fuels to renewables is imperative but also to incentivise local innovation and micro-generation.”

5.3.5 The draft strategy further notes:

“Regionally we have a pivotal role in delivering a successful transition. There are rich renewable energy resources through wind, solar and wave (to mention but a few) along and throughout the region. The former has manifested itself already and wind turbines are a new feature in our landscapes. There is still significant potential for all new outputs to our grid.”

5.3.6 Regional Policy Objective 187 states:

“The Assembly support the development of a safe, secure and reliable electricity network, and the transition towards a low carbon economy centred on energy efficiency and the growth projects outlined and described in this strategy.”

5.3.7 Regional Objective 42 states:

“Support the development of secure, reliable and safe supplies of renewable energy, in order to maximise their value, maintain inward investment, support indigenous industry and create jobs.”

5.4 Local Policy

Galway County Development Plan 2015-2021

- 5.4.1 The current County Development Plan was adopted on 26th January 2015. Chapter 7 sets out policy on energy and renewable energy. Section 7.2 states a strategic aim to reduce the county’s dependency on imported fossil fuels and to provide alternative energy sources by harnessing the county’s potential for renewable energy sources.
- 5.4.2 Section 7.4.2 notes the adoption of the county WES (Wind Energy Strategy) and states a policy to maximise wind energy development in areas designated as Strategic Areas, Acceptable in Principle Areas, and areas Open for Consideration in the WES, on a case by case basis subject to meeting specific requirements and guidance contained within the Strategy. Objective ER4 supports the sustainable development of appropriate renewable energy resources including wind energy.
- 5.4.3 Objective ER 5 - Wind Energy Developments states:
- “Promote and facilitate wind farm developments in suitable locations, having regard to areas of the County designated for this purpose in the County Galway Wind Energy Strategy. The Planning Authority will assess any planning application proposals for wind energy production in accordance with the County Galway Wind Energy Strategy, the DoEHLG Guidelines for Planning Authorities on Wind Energy Development, 2006 (or any updated/superseded documents), having due regard to the Habitats Directive and to the detailed policies, objectives and Development Standards set out in the Wind Energy Strategy.”*
- 5.4.4 Objective ER 6 states that the policies, objectives and development management guidelines/standards set out in the WES shall be deemed to be the policies, objectives and development management guidelines/standards for the purpose of the County Development Plan.
- 5.4.5 Section 9.10 sets out landscape policies and objectives. The upper part of the site is classified as having ‘High’ landscape sensitivity and the lower part of the site is classified ‘Moderate’ landscape sensitivity.

5.4.6 Chapter 13 of the County Development Plan sets out Management Standards and Guidelines for different types of development within the County. DM Standard 30 relating to wind farm development set out under Section 13.9 states:

“Planning applications for wind farm development shall be in compliance with DoEHLG Wind Energy Development Guidelines 2006 (including any new guidelines when issued) and the County Galway Wind Energy Strategy.”

Galway Wind Energy Strategy

5.4.7 The WES was originally adopted by Galway County Council on the 26th September 2011 as a variation to the Galway County Development Plan 2009-2015. It was then adopted with minor updates as Appendix IV to the subsequent Galway County Development Plan 2015-2021. The WES sets out a number of policies and objectives that seek to encourage wind energy developments at appropriate locations and to guide the location and design of new proposals.

5.4.8 The WES identifies the following hierarchy of areas according to their suitability for wind energy development, based on criteria including the available wind resource, access to grid, environmental and ecological designations and population / settlement patterns:

SA Strategic Areas: Large areas in the most suitable locations for wind farm development and without significant environmental constraints, based on strategic level analysis. Wind farm developments will be encouraged in this area subject to detailed environmental and visual assessment and appropriate layout and design. Objective WE1 states that wind energy projects within this area must:

- Demonstrate conformity with existing and approved wind farms to avoid visual clutter;
- Be developed in line with the Planning Guidelines for Wind Energy Development (DoEHLG 2006) (and any updated document) in terms of siting, layout and environmental assessment;
- Be accompanied by a HDA under Article 6 of the Habitat Directive where they may result in adverse effects on any Natura 2000 site;
- Be developed in a comprehensive manner avoiding the piecemeal development of the land designated as Strategic Areas.

There is an objective to suitably manage land use and infrastructure development within this area to protect its scope for wind energy projects. The indicative target for wind energy generation from Strategic Areas is 220 MW but this is not a limit that cannot be exceeded.

AP Acceptable in Principle Areas: Smaller areas in suitable locations for wind farm development and without significant environmental constraints, based on strategic level analysis. Wind farm developments will be facilitated in these areas subject to detailed environmental and visual assessment for appropriate layout and design. Objective WE2 states that wind energy developments within this area must:

- Demonstrate conformity with any existing and approved wind farms to avoid visual clutter;
- Be developed in line with the Planning Guidelines for Wind Energy Development (DoEHLG 2006) (and any updated document), in terms of siting, layout and environmental assessment;
- Be accompanied by a HDA under Article 6 of the Habitat Directive where they may result in adverse effects on any Natura 2000 site;
- The indicative target for wind energy generation from AP areas is 100 MW but this is not a limit that cannot be exceeded.

OC Open for Consideration Areas: Areas with some locations that may have potential for wind farm development due to variable wind speeds or clustering with Strategic Areas but with significant environmental constraints, based on strategic level assessment. Wind farm development in these areas will be evaluated on a case by case basis subject to viable wind speeds, environmental resources and constraints and amenity, safety and cumulative impacts. Objective WE3 states that applications for wind energy development in “Open to Consideration” areas will be evaluated on a case by case basis.

NP Not Normally Permissible Areas: Areas generally not suitable for wind farm development due to their overall sensitivity and constraints arising from landscape, ecological, recreational, settlement, infrastructural and/or cultural and built heritage resources, based on strategic level assessment. Wind farm developments in these areas will be discouraged unless project level HDA and EIA can demonstrate to the

satisfaction of the Planning Authority that environmental and other impacts can be successfully avoided, minimised and/or mitigated.

LW Low Wind Speed Areas: Areas with wind speeds less than 8m/s that would generally not provide viable locations for commercial wind farm developments.

The total land area proposed as Strategic Areas is 5,390ha and the area proposed as Acceptable in Principle is 6,994ha. Together, these areas constitute around 2% of the total County area. The majority of the subject site is located in a Strategic Area, with the remainder being within an Open for Consideration area.

5.4.9 Policy WE7 states:

“Proposals for wind energy development can be considered in all areas subject to meeting the specific requirements outlined in this Wind Energy Strategy. However, it is anticipated that most development proposals will be located in the Strategic Areas, Acceptable in Principle Areas and areas Open to Consideration and it is the policy of the Council to maximise Wind Energy development in all three of these areas on a case by case basis subject to meeting the specific requirements of this Wind Energy Strategy and taking account of any guidance contained in the Strategy.”

5.4.10 Table WE8 of the WES provides guidelines for separation distances for turbines in wind farm developments. This includes preferred minimum distances such as 500m from noise sensitive property, outside Natura 2000 sites subject to HDA and advice from NPWS; 100m from CAMP telecommunications masts; 100m from water’s edge of lakes and waterways; 100m from recorded monuments on RMP.

5.4.11 The WES provides details of potential impacts of wind energy development on habitats, birds, bats, freshwater species and habitats, peat, ground conditions and landscape susceptibility, amenity, landscape and settlement, transport, infrastructure and safety, construction and built heritage. Section 5.2.12 refers to the cumulative impact of wind farms and notes that the cumulative impact in particular in areas close to Natura 2000 sites will be carefully monitored over the lifetime of the strategy. Increases in the density of wind farm development within or adjacent to Natura 2000 sites will only be considered where it can be shown following AA that the development will not have an adverse effect on the conservation management objectives of the site. Section 5.3 deals with wind farm layout, design and construction. There are a series

of maps which show the Strategic Area and other areas Acceptable in Principle and Open for Consideration in relation to landscape character areas, views, prospects etc.

Galway County Development Plan 2015-2021 – Gaeltacht Plan

5.4.12 The site of the proposed development is partially located within the Gaeltacht. Variation no. 2 (b) to the Galway County Development Plan incorporated the Gaeltacht Plan into the County Plan. The site of the proposed development is located within District D, Chois Fharrage which stretches from the western fringe of Galway City westwards along the northern coast of Galway Bay to Baile na hAbhann and Ros and Mhil/Rossaveal. The plan sets out a number of policies and objectives for future development. Under objective GL9 it is an objective to:

“Promote the sustainable development of infrastructure projects and the improvement of the infrastructure network in the Galway Gaeltacht with close co-operation with the relevant stakeholders.”

6.0 Prescribed Bodies

6.1 Submissions and observations were sought from the following prescribed bodies:

- Minister for Housing, Planning, Community and Local Government
- Udaras na Gaeltachta
- Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs
- The Environmental Protection Agency
- Minister for Agriculture, Food and the Marine
- An Taisce
- Commission of Energy Regulation
- Minister for Transport, Tourism and Sport
- Minister for Communications, Climate Action and Environment
- Failte Ireland
- Inland Fisheries Ireland
- Irish Water
- The Arts Council
- The Heritage Council
- Health Service Executive
- Irish Aviation Authority
- Transport Infrastructure Ireland

6.2 Responses were received from the following bodies and are summarised below:

- Geological Survey Ireland (A division of the Department of Communications, Climate Action and Environment).
- Inland Fisheries Ireland.
- Transport Infrastructure Ireland.
- An Taisce.
- Irish Water
- Department of Culture, Heritage and the Gaeltacht (Development Applications Unit)

6.3 Following the advertisement that significant additional information had been received, further responses were received from the Irish Aviation Authority, Udaras na Gaeltachta, TII and Inland Fisheries Ireland.

Geological Survey Ireland (A Division of the Department of Communications, Climate Action and Environment)

- State that GSI is in partnership with the NPWS to identify and select important geological and geomorphological sites throughout the country for designation as geological NHA's. County Geological sites (CGS), as adopted under the National Heritage Plan, include additional sites that may also be of national importance but which were not selected as the very best examples for NHA designation.
- The Galway County Audit (unpublished) shows that there are no CGSs located within the vicinity of the proposed site. There is no envisaged impact on the integrity of County Geological Sites by the proposed development.
- Notes that the GSI website identifies past landslide events and this should be consulted when developing in upland or peatland areas.
- The site is located within an area of High Groundwater Vulnerability which should be taken into account when engaging in planning.
- Any site investigation reports should be made available to the GSI. Any significant bedrock cuttings should be designed to remain visible as rock exposure rather than covered with soil and vegetated.

Inland Fisheries Ireland

- Notes that it is imperative that the Construction and Environmental Management Plan that is provided in the EIAR is strictly implemented throughout the site to ensure that salmon and trout spawning and nursery habitat are protected during the construction, operational and decommissioning phase of the project. The protection of the fisheries habitat and water quality of the Owenboliska River is also essential. For the operational phase of the wind farm, the programme of regular cleaning, maintenance and inspection of the site runoff treatment system should continue.
- Request that an annual electrofishing survey be undertaken before works commence onsite and during each year of the construction phase of the project and for one year after completion of the wind farm.
- States that a water quality monitoring programme should be implemented during the construction phase of the project.

- All refuelling should be carried out within a secure bunded area on site in order to reduce any risk of release of hydrocarbons to adjacent watercourses and groundwater.
- Strict mitigation measures must be implemented when using concrete in the construction of the turbine foundations, electrical substations, meteorological masts and operation and maintenance buildings. Surface water must be strictly controlled on the site.
- IFI must be consulted in relation to all proposed river and stream crossings/ culvert installation/bridge construction or upgrading. Bottomless culverts or clear span bridges for river crossings are favoured. Culverts must be installed in accordance with IFI's guidelines and any in stream works must take place between the 1st of July and the 30th of September.
- Forestry and Water Quality Guidelines must be strictly adhered to during harvesting and all felling.
- The site specific Emergency Response Plan must be immediately activated in the event of a major spill or other pollution incident onsite.
- Measures should be put in place to prevent the spread of invasive species.

Transport Infrastructure Ireland

- TII acknowledged that access to the proposed windfarm development is facilitated via the local road network in the first instance and as such, no policy conflict in relation to development access to a national road arises.
- Refer to the proposal set out in the EIAR regarding the provision of a separate construction access road as an alternative to the N59/Doon Road junction and thereby creating a new direct access to the N59 National Road. Note that Galway Co. Co. have previously refused permission for a similar proposal under planning application ref. 15/813. In relation to the provision of such an alternative construction access junction, TII recommend:
 - Such a junction should be for a temporary period only to facilitate the construction phase of the development with temporary access closed and the N59 reinstated following completion of construction.
 - The temporary junction shall be constructed to standards specified in TII publications and shall be subject to a Road Safety Audit.
- TII is concerned with the proposal outlined by the applicant that the alternative

construction access road and junction would be closed off during the operational phase and only used in the event of an oversized delivery for wind turbine maintenance purposes being required. Such a proposal is not consistent with the permanent closure of the temporary access and reinstatement of the N59 National Road.

- Consider that the applicant has provided no justification for retaining, during the operational phase of the development, the proposed alternative construction access road. No clarity is provided in relation to the extent and duration of the proposed temporary re-openings and no explanation has been provided as to why the existing Doon Road junction could not be used.
- Any works to the existing junction on the N6 shall comply with the standards outlined in TII Publications and shall be subject to a Road Safety Audit as appropriate. The Authority has no objection in principle to the proposals but works should ensure the ongoing safety for all road users.
- It is recommended that the mitigation included in the EIAR is included as conditions in any permission granted in the interests of safeguarding the strategic function and safety of the national road network in the area.
- All structures should be checked by the applicant to confirm their capacity to accommodate any abnormal loads proposed. Concerns raised that no technical load assessment of structure appears to have been undertaken in the EIAR documentation. It is acknowledged however, that abnormal weight loads may not be a feature of the turbine delivery vehicles.
- States that an assessment review of all structures on the national road network along the haul route is required to confirm that all structures can accommodate the proposed loading associated with the delivery of turbine components where the weight of the delivery vehicle and load exceed that permissible under the Road Traffic Regulations. The relevant road authorities along the haul routes should confirm their acceptance of proposals by the applicant.
- No cabling/ducting and or trenching is proposed to be laid where there may be implications for the national road network in the area.

An Taisce

- Refers to the previous decision of the Board in relation to file reference ABP Ref. 07.PA0036. States that an evaluation is required demonstrating that all issues have been resolved which determined the site unsuitable previously.

Irish Water

- The development is within the Owenboliska catchment which supplies Spiddal and the Boliska Lake is approximately 5km downstream of the site boundary. The access road to the north east is partly within the Lough Corrib catchment and the northern tributaries of the Oughterard catchment are near the site boundary. There are Irish Water mains along the access road in Doon.
- Potential risks of the development include adverse water quality impacts arising from clear felling of forestry, earthworks, excavation, dewatering, wastewater disposal, morphological changes and potential hydrological impact.
- Appropriate mitigation and monitoring measures, including those outlined in the EIAR should be implemented in full to ensure no adverse impacts on the Spiddal, Galway (Lough Corrib) and Oughterard water resources.
- Provision of monitoring should be made to ensure that mitigation measures are implemented in full e.g. independent consultant. Irish Water should be consulted in the preparation of incident and emergency plans in order to establish appropriate procedures and lines of communication in the event of an incident such as an oil spill.
- Any proposals by the applicant to divert existing water services shall be submitted to Irish Water for agreement and any temporary connection throughout the construction phase is subject to a connection agreement with Irish Water.
- Notes that activities with windfarm developments can impact on raw drinking water quality and on water treatment plant operations. IW currently follows the Drinking Water Safety Plan approach, as set out by the EPA and the World Health Organisation, to identify potential hazards and risks to drinking water supplies.
- Irish Water recommends that consideration of potential impacts on downstream drinking water abstractions be an integral part of the assessment and

management of this development. It is IW opinion that the weekly monitoring proposed during construction is not sufficient to alert Irish Water to any potential impacts. Also, the requirements for post construction monitoring should also be considered in more detail. IW should be notified should events take place that may result in contamination of raw water sources.

- Activities should be supportive of the catchment based approach to the protection of receiving waters as required by the Water Framework Directive and should utilise the source pathway receptor approach during the consideration of impacts.
- IW strongly encourages the restriction of the use of any herbicides or pesticides in zones of contribution to drinking water resources and that appropriate buffer zones are strictly adhered to.

Department of Culture, Heritage and the Gaeltacht (Development Applications Unit)

- The development will result in the permanent felling of 149.52has of conifer plantation and 65.7ha will be afforested elsewhere in the state as a consequence. Details of approved forestry development targeted for compensatory planting are provided in the EIA. No information is available to establish the Forest Service's determinations in relation to screening for EIA, EIA, screening for AA and AA in respect of the individual approvals, or in respect of licences and approvals which apply to forest management and forest development in the current application area.
- The application site is bordered by Connemara Bog Complex SAC and Oughterard District Bogs NHA and is located close to Connemara Bog Complex SPA and Ross Lake and Woods SAC. The primary ecological concerns in relation to these designated areas are detailed.
- It is noted that aspects of the approach and analysis in the NIS are based on narrative and or the assessments and conclusions of the EIAR, rather than examination of scientific evidence and data that are presented or cross referenced in the NIS itself, and without specific reference to the conservation objectives, including attributes and targets of relevance. Examples include Annex 1 lake types and the Annex II species, Salmon and Marsh Fritillary in the Connemara Bog Complex SAC and Lesser Horseshoe Bat in Ross Lake and

Woods.

- Notes that assessment of potential effects on Annex 1 lake habitats should include:
 - Chapter 9- Water of the EIAR.
 - The attributes and targets for water quality in the conservation objectives.
 - Existing water quality entering, within and leaving the site and recent trends.
 - Projects which in combination could affect water quality.
 - The ability to prevent any further effects on water quality at this site, even with the mitigation measures listed.
- In the case of Otter, no details of any surveys carried out are included in the NIS as the scientific or objective basis for excluding any potential effects on Otter populations locally including their habitats and territories. In combination effects should also be considered.
- In the case of the Lesser Horseshoe Bat, no details of any surveys carried out are included in the NIS as the scientific or objective basis for excluding any potential effect on local populations. In combination effects should also be considered.
- In the case of the Connemara Bog Complex SPA, no details of any surveys carried out or results of these are included in the NIS as the scientific or objective basis for excluding any potential effects on bird populations.
- The final analysis of the NIS, or the appropriate assessment if not specifically covered by the NIS, should be with respect to the conservation objectives and integrity of the European site.
- It is a concern that the cumulative impact assessment follows the main text and analyses of the NIS. It is unsupported by mapping to show the location of other wind energy development and conifer plantation and their management. No data is presented to support the absence of any effects, for example, on water quality arising from the ongoing or recent development in the upper Owenboliska catchment.
- Note that in the EIAR some aspects of the overall proposal are not covered. 3 new bridges or watercourse crossing are to be constructed but details of bridge or culvert types and of site preparation and construction are lacking.

- The respective lengths of different road types are not provided, and it is unclear where the piles or banks (10 wide and 1m high) of surplus peat and/or spoil will be placed. There is no mapping of the areas of planned clearfell to accommodate the project and no mapping of the burned areas of plantation nor information to show whether the development overlaps with burned areas.
- Community gain initiative should be considered in the context of potential cumulative impacts and funding made available for any ecological or other assessments and planning applications that may be required for these initiatives in the future.
- Specific details of the areas of habitats that fall within the footprint of the development and which will be affected by construction and associated works are lacking.
- The EIAR includes only limited details of the bat surveys carried out and needs to be reviewed to interpret the scope and results of the bat surveys carried out. Changes in bat activity and usage recorded at the bat roost at Letter Lodge outhouse are not considered in terms of any changes in levels of disturbance, including construction activity and forest management in the area.
- The EIAR includes only limited details of other species surveys carried out and the extent of surveys is not always clear e.g. Otter, Badger and Marsh Fritillary.
- The assessment of likely significant effects on birds appears to be without specific regard to the context of the current proposal as an extension of other wind energy developments to the west, south and south east.
- The general consideration of cumulative effects is unsupported by objective information and data, including, for example, mapping of other wind energy developments and/or catchment level analysis of potential effects on water resources and water dependent habitats and species.
- There is no indication of any timelines for construction activities and phases of the Galway Wind Park development, and no information about any monitoring that was required and carried out in connection with the individual projects that would support the conclusions made regarding the predicted absence of ecological and water quality effects. It is also unclear if surveys reported in the EIAR were carried out during the construction phases of nearby or adjoining projects.

Further Submissions

As noted above, in accordance with Section 37 (F) (2) of the Planning and Development Act, 2000 as amended, the applicant was requested to publish new public notices and issue a copy of the documentation to prescribed bodies. A further 4 further submissions were received from prescribed bodies on foot of the new public notices published with respect to the significant additional information received by the Board. These can be summarised as follows:

Irish Aviation Authority

- State that in the event of planning consent being granted the applicant should be conditioned to contact the Irish Aviation Authority to
 - Agree an aeronautical obstacle warning light scheme for the wind farm development.
 - Provide as constructed coordinates in WGS84 format together with ground and tip elevations at each wind turbine location.

Udaras na Gaeltachta

- Recommend that recognition is given by the developer to Irish in the development and ensure that:

All signs will be in Irish; the name of the business will be in Irish; priority is always given to Irish; Irish will be on the same level and standard as other languages in every case; recognition will always be given to Irish in every aspect of the development of the business; a language condition to be put in place in accordance with Paragraph 47 of the Planning Act.

TII

- TII acknowledged that the points raised in TII's initial submission have been considered and responded to in the Significant Additional Information Response.
- TII request that the mitigation and commitments outlined in the applicant's response are addressed in any decision and included as conditions of permission where granted, specifically in relation to:
 - Alternative temporary construction access.
 - Capacity of structures along delivery routes to accommodate loads, and

- Junction of the N6, national road and Road Safety Audit.

Inland Fisheries Ireland

- Having received the Response to Submission Received IFI acknowledges the applicant's response regarding forestry, emergency response plan, engagement with IFI. The commitments set out in the Hydro Environmental Report are also noted. IFI request that should this application be granted, the commitments made by the applicant are attached as conditions of the planning permission.

7.0 Local Authority Submission

7.1 Galway County Council made a submission to the Board on the 11th of February 2019. The key points can be summarised as follows:

- Provides a summary of the key policies and objectives of the Galway County Development Plan 2015-2021 and the Galway Wind Energy Strategy.
- State that the wind farm is considered acceptable to the Planning Authority for the following reasons:
 - Will comply with European and national renewable energy targets to reduce carbon dioxide levels in the energy production sector.
 - Ardderroo Wind farm development complies with the Wind Energy Strategy and is located within an area identified by Galway Co. Co. as being the most suitable for wind farm developments in the County. Much of the site (19 turbines) is designated as a 'Strategic Area', the most optimal location for wind energy developments and the remainder (6 turbines) is designated as 'Open to Consideration – areas which can accommodate low to medium size wind farm developments.
 - The applicant has obtained a Gate 3 grid offer connection.
 - The site is located outside any Nature 2000 site and a significant number of surveys were carried out in the EIAR for the site.
 - There have already been a number of permissions for windfarms in the vicinity.
 - Permission has been granted and road upgraded to accommodate wind farm construction traffic associated with nearby wind farms.
 - Permission has been granted for a substation to the east of the site.
 - EIAR and NIS conclude that the application is acceptable subject to mitigation measures being implemented.
 - There are few houses within 2km of the site.
 - The visual impact of the siting of the development is not considered significant from the local road network.

- The community gain proposals are considered in principle acceptable to the Planning Authority.

7.2 The report concludes:

“Having regard to national policy and the creation of sustainable development resources; the general suitability of the site for a wind powered electricity generating facility; the nature of the landscape in the area; the absence of any specific amenity or conservation designation for the site; the provisions of the current Galway County Development Plan; the proposed mitigation measures outlined in the EIAR; it is considered that, subject to compliance with the conditions set out below, the proposed development would not seriously injure the visual amenities or the landscape character of the area, would be acceptable in terms of traffic safety and convenience, would not be likely to have a significant detrimental effect on ecology or protected species and would, therefore, be in accordance with the proper planning and sustainable development of the area.”

7.3 A series of conditions are recommended by the Planning Authority, many of which follow from the recommendations of the internal departments as set out below. Others relate to design details of the wind turbines; confirmation of construction methodology statement as contained in the Peat and Spoil Management Plan; storage of fuels and re-fuelling; drainage and water protection measures; traffic management; treatment of excavated soil and peat; noise; shadow and flicker; interference with radio and TV transmissions; decommissioning; archaeology; design details of control buildings; details of collection and disposal of material from the holding tanks associated with control buildings; ornithological monitoring; development contributions; community gain and recreational and amenity proposals.

Environment Section

7.4 Principal concerns relate to the potential effects of the development on the watercourses within and downstream of the site. Fully concur with the recommendations of Inland Fisheries. Recommends a series of conditions regarding:

- The implementation of the environmental mitigation measures detailed in the EIAR, Construction and Environmental Management Plan, Invasive Species Management Plan and Peat Management Plan.

- Monitoring during the construction and operational phases.
- Notification procedures in the event of an incident which poses a significant risk to water quality.

Roads and Transportation Section

7.5 Notes that no design drawings for the junction between the L534553 and the N59 have been included and it is uncertain whether sightlines are achievable.

Recommend that prior to commencement of development, the applicant agrees in writing with the Planning Authority, the design of this junction for both the construction stage and operational phase. This design will include sightlines requirements, drainage requirements, hardstand area finishes and boundary finishes. Condition regarding finishing works for the L563453 also recommended.

7.6 Conditions also recommended regarding:

- Road Safety Audit for both the design of the junction between the N59 and L53453 and the finishing works to the L53453.
- Lodgment of a cash deposit to secure the satisfactory reinstatement of public roads.
- Road opening license to be obtained concerning works on and adjacent to the public road. Application to include detailed transport management plan with details of temporary road signage requirements and locations for the safe transportation of construction traffic and a conditional assessment of the public road network to be used during the construction stage.

8.0 Observations

Derek Walsh, Killaguile, Rosscahill, Co. Galway

- Concerns regarding impact of wind turbines on birds and bats and that development will impact on Ross Lake and Woods SAC, particularly the Lesser Horseshoe Bat, Otter, Badger, Swan and Geese species.
- Considers that turbines cause noise impacts, interfere with TV signals and have negative shadow flicker impacts. Turbines will have a negative visual impact.
- Concern that development will have an adverse impact to the drainage of Oughterard District Bogs NHA from construction works.

Doon East Residents Association, Doon East, Rosacahill, Galway

- Note that the community previously experienced negative impacts and disruption during the construction phase of adjacent windfarms.
- The Residents Association has had positive constructive discussions with Ardderroo Windfarm representatives during the initial community consultations. The Association is supportive of the Ardderroo Windfarm provided they comply with the requirements to minimise disruption along the residential road.

M. Uí Mhuirín, An Spidéal, Gaillimh

- States that as the general public is unaware of the Competent Authority's conclusions, and the reasons for these conclusions relating to the EIA and AA assessment processes pertaining to this development, consent may not be granted in compliance with the relevant legislation.
- Considers that the process of public consultation is not meaningful as the EIAR and NIS contain assessments and decisions which are the statutory responsibility of An Bord Pleanála and not the developer. It is legally just and correct to consider the grant of consent for this development only after the Competent Authority publishes and seeks public opinion on ABP's statutory AA and EIA assessments and conclusions, the documents pertaining to and explaining these assessments and the conclusions reached.
- States that the NIS submitted by the developer appears to be an environmental assessment carried out under the EIA Directive (2011/92/EU) and not under the

Habitats Directive (92/43/EEC). The NIS refers to and/or simply restates the assessment in the EIAR and the assessment under the Habitats Directive has not actually taken place. The NIS does not fully comply with the assessment obligations under the Habitats Directive.

Seamus Murphy, Barna Village, Galway

- Observer currently resides in what is identified in the planning documentation as H01. The dwelling has been his family home for over 80 years. Consider that he was not adequately consulted in relation to the project.
- States that reports outlined in the EIAR regarding the economic benefits and employment potential created by windfarms are out of date. Consider that only 29% of the value of the windfarm will be retained in Ireland.
- Concerns regarding potential impacts during construction phase on the amenities of his dwelling. Note that both borrow pits access directly onto the access road to his residence and that there is a lack of an appropriate assessment of the traffic impacts to the route. The pits are adjacent to the property and will invariably involve rock breaking, blasting, noise and peat disturbance.
- Concerns that development will have adverse visual impacts and that recreational trails will not be used for amenity purposes due to noise and shadow flicker impacts of turbines.
- Consider that evidence presented on the health effects of windfarms relies heavily on evidence from abroad and that development will have adverse noise, dust, contamination and electromagnetic interference impacts. Notes direct experience of these impacts from other windfarm developments in the vicinity. States that shadow flicker analysis carried out to H01 is inaccurate and no noise monitoring has been carried out.
- Notes inaccuracies in documentation where townland of Uggool has been omitted and that trespass has occurred by consultants undertaking survey work.

Morgan Ó Concubhair, Bolluise, An Spidéal, Co. na Gaillímhe

- Concerns regarding the potential cumulative impacts of the windfarm in terms of visual amenity and property devaluation.
- Notes potential environmental impacts on the Connemara bog complex, the Lough Bolluisce fishing system and quality of local drinking water. Also notes potential impacts on terms of noise pollution and impacts to TV and mobile signals.
- Consider that there will be no community gain and that development will lead to depopulation of the area.

John Rushe and Annette Collins, Oldtown, Moycullen, Co. Galway

- Concern regarding visual impact of the development and particularly turbines 1, 2, 3, 4, 5 and 6 and that they will have a significant negative impact on the amenity of the residential areas to the east and north of the site. Consider there will be potential an adverse cumulative visual impact, particularly from the Lettercraffoe Windfarm.
- State that the siting of these turbines is contrary to the County Landscape Character Assessment as they protrude over the mountain ridgelines and thus have a negative impact on the views of the east Connemara Mountains when viewed from the east and north of the site. Consider the development to be contrary to policy CS25 of the Development Plan.
- Object to the potential impacts of the development both individually and cumulatively on the Connemara Bog Complex cSAC, particularly on salmon stock which are a conservation objective of this SAC. Note failure of silt traps on the Letter Road and that there is potential for the development to have a negative impact on the Ardderroo River from additional traffic, surface water run off etc. Consider that the operational measures proposed to minimise environmental impacts are aspirational and consideration should be given as to whether permission should be granted if environmental impacts cannot be managed and controlled during the operational phase of such developments.
- Concerned that the development and its in-combination effects with other wind farms in the area will have a negative impact on bird species in the area.

Further Observations

As noted above, in accordance with Section 37 (F) (2) of the Planning and Development Act, 2000 as amended, the applicant was requested to publish new public notices and issue a copy of the documentation to prescribed bodies. A further three observations were received on foot of the new public notices published with respect to the significant additional information received by the Board. These can be summarised as follows:

M. Uí Mhuirín, Pairc, An Spidéal, Gaillimh

- Requests that the Board ensure that the development fully complies with all relevant environmental legislation.
- Disagrees with the conclusions of the AA and EIA made by the applicant. Does not consider that the NIS is fully compliant with AA related regulations, legislation and judgements.
- The need to demonstrate to the public that the project complies with the correct procedures of the appropriate legislation cannot be met by simply reformatting the presentation of data.
- Considers zone of impact set out in the screening process is too limited. Queries robustness of screening process. States that this has possibly resulted in the exclusion of European sites which ought to have been included in the assessment process.
- The lack of scoping input from authorities with statutory functions is of grave public concern.
- Concerned that the effects of the application's Screening and Scoping processes are deficiencies in the NIS/RNIS, resulting in gaps and omissions in the AA process which are not compliant with environmental legislation.
- States that NIS/RNIS screens out a number of qualifying habitats and species of protected sites to which the project effects have direct and indirect pathways. Concerned that inadequate consideration has been given to water dependent habitats and species.
- Statements in the application which only anticipate no adverse effects are not

capable of removing all uncertainty of impact to a standard required by the legislation.

- The in-combination assessment is considered inadequate.

John Rushe and Annette Collins, Oldtown, Moycullen, Co. Galway

- Consider that turbines 1 to 6 are too high, will have a negative visual impact and should be omitted. State that Knockranny windfarm is under judicial review and should not be considered as part of the visual impact assessment. If this scheme was omitted the proposed turbines would be visually dominant.
- Concerns regarding the impact of the development on the Connemara Bog Complex cSAC. Note that a Construction and Environment Plan is proposed as mitigation and ABP should consider if such a proposal is appropriate and if it would result in a lacunae in the planning consent.
- State that the Board should consider if the in combination effects of increased road traffic on the road, regular resurfacing and the absence of effective silt traps and the addition of 12km of new roads as part of the proposed development will result in a significant negative impact on the Ardderroo River and on associated conservation sites.
- The Board should consider if the proposed development and the concentration of development adjacent to an aquatic link will have a negative impact on or pose a risk to the Ardderroo River, on salmon stocks and their habitat which are a conservation objective of the Connemara Bog Complex SAC.
- Concerned that the development and its in combination effects with other wind farms in the area will have a negative impact on bird species in the area.

Seamus Murphy, Barna Village, Galway

- Concerns regarding the impact of the development on the local road network and that it will be maintained over the course of the operational phase having regard to the damage caused by other wind farm development in the vicinity.
- Considers that the current Galway Wind Energy Strategy may not be relevant based on current turbines/heights.

- Objects to potential noise impacts noting that the site should be visited to assess the actual noise levels from existing turbines.
- States that contrary to the assertion set out in the documentation, the owner of House H1/H01 did not consent to turbines on land surrounding this dwelling. The owner signed an option agreement to consider an application for turbines to the north of his dwelling which were 46 metres in height. Concern regarding shadow flicker impact.

9.0 Applicants Response to Submissions and Observations

9.1 The applicant has adopted a thematic approach in their response to the submissions and observations made with respect the application. A revised NIS was also submitted which includes further aquatic sampling and an Otter survey. Further details of the revised NIS are detailed in section 13 below.

Planning Policy and Procedure

- Note that the EIAR and revised NIS were prepared taking account of the relevant planning policy context.
- With regard to procedural aspects, note that the role of the competent authority extends to both planning authorities and An Bord Pleanála. The AA and EIA are carried out by the Board as part of the decision making process. There is no onus on the Board to make the results of their appraisal of the EIAR information known publicly or otherwise prior to making their final decision on an application. Their final decision takes into account all of the information lodged regarding the application, including the EIAR and submissions lodged.
- With reference to the submission by one party that previous legal judgements prevent An Bord Pleanála from granting planning permission, it is submitted that the planning application including the EIAR and the revised NIS has been prepared in a accordance with the relevant legislation and guidelines and as such, there are no impediments to the Board progressing with the consideration of the application and issuing their decision based on the comprehensive information that has been provided.

Biodiversity and Ornithology

- Notes that the NIS originally lodged has been reformatted to allow for cross referencing and to align the requirements of the DAU. In particular, the revised NIS now includes all details of the information relied on to reach its conclusion that the development would not adversely affect the integrity of any European sites including bird and bat surveys, water quality management measures and the Construction and Environmental Management Plan. The revised NIS also includes updated baseline Otter and aquatic surveying as well as the inclusion of a specific and targeted assessment of the site specific conservation

objectives including those for each of the relevant QI and Special Conservation Interests.

- With regard to concerns by the DAU regarding the description of aspects of the proposal, note that full details of the new bridges and watercourse crossings are provided in the EIAR and that they are fully described and assessed. States that each watercourse crossing was subject of a follow up ecological survey in March 2019 with kick samples, ecological walkover surveys and dedicated Otter surveys.
- The lengths of different toad types are set out in section 2 of the CEMP and construction methodology described. With regard to storage of surplus material, exact locations of where spoil will be placed will be determined following detailed site investigations. Best practice measures will ensure the ecological and environmental impacts will be minimised. Areas to be clearfelled are fully detailed in section 4 of the EIAR. The proposed windfarm will involve the felling of only c. 11% of the conifer plantation on the site.
- Clarification provided regarding the mapping of areas that were burned in the wildfires of 2017. Notes that the burn affected forestry and peatland habitats throughout the study area but the peatland habitats were not significantly altered and the vegetation is in the process of recovering.
- States that the proposed community gain proposals including marked trails, trail head facilities, toilets and a shelter have been fully assessed in the revised NIS and EIAR. Confirm that funding will be made available for relevant ecological studies to support future community projects where necessary.
- Clarifies that areas of each habitat that are located within the development footprint are provided in chapter 6 of the EIAR.
- Appendix 6.2 provides comprehensive details of the bat surveys undertaken. These details provide all the information necessary to justify the conclusions reached in the assessments. Surveys indicate that the study area is not used by large bat populations and Lesser Horseshoe Bats were most often recorded in the vicinity of Letter Lodge outhouse. Concerns were raised by the DAU that potential disturbance to the identified night roost at Letter Lodge were not specifically assessed in terms of construction and forestry activities. State that

the development will not result in any significant effects on the roost as the building will be retained and no works are proposed in the vicinity of it. The windfarm has been designed to avoid fragmentation of habitats and promote retention of linear habitat connectivity. Lesser Horseshoe Bat is a low collision risk species and it is not anticipated there will be any collision related impacts. Furthermore, construction traffic will be primarily during the daytime and temporary in nature. Following construction, levels of activity will revert to baseline low levels associated with forestry, private landowner access and wind farm maintenance. It is concluded the development is unlikely to result in any significant effect on the identified Lesser Horseshoe Bat.

- Regarding concerns by the DAU that there were only limited surveys undertaken for species such as Otter, Badger and Marsh Fritillary, state that extensive multidisciplinary ecological walkover surveys were undertaken in 2013 and 2014 and that these were followed up and ground truthed in 2017 and 2018. In the case of Badger, no evidence of activity that would trigger the requirement for more extensive species was recorded and thus no specific surveys were carried out. Further Otter surveys were carried out in March 2019 and no signs of Otter were recorded. In the case of Marsh Fritillary, a specific survey was undertaken in September 2013 and no suitable habitat was recorded. Potential habitat for this species was considered in the more recent ecological walkover surveys undertaken and none was recorded.
- States that the EIAR provides a comprehensive cumulative assessment of the development the context of existing and proposed wind farm developments in the vicinity. The suite of surveys undertaken did not record any evidence of important migratory routes for any bird species. Concludes that the development will not result in any significant effect on birds either individually or in combination with other plans or projects. States that whilst no timelines for construction activities are provided in the EIAR chapters, each development includes measures designed to ensure that they will not individually result in significant negative effects even if constructed simultaneously. With regard to water quality effects, no significant effects are predicted from the development and, therefore, no significant cumulative effects can arise.
- Notes that survey methodology was reviewed in light of the new guidelines

published in January 2019 by Scottish Natural Heritage regarding surveying bats at wind farms and that it far exceeds the new recommendations in relation to manual surveys, roost surveys and surveys at height. State that whilst the applicant is satisfied that all findings in relation to bats are appropriate, accurate and scientifically supported, it is acknowledged that the surveys were carried out in advance of the new guidance being in place.

Traffic and Transport

- Note that the alternative access route is not subject of this application but has been considered in the EIAR. It will be utilised in the construction stage of the project only and only in exceptional circumstances during the operational phase. If it were to be consented in the future, it would be used for maintenance access for oversized loads only.
- The proposed delivery route for the abnormal loads has been previously used during the construction phase for the recently constructed Galway Wind Park Wind Farm. Therefore, the delivery route has a proven capacity to provide safe and appropriate access for turbines. TII and Galway City and County Council Road Section will be consulted prior to the construction phase in relation to any structural assessment of the delivery route that may be required.
- TII and Galway City and County Council Roads Department will be consulted prior to the construction stage regarding the junction of the N59 and L53453. Note that this junction was previously used for the delivery phase of the Galway Wind Park development.
- Note that the proposed development seeks to make the best use of existing routes where possible and mitigation measures will be employed prior to and during the construction stage in order to minimise the effects of the additional traffic generated by the development.

Forestry

- The EIAR notes that the proposals will include the permanent felling of 149.52ha of conifer plantation. Areas of proposed replanting are assessed in the AA screening and EIAR. The assessments in the EIAR are also made having full consideration to the ongoing forestry felling on the site.

Landscape and Visual Impact

- State that an assessment of visual effects was undertaken as part of the EIAR. The majority of houses and residential receptors are located outside the horseshoe shaped hilltop ridgeline of higher ground containing the site. The orientation and intended views from such houses is generally not in the direction of the site and while some proposed turbines will be partially visible from house receptor locations 3.5 km from the site, the considerable distance will ensure that visibility is the only potential effect.
- Within the horseshoe shaped hilltop ridgeline of higher ground, potential effects on residential amenity are limited to one house adjacent to the Ugool wind farm site, 6 houses to the southeast in Tullaghnanon and 4 houses to the south in Lettermass. From these locations the proposed turbines will appear large given their proximity but they are well in excess of the X4 turbine height separation distance, shadow flicker and noise requirements and are not anticipated to contribute to any significant impact on residential amenity. It is, therefore, not accepted that the justification exists for any of the turbines to be removed from the proposed development. Many of the existing views constitute a view with turbines due to the presence of operational or permitted wind farms. It is not considered that turbines 1 to 6 significantly adverse effect the residential amenity of those houses to the north and east. The methodology used and assessment undertaken in the EIAR is robustly defended as being comprehensive, methodical and objective in its findings.
- Cumulative effects are also addressed in the EIAR. The proposed layout is in keeping with those wind farms in close proximity to it and in some instances turbines will be seen within the same visual unit. Cumulative visibility will increase only marginally with the existing and permitted turbines. It is considered that cumulative visual impacts will be localised and occur primarily in an area to the south which is not densely populated.
- Wind turbines are a recognisable element of this landscape, with the Galway Wind Park in operation and others in the wider area which have been plan led and, therefore, the proposed development is not introducing a new landscape element, either in terms of visibility or land use.

- It is considered that the landscape character is capable of absorbing the additional turbines proposed and already highly modified through forestry plantation, telecommunications towers, overhead transmission lines and substations and existing and proposed wind farms. The site is largely located in a 'Strategic Area' and partially within an area 'Open for Consideration' in the Galway Wind Energy Strategy, which was subject of a Strategic Environmental Assessment and deemed the site's Landscape Character Area to have a Low Moderate sensitivity to wind farm development.

Noise

- At all noise sensitive locations, the predicted noise levels associated with the proposed development will be within best practice noise criteria curves recommended in Irish guidance. It is not considered that a significant effect is associated with the development. Note that there is no conclusive evidence that wind farm developments lead to adverse health effects in humans. There is no scientific evidence to suggest that animal welfare is adversely affected by operational wind turbines.

Human Beings and Human Health

- Notes that the nearest property to the development is 1,290m away from the nearest proposed turbine location with the exception of 1 dwelling that is located within the existing Galway Wind Park development.
- **Shadow Flicker:** Only 1 house is identified within the 1.5km radius of the proposed turbine locations. This dwelling is located within the Uggool wind farm. It is detailed in the EIAR that where the house experiences shadow flicker which exceeds the relevant guidelines of 30 minutes per day or 30 hours per year, a number of mitigation measures have been proposed. With modern turbine technology, modelling and control systems shadow flicker is entirely controllable and predictable. It is standard practice to incorporate suitable planning conditions.
- **Turbine Lighting:** The use of aircraft warning lights on turbines is common practice and is for the benefit of aviation safety. Lighting affixed will be of suitable intensity defined by the Irish Aviation Authority and will not cause any negative impact on any dwelling.

- **Electromagnetic Interference:** Notes that the extremely low frequency electric and magnetic fields associated with the operation of the proposed cables fully complies with the international guidelines for ELF – EMF set by the International Commission on Non-Ionizing Radiation Protection as well as the EU guidelines for human exposure to EMF.
- **Dust:** A range of mitigation measures are proposed to address potential dust impacts. The residual impact of dust emissions is considered short term, imperceptible negative impact.
- **Depopulation:** There is no evidence to indicate the development will lead to depopulation of the area. Population trends indicate a population increase in the area.
- **Devaluation of Property:** Refers to a number of studies undertaken which have found no evidence to suggest that wind turbines affect house prices.
- **Emergency Response Plan:** A site specific Emergency Response Plan has been prepared and included in the CEMP. It include details on the response required and the responsibilities of all personnel in the event of an emergency. The Environmental Manager will be responsible for any corrective actions required as a result of an incident.

Hydrology

- The sensitivity of the Owenboliska River catchment from a hydrological and ecological perspective is documented in the EIAR. The CEMP has been developed with these sensitivities in mind and will be overseen by an Environmental Clerk of Works with regular independent inspections by specialist environmental, ecological and hydrological consultants.
- A site specific Spoil and Peat Management Plan has been developed and incorporated into the CEMP. For the operational phase, a programme of regular cleaning, maintenance and inspection of site run off treatment will continue. Post construction drainage audits will be completed on a regular basis by an independent hydrologist. The best practice management of oils, fuels and chemicals, as well as the management of cement is comprehensively addressed in the EIAR. Tree felling has been identified as one of the main

potential sources of water quality impact. Measures are set out to address surface water quality during tree felling and all felling will be carried out under license.

- The potential impacts on the Boliska Lough Public Water Supply are addressed in the EIAR. The drainage plan design was developed in accordance with SuDS. This includes the use of interceptor drains up gradient of works areas, and collector drains down gradient of works areas. Drainage management on site has several stages and uses avoidance controls, source controls, in line controls, water treatment controls and outfall controls.
- Notes that surface water quality monitoring will be limited to weekly monitoring. Weekly monitoring relates to the recovery of water samples downstream of the site for laboratory analysis. Daily inspections of installed drainage systems and water quality at outfalls will also be undertaken. The daily inspections will include a visual assessment of water quality and also portable probes for field hydrochemistry monitoring will be used by the ECoW to make on the spot checks.
- Potential impacts on the Connemara Bog Complex SAC are fully addressed in the EIAR and included installation of piezometers and water level monitoring to investigate the hydrology of the wind farm site with respect the SAC. The proposed surface water management plan will ensure that surface runoff from the developed area of the site will be of a high quality and, therefore, will not significantly impact on the quality of downstream surface water bodies flowing through the SAC. It is concluded that there is no potential to impact on peat water or groundwater levels within the SAC in terms of alteration of groundwater flow paths or groundwater levels.

Community Gain/Tourism

- The Community Benefit Package being proposed results from consultation and feedback with the local community.
- The development seeks to directly contribute to tourism in the area through the introduction of on-site recreation and amenity facilities.

10.0 Planning Assessment

10.1 Introduction

10.1.1 I consider that the main planning issues arising in this case, having particular regard to the planning history of the site, can be assessed under the following headings:

- Principle of Development
- Ornithological Impact
- Bats Impact
- Procedural

10.2 Principle of Development

10.2.1 The proposed development comprises the construction of 25 no. wind turbines, 1 permanent meteorological mast, a 110kV electrical substation and all associated development works.

10.2.2 The importance of renewable energy is clearly acknowledged at a national, regional and local level and there are a suite of policy documents that support and promote the transition to a low carbon and climate resilient society. Ireland is committed to produce at least 16% of all energy consumed by 2020 from renewable sources. This will be met by 40% from renewable electricity, a major source of which, is wind power. Under the National Planning Framework, National Policy Objective 55 seeks to *“Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.”* In the White Paper - Ireland’s Transition to a Low Carbon Energy Future, 2015-2030, the significant role and contribution of onshore wind in this transition is recognised and it is detailed that to achieve the 2020 40% target, the average rate of build of onshore wind generation will need to increase to up to 260MW per year.

10.2.3 The site of the proposed windfarm is located in an area referred to as the “Galway Wind Park”. Under the Galway Wind Energy Strategy (WES) which forms part of the current Galway County Development Plan 2015-2021, this area is designated as the most suitable part of the County to accommodate wind energy and it is detailed that it is envisaged that it will contribute towards the national 40% target for renewable

energy production.

- 10.2.4 As detailed in the Planning History section above, several large scale wind energy development have already been permitted in this area. Upgrade works to the local road network have been carried out and electricity transmission infrastructure constructed to facilitate these permitted windfarm developments. The subject development will, therefore, reinforce this pattern of development, consolidate an established area of wind energy developments and make efficient use of existing infrastructure thus avoiding piecemeal development.
- 10.2.5 The WES identifies 'SA Strategic Areas', 'AP Acceptable in Principle Areas and OC Open to Consideration Areas on Map WE-5A. These designations have been adopted based on an analysis of the available wind energy resource, the electricity transmission network, transport and utility infrastructure, natural heritage designations, ground conditions, built heritage, landscape character and sensitivity, proximity to residential properties and recreation/tourism/ amenity issues. Figure 2.7 of the EIAR superimposes the subject boundary of the development site over the policy areas of the WES. It can be seen that approximately 75% of the site is located in a 'Strategic Area' i.e. identified as the most suitable location for wind energy development. A smaller area of the development site is within the area designated as 'Open for Consideration'.
- 10.2.6 Section 7.4.2 of the Galway County Development Plan 2015-2021 states a policy to maximise wind energy development in areas designated as 'SA', AP and OC in the WES. Galway County Council in their submission to the Board on the 13th of February 2019 have confirmed their support for the project, that it would contribute to the West Galway target capacity under Gate 3 and recommends approval based on, among other considerations, the sites designations under the WES. Furthermore, it is noted that having regard to the wider policies and objectives of the County Plan, the site is not located in an area where particular constraints apply. I consider the development to be generally in accordance with the plan.
- 10.2.7 It is also envisaged that the project will have a number of economic benefits. It is set out in the EIAR that the project will be capable of providing power to over 66,500 households every year. It will have long term benefits for the local economy including job creation, landowner benefits, commercial rate payment and a Community Benefit

Scheme (up to €4 million over the life of the project). It is envisaged that up to 100 jobs will be created during the construction, operational and maintenance phases of the development as well as many spin off economic benefits. I note that one objector to the proposal considers the economic data presented in the EIAR as out of date. I however, am satisfied that the data presented in the documentation is robust and adequately describes the economic advantages associated with the proposed development.

10.2.8 In conclusion, I am satisfied that the development is acceptable in principle at this location. It is clear that wind energy plays and continues to play an integral role in the national energy policy to realise the change to a low carbon economy. Given the site is located within an area specifically designated for wind energy development and considered a strategically appropriate location for such development, I consider the proposal would be in accordance with national, regional and local objectives for renewable energy.

10.3 **Ornithological Impact**

Introduction

10.3.1 The previous refusal pertaining to the site under Application Reference 07.PA0036 raised particular concerns regarding the potential ornithological impact of the proposed development. It was detailed in the Inspector's Report that the underlying methodology and limited duration of Vantage Point surveys undertaken to support the assessment of such impacts was inadequate. The VP surveys were carried out over a period of one year, a timeframe which was considered substantially less than that recommended in relevant guidance including that published by Scottish Natural Heritage. A two year minimum is generally necessary to allow for variation in bird use between years. There were also particular concerns raised that there was a lack of dedicated surveys of significant waterbodies or potential roosting or feeding sites within or adjacent to the development site necessary to form a robust scientific basis for subsequent analysis.

10.3.2 Chapter 7 of the EIAR addresses Ornithology Impacts and presents the ornithological surveys and results and assesses the likely significant effects that the development may have on birds. It notes that in the absence of National Ornithological Guidance, guidance documents from Scottish National Heritage were

used to inform the assessment including the recent 2017 publication “*Recommended bird survey methods to inform impact assessment of onshore wind farms*”.

Bird Surveys and Species Present at the Site

- 10.3.3 The EIAR sets out the Target Species for Vantage Point (VP) bird surveys in Appendix 7.1. These are the species likely to occur in the zone of influence. The Conservation interests of the Connemara Bog Complex SPA including the Cormorant, Merlin, Golden Plover and Common Gull are considered as Target Species in the assessment. The majority of the species listed as conservation interests of the nearby Lough Corrib SPA are also included.

VP Surveys and Other Surveys Undertaken

- 10.3.4 The primary survey work carried out was the VP surveys undertaken between March 2016 and March 2018. This was supplemented by additional data derived from surveys undertaken on the site between February 2013 and February 2016. The earlier surveys used to supplement that analysis include VP surveys undertaken in 2013/2014 and 2015, breeding season point counts 2013, Merlin surveys 2013 and 2015 and Brown and Shepard Quadrant surveys 2015. As noted above, the SNH 2017 guidance recommends surveys for a minimum of 2 years to allow for variation in bird use between years. I am satisfied that the survey period carried out to inform the current EIAR is, therefore, in accordance with this guidance.
- 10.3.5 The VP surveys were undertaken from 10 fixed vantage points. In terms of watch hours, the SNH guidance recommends a minimum of 72 hours per VP location divided between seasons (36 hours breeding and 36 hours non breeding) per year. It is set out in Table 7.2 of the EIAR that surveys were carried out at both breeding and non breeding seasons for a period of 6 hours at each vantage point per month. Further details of the survey undertaken at each VP is set out in Appendix 7.2 of the EIAR. This includes data regarding dates, times, survey locations, survey duration and weather conditions for each survey.
- 10.3.6 I note concerns were raised in the previous Inspector’s report (07.PA.0036) that there was a lack of survey data for the Autumn migratory period. It was also considered that the total watch time at each VP was deficient and that there were no systematic dawn and dusk surveys. These issues appear to have been addressed in the current application. VP surveys were carried out during the months of August,

September and October over a two year period between 2016 and 2018. Sufficient survey time at each location was provided and it is evident from the raw data set out in Appendix 7.2, that surveys took place at dawn and dusk.

- 10.3.7 With regard to Vantage Point watch selection, the SNH guidance states that the aim should be to cover all of the flight activity survey area such that no point is greater than 2km from a VP. It is recommended scanning an arc of up to 180° from each VP. It is detailed in the EIAR that viewshed analysis was carried out to inform the study of the coverage of the study area. This involved testing each VP location for its visibility coverage by creating a viewshed point 2 metres in height on a map using 10 metre contours terrain data. Using proprietary software, a viewshed of 360 degrees was produced calculating an area 10 metres from ground level up to 2km radius. The resulting viewshed image was then cropped to 180° to give the viewshed from each VP location in line with the guidance. These are indicated in Figures 7.2.1 – 7.2.12 of the EIAR. In accordance with the guidance set out in section 3.8.3 of the SNH guidance, a 500 meter buffer was applied to the outermost turbines of the proposed wind farm development.
- 10.3.8 Concerns were also raised in the previous Inspectors Report that the VP survey was limited to locations within the development site only. The SNH guidance notes that VP's are best located outside the survey area where possible. Whilst I note that some of the VP locations are within the core site boundary (refer to Fig. 7.1 of the EIAR), a number are also located outside the boundary including VP 6A, VP 11, VP 9, VP1A, VP10 and VP8.
- 10.3.9 Having regard to the information set out in the EIAR, I am satisfied that the methodology regarding the viewshed analysis is robust and allows for an assessment of the site regarding overall bird activity and usage based on the vantage points selected. I am also satisfied that the number of points and their locations are appropriate having regard to the guidance set out in the SNH 2017 guidance document.
- 10.3.10 In addition to the VP surveys, a number of other surveys were undertaken to inform the assessment. These include:

Breeding Bird Survey: Quadrant and breeding walkover surveys were conducted to evaluate the use of the study area by breeding birds, including raptors, waterbirds

and ground birds of conservation concern. A total of 4 visits in total per breeding season was undertaken.

Breeding Raptor Survey: Breeding raptor surveys were conducted within the study area and its immediate surrounds on a monthly basis during the core breeding season in 2016 and 2017.

Red Grouse Survey: Red grouse surveys were conducted over 2016 and 2017.

White-tailed Eagle Study: These surveys were carried out during May to August 2016, February to April, June and August 2017 and February 2018.

Hen Harrier Roost Survey: Potential Hen Harrier roost sites within 2km of the study area were undertaken during the winter season between 2016 and 2018.

Woodcock Survey: Breeding season surveys were conducted between May and June 2016.

Winter Transect Survey: These surveys were carried out to determine the presence of bird species of high conservation concern within areas of potential suitable habitat in the survey area. Target species were raptors, waterbirds, gulls and ground birds of conservation interest.

Wetland and Water Bird Counts: Significant wet lands sites (78 in total) within proximity to the study area were surveyed for waterbird populations. The survey area extended 5km outside the site boundary. Monthly counts were undertaken at each target wetland site to cover the winter season between 2016 and 2018. I note that it was a particular concern in the previous assessment under Application Reference 07.PA0036 that there were no surveys of specific waterbodies, roost sites or feeding areas within or adjacent to the development site. This was considered a serious deficiency having regard to the number of water bodies throughout the site and to the potential presence of protected waterfowl. I am satisfied that this issue is addressed in the current application with a comprehensive survey of wetlands sites carried out. The results of this survey are presented in Table 9 of Appendix 7.2 of the EIAR.

10.3.11 In conclusion I am satisfied that sufficient survey work has been undertaken to create baseline of bird distribution and flight activity and the usage of the development site by key bird species. I note no concerns regarding the bird survey

methodology underpinning the survey and analyses undertaken to inform the EIAR has been raised by the Department of Culture, Heritage and the Gaeltacht.

10.3.12 There were significant concerns regarding the previous application (07.PA.0036) on the site that the overall timeframe of 1 year for the assessment of potential impacts on avifauna was insufficient to give a representative and accurate determination of the usage of the study area by key target bird species of conservation interest. The applicant has now provided a comprehensive survey over both the breeding and non breeding seasons for a continuous period of 2 years. This data is supplemented by the earlier survey work undertaken to support the previous application providing a broader picture of bird activity on the site for a 5 year period. In addition, the applicant has surveyed waterbodies within and beyond the site which will assist in identifying any potential flight paths between these water bodies that may be impacted upon by the proposed development. In this regard, I consider that there is sufficient data to carry out an assessment of potential ornithological impacts.

Potential Impacts

10.3.13 Potential impacts of wind farms on birds generally relate to direct habitat loss at construction stage and displacement at operational states. Displacement occurs when birds avoid the wind farms or if foraging routes or roosting ground use are disturbed by a barrier effect. Death to bird species can occur through collision or interaction with turbine blades and other infrastructure.

Potential Impacts on Specific Bird Species

10.3.14 The field survey results between 2016 and 2018 identified a comprehensive list of Target Species recorded within 500 metres of the site boundary. A summary of the survey results and potential impacts on specific individual species of conservation concern recorded are set out below.

Whooper Swan (Amber List)
During the 2016-2018 VP surveys, Whooper Swan were recorded on 4 occasions. The species was also recorded off site, at 20 wetland sites during surveys. The nearest site was located c. 560m from the proposed site. No connectivity between the site and any supporting wetland habitat for this species was recorded.
The recorded evidence does not suggest that the development is located on an

important migratory route for the species. The maximum number recorded during the winter waterfowl counts from the surrounding hinterland was 8 birds. This represents a population of no greater than Local Importance (Higher Value).

This species is not recorded regularly utilising habitat within the site boundary. The majority of observations show that this species generally utilises wetland sites in excess of 2km from the site. Conifer plantations do not provide a suitable habitat to the Whooper Swan and there is no potential for direct habitat loss.

The nearest site which Whooper Swan were recorded is Lough Thulaigh na nUan which is located c. 560km from the windfarm site and is buffered from it by a wide band of mature and semi mature conifer plantations. No evidence suggests the site is on a migratory route for the species. Significant displacement effects are not anticipated.

Although there is no evidence to suggest that the development site is on an important migratory route for the species, the collision risk has been calculated at a ratio of 0.008 collisions per year or one bird every 125 years. No significant effects are anticipated regarding collision risk at any geographical scale.

Greenland White-fronted Goose (Amber List)

During the 2016-2018 surveys the species was recorded on one occasion and involved a flock of 41 birds flying above the potential collision zone.

As this species was only observed commuting over the site on one occasion during the migratory period, there is no evidence to suggest the development site is on an important migratory corridor for the species.

The species is not recorded utilising habitat within the site. Conifer plantation does not provide a suitable habitat to the species and there is no potential for direct habitat loss.

As the species was not recorded utilising habitat within the site boundary or within 5km radius, no potential for displacement exists.

Collision risk is considered zero.

Golden Plover (Red List)

During the VP surveys, Golden Plover were recorded on 5 occasions. None of the

observed flights occurred within the potential collision risk zone. The breeding bird surveys recorded evidence of probable breeding on 1 occasion in May 2016 approximately 500 metres outside the site boundary in an area of suitable breeding habitat. A further single bird alarm calling was observed in April 2017, again 500 metres south of the site. The wetland and waterbird counts noted presence of the species at 6 sites. None of the observations occurred within 2km radius of the windfarm site. No connectivity between the proposed site and any supporting habitat for this species was recorded. There were also a number of incidental observations.

The maximum number of wintering birds recorded during the 2016-2018 survey represents 0.12% of the estimated Galway population and is classified as Local Importance. The probable breeding population is likely to be associated with the population for Connemara Bog Complex SPA and is deemed to be of International Importance.

This species was not recorded utilising habitat within the site boundary for roosting or feeding during either wintering or breeding seasons. Conifer plantation does not provide a suitable habitat to the species. There is no risk for direct habitat loss.

Evidence of probable feeding in areas of suitable breeding habitat was recorded 350m south of the proposed windfarm infrastructure. Given that suitable breeding habitat is located 350m from windfarm infrastructure and buffered by extensive conifer plantations, no significant displacement or reduction in breeding attempts are anticipated.

The species was not recorded flying over the site during the VP surveys in either the wintering or breeding seasons. Collision risk is considered zero.

White –tailed Eagle (Green List)

6 observations of this species were recorded during the VP surveys. All flights within the 500 metre buffer were within the potential collision risk zone. During the specific White-tailed Eagle Survey, a single bird was recorded in May 2016. In March 2017, there were a number of observations of a pair of eagles. A juvenile was also observed. There was one recording of this species during the wetland and waterbird counts at Boliska Lough, 3.7km away from the site. There was also

one incidental observation of the species in 2018.

The White-tailed Eagle is considered of International Importance.

There are no White-tailed Eagle roost sites within the study area. Suitable foraging habitat was recorded outside the development footprint. There is no potential for direct habitat loss.

The species was recorded within the site boundary, however, low levels of activity were recorded. Commercial forestry plantation does not provide optimal habitat for the species. Disturbance during construction or operational phase is unlikely to significantly discourage flight activity in the vicinity of the proposed development. Significant displacement effects are not anticipated.

Flights were recorded at potential collision risk height. The estimated collision risk has been calculated at a ratio of 0.09 collisions per year or one bird every 11 years using a precautionary 95% turbine avoidance rate. No significant effects are anticipated regarding collision risk.

Little Egret (Green List)

An incidental observation of the Little Egret was recorded in August 2016. It was not recorded in any further additional surveys undertaken between 2013 and 2018.

The incidental observation was over 6km from the site. There is no evidence of breeding or roosting activity in the study area and no flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Common Gull (Amber List)

During the recent VP surveys the Common Gull was recorded on 6 occasions. 4 were within the 500 metre buffer zone and were at potential collision risk height. The species was also observed on 4 occasions during breeding walkover surveys in 2016. The Common Gull was recorded on 19 occasions at 8 different waterbodies within 5km radius of the site. There were also 7 incidental observations of this species between 2016 and 2017. The earlier VP surveys recorded 9 occasions.

The probable and possible breeding populations recorded within the site boundary

and 500m buffer zone are likely to be associated with the population for which the Connemara Bog Complex SPA was designated and are deemed to be of International Importance.

The development footprint is dominated by conifer plantation which does not provide suitable habitat to the species. There is no potential for direct habitat loss of breeding habitat.

Suitable breeding habitat was however, recorded within a 500m buffer of the site. This is buffered from the development footprint by existing conifer plantation. Due to distance, disturbance from construction is unlikely to discourage breeding attempts. There is no evidence to suggest that the development site lies on an important migratory route for the species. Significant displacement effects are not anticipated.

Bird were recorded flying over the development site within the potential collision risk zone. The collision risk has been calculated at a ratio of 0.011 collisions per year or one bird every 91 years. No significant effects are anticipated regarding collision risk at any geographical scale.

Cormorant (Amber List)

This species was recorded 98 times during the VP surveys. 47 of the recorded flights inside the turbine buffer were within the potential collision risk height. Individuals were occasionally recorded utilising waterbodies within the study area observed in flight to or from lakes. The species was observed 12 times during the 2017 breeding season. They were also recorded on 97 occasions on 23 wetland sites within a 5km radius of the site boundary. The cormorant was observed at Loch na Nard Doiriu which is less than 500 metres away from the proposed development site. There were 8 incidental observations of the Cormorant. The species was also recorded a number of times during the earlier VP surveys between 2013 and 2015.

The Cormorant is considered to be of Local Importance (Higher Value) in terms of the wintering population.

There was no breeding evidence observed during the surveys. The Connemara Bog Complex SPA is designated for Cormorant based on nationally important

breeding colony located at Lough Scannive, Roundstone Bog. This breeding site is located more than 40km from the site boundary. The maximum foraging range of Cormorant is 35km. Cormorant recorded during the breeding season within the study area are unlikely to be associated with the breeding colony at Roundstone Bog.

The development footprint is dominated by conifer plantation, which does not provide a suitable habitat for the species. There is no potential for direct habitat loss.

Suitable foraging habitat for the species within the site boundary is buffered from the development footprint by existing conifer plantation and scrub. Given that the species is not dependent on the habitats within the study area, no potential for significant displacement effect exists.

The species was recorded flying over the site within the potential collision risk zone. The collision risk has been calculated at a ratio of 0.088 collisions per year or 1 bird every 11.5 years. No significant effects are anticipated at any geographical scale.

Common Tern (Amber List)

Common Tern was only recorded twice during wetland and waterbird counts. No connectivity between the site and any supporting wetland habitat for this species was recorded. There was one incidental observation of the species during 2017.

Recording of the species were some distance from the site (6km). There is no evidence of breeding or roosting activity in the study area. No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Hen Harrier (Amber List)

During the VP surveys Hen Harrier were observed on 20 occasions. 18 of these were observations were more than 500 metres beyond the outermost turbine. Only one flight in December 2016 was recorded at potential collision risk flight. There was no evidence of Hen Harrier roosts recorded within the 2km survey area during the dedicated Hen Harrier roost surveys. The species was observed once during

winter walkover surveys on the site. There were 4 incidental observations. The earlier VP surveys 2013 to 2015 recorded the species on 6 occasions.

Birds recorded during surveys at the site are associated with a population of National/International Importance. No breeding evidence was recorded. Only one observation of Hen Harrier was recorded from the early breeding season in April 2015. The species was not observed in two consecutive years of breeding season surveys in 2016 and 2017. As the study area does not support a breeding population, effects on Hen Harrier are not anticipated.

The species was not recorded utilising habitat within the site boundary for roosting or breeding. The area is dominated by conifer plantation and direct loss of foraging habitat will be insignificant. Substantial areas of undisturbed suitable foraging habitat will remain.

Hen Harrier were recorded during the winter season within the site boundary and 500m buffer. No significant displacement effects are anticipated during the construction phase. During the operational phase, Hen Harrier activity and availability of foraging habitat will be directly correlated to Coillte forestry management. However, it is anticipated that the amount of available habitat will remain relatively constant.

Based on the large potential range utilised by wintering birds, the nature of the habitats within the site boundary, the reported displacement effects in scientific literature and the vast extent of suitable foraging habitat in the wider area, no significant displacement effects to wintering Hen Harrier are anticipated during the operational phase.

One flight was recorded at potential collision risk height. The collision risk has been calculated at a ratio of 0.0001 collisions per year or one bird every 1,000 years. The predicted collision risk is insignificant.

Merlin (Amber List)

One recording during the VP surveys. There was a single observation of the Merlin during the breeding raptor study. This however, was more than 3km from the site. The earlier VP surveys recorded the species twice.

The birds recorded are likely to be associated with the nationally important

population for which the Connemara Bog Complex is designated. The population is classified as National/International Importance. No evidence of breeding was recorded for this species during any of the surveys undertaken.

In terms of habitat loss, the species was not recorded utilising habitat within the site boundary for roosting or breeding. The area is dominated by conifer plantation and direct loss of potential foraging habitat will be minimal.

The species was recorded within the site boundary, however, no breeding or roosting sites were recorded. Disturbance during the construction and operational phase are unlikely given the low levels of activity recorded. Displacement effects are not anticipated.

The species was not recorded within the potential collision risk zone. Collision risk is deemed to be zero.

Red Grouse (Red List)

Red Grouse were observed on 5 occasions during the VP surveys. One of these was a recorded flight within a 500m buffer of the outermost turbines. A flight outside the 500m buffer was also recorded. The species was recorded on 3 occasions during breeding bird surveys. No grouse were recorded during the dedicated grouse surveys. There were 12 incidental records of the species between 2016 and 2018. There were further observations of the species during the earlier surveys carried out between 2013 and 2015.

The resident population is considered of Local Importance (Higher Value).

The development footprint is dominated by conifer which does not provide a suitable habitat to the species. Therefore, there is no potential for direct habitat loss.

Disturbance during the construction and operational phase are unlikely to discourage foraging or breeding attempts as the areas of suitable habitat were recorded more than 350m from the development footprint and buffered from it by extensive bands of forestry plantations. Significant displacement effects are not anticipated.

No flights were recorded within the potential collision risk zone. Collision risk is

considered zero.

Woodcock (Amber List)

During the VP surveys, 4 flights were recorded, 2 of which were within a 500m buffer of the outermost turbines, while the other two were more than 500m away. No flights were within the potential collision risk zone. The species was not recorded during any of the dedicated surveys. The species was recorded twice during walkover surveys and there were also 2 incidental observations. The earlier VP surveys recorded Woodcock twice.

The wintering population is considered to be of Local Importance (Higher Value). Possible breeding was recorded outside the 500m buffer zone. The local population is considered to be Local Importance (Higher Value).

Direct loss of habitat will be minimal. Significant areas of forestry with potential roosting sites will remain within the site and surrounding area.

It is considered that some temporary displacement may occur during the construction phase. However, given the extent of suitable habitat in the wider area and the nocturnal habitat of the species, significant displacement is unlikely to occur. During the operational phase, the site is not considered of significance to breeding Woodstock. There are extensive areas of suitable habitat in the wider area.

The species was not recorded flying within the potential collision risk zone. No significant collision risk exists for this species.

Black-headed Gull (Red List)

One observation of the species during the breeding bird surveys. The species was recorded at 5 wetland sites, none of which were within a 2km radius of the site. No connectivity between the site and any supporting wetland habitat for this species was recorded. There were also 3 incidental observations between 2016 and 2018.

Observations of this species were far removed from the development site. No evidence of breeding or roosting activity were recorded. No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Herring Gull (Red List)

The species was recorded twice during the VP surveys. There was one observation during the breeding bird surveys. Herring Gull was recorded at 2 wetland sites during the surveys, both of which are over 3.7km away from the proposed windfarm site. There were also 2 incidental observations between 2016 and 2018.

No evidence of breeding or roosting activity were recorded within the study area.

No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Lapwing (Red List)

Lapwing were recorded off site, at Ross Lake, over 4km from the proposed windfarm site on 3 occasions. No connectivity between the site and any supporting habitat for this species was recorded. There were 2 incidental observations.

No evidence of breeding or roosting activity were recorded within the study area.

No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Goldeneye (Amber List)

This species was observed only once (6km away) during all surveys between 2013 and 2018.

No evidence of breeding or roosting activity were recorded within the study area.

No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Wigeon

Wigeon were recorded offsite at 4 wetland sites, none of which were within a 2km radius of the site. No connectivity between the site and any supporting habitat for this species was recorded. There was one incidental observation of the Wigeon.

No evidence of breeding or roosting activity were recorded within the study area.

No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Common Scoter (Red List)

1 incidental observation during 2016 in excess of 6km from the site.

No evidence of breeding or roosting activity were recorded within the study area.

No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Tufted Duck (Amber List)

Tufted duck were recorded once during a breeding walkover survey in 2017 over 6km away. There were 2 incidental observations of the species.

No evidence of breeding or roosting activity were recorded within the study area.

No flights were recorded within the potential collision risk zone.

No effects on this species are anticipated.

Kestrel (Amber List)

The Kestrel was observed 194 times during the VP surveys, 159 of which were within the 500m buffer of the outermost turbines. 109 of the flights recorded within the turbine buffer were recorded flying within the potential collision risk height. The species was recorded 26 times during breeding bird surveys in 2016. All of the observed possible and probable breeding territories are more than 400 metres away from the wind farm site and are buffered by areas of conifer plantations. There were 48 observations of the species during the breeding raptor survey in 2016 and 13 observations during 2017. They were observed on 5 occasions during winter walkovers and on 6 occasions during wetland and waterbird surveys. There were a further 29 incidental observations during other surveys. During the earlier VP surveys the Kestrel was observed 114 times.

The population is considered to be of Local Importance (Higher Value).

During the construction phase the felling of forestry may temporarily reduce the distribution and availability of trees of sufficient stature to provide potential nest sites. However, significant areas of forestry suitable for breeding will remain.

The species was recorded within the site boundary. Disturbance during the

construction and operational phase is unlikely to discourage flight activity, foraging or breeding attempts. Previous analyses for raptors have generally found only low levels of turbine avoidance. Significant displacement effects are not anticipated.

The species was recorded flying over the site within the potential collision risk zone. Collision risk has been calculated at a ratio of 0.492 collision per year or one bird every 2 years. No significant effects are anticipated regarding collision risk.

Sparrowhawk (Green List)

79 observations during VP surveys, 60 of which were flights recorded within 500m of the outermost turbines. 6 of the flights within the turbine buffer were recorded within the potential collision risk height. 6 observations during breeding walkover surveys. There were 4 observations during the breeding raptor surveys undertaken in 2016 and 2017. There were 2 observations during winter walkover surveys and 6 incidental observations during other surveys. The earlier VP surveys undertaken between 2013 and 2015 noted 42 observations.

The population is considered to be of Local Importance (Higher Value).

The proposed site is dominated by commercial forestry which does not provide optimal habitat for the species. Direct loss of breeding and foraging habitat will be minimal. Substantial areas of undisturbed suitable foraging habitat will remain.

The species was recorded within the site boundary. Disturbance during construction and operation phases is unlikely to discourage flight activity, foraging or breeding attempts. The species is expected to habituate to the operation of the windfarm development. Significant displacement effects are not anticipated.

The species was recorded flying over the site within the potential collision risk zone. The collision risk has been calculated at a ratio of 0.021 collision per year or one bird every 48 years which is considered insignificant and no significant effects are anticipated.

Buzzard (Green List)

The Buzzard was observed 5 times during the VP surveys.

No evidence of breeding activity on or near the site.

No effects on this species are anticipated.

Meadow Pipit (Red List) and Grey Wagtail (Green List)

Both bird species were recorded during breeding bird surveys undertaken in 2016 and 2017.

Both are considered to be Local Importance (Higher Value).

Significant effects are not anticipated given the nature of the habitats with the development footprint and the assemblage of bird species recorded. Both species are passerine species which are generally not affected by wind farms.

Cumulative Impact

10.3.15 Cumulative impacts of the development with other permitted and constructed windfarms is considered in section 7.9 of the EIAR. Taking into consideration the reported residual effects from other plans and projects in the area and the predicted effects of the proposed development, no residual additive, antagonistic or synergistic effects were identified with regard to habitat loss, displacement or collision mortality.

Mitigation Measures

10.3.16 Section 7.6 of the EIAR sets out a number of mitigation measures. These include mitigation by design measures such as ensuring that the development avoids wildlife refuge sites and that the hard standing areas have been designed to the minimum size necessary to minimise habitat loss. A number of specific construction phase mitigation measures are also proposed. These relate to issues such as noise control measures and seasonal restrictions. It is also proposed to appoint an Ecological Clerk of Works to manage certain aspects, particularly during the construction phase.

10.3.17 A detailed post construction bird monitoring programme is included in the EIAR (Appendix 7.8) which includes a programme of works to monitor parameters associated with collision, displacement/barrier effects and habituation during the lifetime of the project.

10.3.18 The proposed mitigation measures and operational monitoring programme are generally considered acceptable.

Conclusion

- 10.3.19 In conclusion, it is apparent that there will be no significant ornithological impacts arising from the development due to direct habitat loss or displacement during the construction or operational phases of the development. The collision risk calculations undertaken do not indicate that the development will have any significant effect. As noted above, the survey methodology underpinning the analysis is considered robust and generally in accordance with the SNH 2017 guidance.
- 10.3.20 I note concerns were previously raised under application 07.PA0036 regarding the lack of collision risk modelling for the Golden Plover, Greenland White-fronted Goose, Whooper Swan and White-tailed Eagle. The more comprehensive survey work undertaken for the current application has enabled the more detailed assessment of the presence of these species and collision risk modelling has now been carried out where relevant. The methodology for the collision risk assessment is set out in Appendix 7.6. Concerns were also raised in the earlier application that a number of species that would be expected to be present in the study area were not surveyed due to the limited survey period. The more detailed surveys now undertaken to inform the current application over a 2 year period identify that a number of these species are in fact present on the site or in its vicinity. Surveys of significant waterbodies in the vicinity of the site has been undertaken and flight paths have been identified where relevant.
- 10.3.21 The EIAR provides a more detailed assessment on each species in terms of the potential impacts during the construction, operational and decommissioning phases with regard to habitat loss, displacement and collision risk. I am satisfied in this regard that the assessment is comprehensive and impacts to all relevant species has been satisfactory assessed and that the development will not give rise to any significant adverse ornithological impacts.

10.4 Bats Impact

Introduction

- 10.4.1 Concerns were raised in the previous Inspector's Report under 07.PA0036 regarding potential impacts on bat species. It was considered that the bat surveys presented in the EIS (as then submitted) did not represent a comprehensive and robust evaluation of the usage by bats of the development site due to the short time scale of

surveys. Specific reference was made to the Bat Conservation Ireland document '*Wind Turbine/Wind Farm Development Bat Survey Guidelines*' (December 2012) which recommends a 'four season approach' to allow for the consideration of all aspects of the yearly life cycle of bats and their associated movements, including the confirmation of potential hibernation sites, where these are present in the locality, to be made during the winter months. The guidance recommends that bat surveys should be carried out over a minimum of 5 months from March/April to October/November inclusive.

- 10.4.2 Further guidance on bat surveys on the context of wind energy developments is provided in the SNH document '*Bats and Onshore Wind Turbines Survey, Assessment and Mitigation*' published in January 2019. It notes that the main information required from surveys is the species assemblage, the location of roosts and swarming sites and the location and extent of commuting or foraging habitat used by bats. The guidelines note that multiple nights of surveying are required to determine accurately species presence and distribution within a site and that surveys should take place over a full season of bat activity.
- 10.4.3 The Board should be aware that the bat surveys undertaken to support the assessment in the EIAR were carried out prior to the publication of these January 2019 guidelines. In the applicant's response to submission received (19.03.2019), section 3.9 notes that the survey methodology utilised was reviewed in light of the new guidelines and far exceeds the new recommendations in relation to manual surveys, roost surveys and surveys as height. It is apparent however, that the static detector surveys undertaken do not fully follow the new guidance. The response notes however, that irrespective of the results of any additional static detector monitoring, the key mitigation measures proposed for the wind farm will not alter and the key mitigation will be in accordance with the new guidance i.e. maintaining a 50m distance between the blade and the forest edge. The new guidance recommends the same set back between the forest edge and the blade as included in the BCI guidance and as is included in the Ardderroo EIAR. The response notes that the bat surveying carried out and methodologies adopted are comprehensive in nature and scope and the survey effort employed exceeds the requirements of the relevant guidelines that are recognised in Ireland. I consider this response reasonable.

Bat Surveys

- 10.4.4 Information regarding the bat surveys undertaken to inform the current application is set out in section 6.2.4.4.2 and Appendix 6.2 of the EIAR. It notes that surveys were previously undertaken at the site between April and September 2013 and in August 2014. It states that there was a substantial widening of the scope and duration of the bat surveys and a four season approach was adopted to assess seasonal variation in habitat use. A combination of manual activity surveys, fixed point activity surveys and roost surveys were carried out over 2016 and 2017. It is detailed that the surveys undertaken provide a full impact assessment using spatial and temporal bat activity data and roost surveys over multiple years.
- 10.4.5 It is noted that the landscape surrounding the site contains a range of habitats suitable for most bat species. The surveys identify that overall activity levels for Soprano Pipistrelle, Unidentified Pipistrelle and Myotis sp. were moderate. Activity levels for Common Pipistrelle, Leisler's Bat, Brown Long Eared Bat and Lesser Horseshoe Bat were assessed as Low. A single Nathusius Pipistrelle was recorded indicating that the presence of this species within the site is rare. Activity levels were greatest in late summer.
- 10.4.6 In terms of roosts, trees within the study area were considered not of sufficient size or age to contain potential roost features and are considered of Low suitability value. The main house and surrounding sheds at Letter Lodge showed Moderate roosting potential. Other structures in the Study Area were assigned Negligible or Low Potential Habitat assessments and roost surveys did not find any suitable sites for maternity colonies, swarming activity or hibernation within the Study Area.

Potential Impacts

- 10.4.7 Overall the level of bat activity at the Ardderroo site is low to moderate with the majority of the bat activity occurring along the edges of forestry. There will be no net loss of bat foraging/roosting habitat associated with the proposed wind farm development including the grid connection and transport route.
- 10.4.8 No sites suitable for maternity colonies, swarming or hibernation were identified. The bat roost at Letter Lodge outhouse will be retained. The development has been designed to retain linear landscape connectivity and maintain connectivity to this roost.

- 10.4.9 There is potential for bats to be disturbed during the construction phase and by the noise of turbines during the operational phase. However, the application site is not utilised by large populations of bat species and activity levels are Low to Moderate. In this regard displacement is considered unlikely.
- 10.4.10 In terms of potential mortality impacts, only the bat roost at Letter Lodge was identified as a roost location. This will be retained as part of the development proposal. During the operational phase, death may occur through collision with turbine blades or as a result of barotrauma.
- 10.4.11 Activity levels for species at high to medium risk of collision is assessed as low (Leisler's Bat, Nathusius Pipistrelle and Common Pipistrelle). Activity levels for Soprano Pipistrelle and Unidentified Pipistrelle, species at medium risk of collision, is assessed as moderate. In addition, bat activity at height was significantly less than at ground level. Provided there is no significant change in activity as a result of the development, significant negative effects are not predicted. Post construction activity monitoring and fatality searches will be undertaken to monitor any changes. No significant negative impacts during the decommissioning phase are identified. Significant residual impacts on bats are not anticipated.
- 10.4.12 It is noted that the submission by the Department states that changes in bat activity and usage recorded at the bat roost at letter Lodge are not considered in terms of any changes in levels of disturbance, including construction activity and forest management in the area. This matter is addressed in the applicant's response to submission to the Board on the 19th of March 2019.
- 10.4.13 As noted, the outhouse at Letter Lodge is identified as a night roost for the Lesser Horseshoe Bat species. There is no evidence of it being used as a day roost or by a high number of bats. It is considered that the development is unlikely to have any significant effect on the roost and that the building itself will be retained. No works are proposed in the vicinity of the building and there will be no road widening, no loss of linear features or woodland habitats in the vicinity of the roost. As highlighted by the applicants, construction traffic associated with the development will be primarily during daytime hours and construction activity will be temporary. Following the construction phase of the development, the level of activity on the road will revert to the baseline low level associated with forestry, private landowners access and wind

farm maintenance. In this context, I am satisfied that the development is unlikely to have any adverse impacts on the Lesser Horseshoe Bats present at Letter Lodge.

Mitigation Measures

- 10.4.14 A number of mitigation measures are set out including buffer distances; habitat management; noise restrictions; lighting restrictions, particularly at Letter Lodge and post construction monitoring and fatality searches during the operational phase for a period of 3 years. The aim of these surveys will be to assess any changes in bat activity and habitat use on site, monitor the effectiveness of prescribed buffer distances and provide context to fatality search results. Results of post construction monitoring will be reported to relevant bodies including the NPWS.

Conclusion

- 10.4.15 In conclusion, I am satisfied that the detailed bat surveys undertaken by the applicant over a period of 4 years provide a comprehensive and robust evaluation of the usage by bats of the development site. No objections to the methodology utilised by the applicants in carrying out the bat surveys has been raised by the Department of Culture, Heritage and the Gaeltacht. I note that Letter Lodge which has been identified as a roost location will be retained as part of the development. I am satisfied that given the low levels of bat activity that significant adverse impacts are unlikely to arise. The mitigation measures set out are appropriate and post construction monitoring in line with best practice.

10.5 Procedural

- 10.5.1 A number of objections are raised by one observer to various procedural aspects regarding the proposed development. It is stated that as the general public is unaware of the Competent Authority's conclusions, and the reasons for these conclusions relating to the EIA and AA assessment processes pertaining to this development, consent may not be granted in compliance with the relevant legislation.
- 10.5.2 As noted by the applicant, An Bord Pleanála as the Competent Authority must undertake an investigation and Environmental Impact Assessment of the environmental factors of the development proposed and a reasoned conclusion must be arrived out. The Board is also obliged to carry out an Appropriate Assessment as part of the decision making process. There is no obligation for the Board to make the

findings of the EIA and AA known publicly prior to making the final decision on the application. The final decision of the Board includes the conclusions of the EIA process including the reasoned conclusion and the Appropriate Assessment. The Board takes full account of third party submissions and observations on reaching the final decision.

- 10.5.3 Concerns are also raised by one party that the NIS submitted by the developer appears to be an environmental assessment carried out under the EIA Directive (2011/92/EU) and not under the Habitats Directive (92/43/EEC). It is stated that the NIS refers to and/or simply restates the assessment in the EIAR and the assessment under the Habitats Directive has not actually taken place.
- 10.5.4 These comments are noted and the Board should be aware that a revised NIS was submitted by the applicant. This was advertised and all parties notified of the revised NIS. It is considered that the revised NIS is adequate and includes a specific targeted assessment of the site specific conservation objectives including conservation targets and attributes for each of the relevant Qualifying interests and Special Conservation Interests of the Natura 2000 sites.

11.0 Environmental Impact Assessment

11.1 Introduction

11.1.1 This section sets out an environmental impact assessment (EIA) of the proposed project. The subject application comprises 25 no. wind turbines, 1 permanent meteorological mast, a 110kV electrical substation, underground cabling, new access roads and all associated development works. Under Section 172 of the Planning and Development Act 2000, as amended, a planning application which comes within a class of development specified under Schedule 2 of Part 5 of the Planning and Development Regulations 2001, as amended, requires that an Environmental Impact Assessment is carried out for the project type proposed. The relevant class of development is item 3 (i) of the Schedule relating to *“installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts”*. The proposed development exceeds 5 turbines and 5 Megawatts in scale and, therefore, is subject to EIA.

11.1.2 This application was received by the Board on the 23rd of November 2018 and, therefore, having regard to the provisions of Circular Letter PL1/2017, the subject application falls within the scope of the amending 2014 EIA Directive (Directive 2014/52/EU) on the basis that the application was lodged after the last date for transposition in May 2017. The application also falls within the scope of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, as the application was lodged after these regulations coming into effect on the 1st of September 2018.

11.1.3 I have carried out an examination of the information presented by the applicant, including the EIAR, and the submissions made during the course of the application. A summary of the results of the submissions made by the Planning Authority, prescribed bodies and observers, has been set out at Sections 6, 7 and 8 of this report. The main issues raised specific to EIA can be summarised as follows:

- Impacts to biodiversity including ornithology and bats.
- Impacts to water quality.
- Peatland impacts including peat stability assessment.

- Impacts to human beings having regard to noise and shadow flicker.
- Landscape and visual impact arising from the proposed turbines.

These issues are addressed below under the relevant headings, and as appropriate in the reasoned conclusion and recommendation including conditions.

11.1.4 I am satisfied that the EIAR has been prepared by competent experts to ensure its completeness and quality. I note the qualifications and expertise demonstrated by the experts involved in the preparation of the EIAR which are set out in detail in section 1.10.2 of the EIAR. The information contained in the EIAR and supplementary information provided by the developer, adequately identifies and describes the direct, indirect effects and cumulative effects of the proposed development on the environment, and complies with Article 94 of the Planning and Development Regulations 2000, as amended.

11.2 **Content and Structure of EIAR**

11.2.1 The EIAR consists of four volumes, grouped as follows:

- Volume 1: EIAR Non Technical Summary and Environmental Impact Assessment Report
- Volume 2: Photomontage Layouts
- Volume 3a: Appendices 2.1 to 6.3
- Volume 3b: Appendices 7.1 to 14.3

11.2.2 In total, the main EIAR includes 15 chapters. Chapters 1 to 4 provide an introduction to the project, background to the proposed development, site selection and alternatives and description of the proposed development. Chapter 5 addresses population and human health. Chapters 6 and 7 address biodiversity and ornithology. Chapters 8 and 9 address land, soils and geology. Chapters 10, 11 and 12 address water, air and climate and noise and vibration. Chapter 13 addresses landscape and visual impact and Chapters 14 and 15 relate to material assets and interactions. A Non-Technical Summary (NTS) is also provided. I am satisfied that the NTS is concise and comprehensive and written in a language that can be easily understood by a lay member of the public.

- 11.2.3 The EIAR provides a description of the project comprising information on the site, design, size and other relevant features of the project. The EIAR identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of the project on these factors. It provides an adequate description of forecasting methods and evidence used to identify and assess the significant effects on the environment. It also provides a description of measures envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment. No specific difficulties are stated to have been encountered in compiling the required information. No likely significant adverse impacts were identified in the EIAR.
- 11.2.4 Details of the consultation entered into by the applicant as part of the preparation of the application and EIAR are set out in Chapter 2 and are considered adequate. I am satisfied that the participation of the public has been effective and the application has been made accessible to the public by electronic and hard copy means with adequate timelines afforded for submissions.
- 11.2.5 Regarding the comprehensiveness of the submitted EIAR and the extent to which it takes into account the impacts on the environment likely to arise on foot of the cumulative impact of the proposed windfarm in combination with other projects and activities in the area, I note that this issue is comprehensively addressed in the EIAR. Section 2.6 of the EIAR sets out the methodology for the cumulative assessment and details all other projects considered in the cumulative assessment including all other permitted wind farm developments in the vicinity.
- 11.2.6 The requirements of Article 3(2) of the Directive include the expected effect deriving from the vulnerability of the project to risks of major accidents and/or disaster that are relevant to the project concerned. The EIAR addresses this issue in section 5.5.5. It notes that there is limited potential for significant natural disasters to occur at the proposed wind farm site. Potential natural disasters that may occur are flooding and fire. The risk of significant fire affecting the wind farm and causing the wind farm to have significant environmental effects is limited. In terms of potential flooding, all proposed turbine locations, substation, construction compounds, mast, borrow pits and access roads are outside the fluvial indicative 100 year flood zone.
- 11.2.7 There are no significant sources of pollution in the wind farm with the potential to cause environmental or health effects. The wind farm site is not regulated or

connected to or close to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e. SEVESO and so there is no potential effects from this source. It is considered that having regard to the nature and scale of the development itself, it is unlikely that any major accident will arise. There are unlikely to be any effects deriving from major accidents and or disasters and I am satisfied that this issue has been addressed satisfactorily in the EIAR.

11.2.8 I note that some concerns were raised by the Department of Culture, Heritage and the Gealtacht regarding the project description set out in the EIAR, particularly in relation to the details of bridges, watercourse crossings, road types etc. Concerns were also raised that no mapping of areas of planned clearfell, burned areas of plantation and areas of each habitat within the development footprint were provided. The applicant has provided further clarity on these aspects of the project description in their response to the Board submitted on the 19th of March 2019. In this regard, I am satisfied that the description of the proposed project is adequately set out in the application documentation and EIAR.

11.2.9 In conclusion, I am satisfied that the information provided is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effect of the project on the environment, taking into account current knowledge and methods of assessment.

11.3 **Alternatives**

11.3.1 Article 5 (1) (d) of the 2014 EIA Directive requires:

“(d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;”

11.3.2 Annex (iv) (Information for the EIAR) provides more detail on ‘reasonable alternatives’:

“2. A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for electing the chosen option, including a comparison of the environmental effects.”

- 11.3.3 The matter of alternatives is addressed in Chapter 4 of the EIAR 'Site Selection and Alternatives'. The subject site emerged as the optimum to accommodate the development following a strategic site election process. The Ardderroo site was identified as 1 of 7 sites that would be capable of accommodating a significant amount of the remaining and unallocated Gate 3 grid connection capacity whilst also being consistent with the policies and objectives of the County Wind Energy Strategy (WES). In considering the optimal location, planning and policy considerations included site location relative to the WES classification of areas suitable for wind farm development, access to the national grid, areas designated for protection of ecology/habitats, sufficient area of unconstrained land, high wind speed and low population density. The subject site was considered to have the least impact of the 7 sites in terms of the environment, human beings and landscape. Its location is also appropriate in the context of the WES designations, proximity to grid infrastructure, lack of other physical constraints and wind speeds. A summary of the alternative site analysis is set out in Table 3.4.
- 11.3.4 I note that the previous Inspector's Report regarding Appeal Reference PA0036 was satisfied that the final site selection process followed a comprehensive and transparent process which involved consultation with relevant stakeholders, prescribed bodies and potentially affected landholders. It was noted that a rigorous analysis of the options available had been carried and included an appropriate analysis of alternatives. I note that since this decision there has been no material change in the policy context and in this context, I am satisfied that the process of site selection is robust.
- 11.3.5 Following the strategic site assessment a detailed design and constraints assessment was undertaken to obtain the optimum layout of the turbines from a planning and environmental perspective. It is detailed in the EIAR that the layout of the development has been refined and designed to that previously proposed under PA0036 having regard to site investigations carried out and public consultation feedback. The number of turbines proposed has been reduced from 29 to 25 to take account of the physical constraints of the site and the requirement for buffer zones and other areas in which no turbines could be located. Alternatives considered were number and model of turbine and turbine layout.

- 11.3.6 The EIAR also considers alternative options for the road layout and the location of ancillary works including the construction compounds, meteorological mast, electricity substation, cabling and borrow pits. Alternative turbine transport routes and site access options are also presented. The Do Nothing Alternative is also considered.
- 11.3.7 Having regard to the above, I am satisfied that the matter of the examination of alternatives has been satisfactorily addressed.

11.4 **Likely Direct/Indirect Significant Effects**

- 11.4.1 I have carried out an examination of the EIAR and other relevant information presented by the applicant. In carrying out the EIA, this section should be read in conjunction with the preceding sections of my assessment, particularly Section 10.3 and 10.4 and the following section (section 12) on Appropriate Assessment.
- 11.4.2 In my assessment below, I consider the direct and indirect significant effects of the development against the factors set out under Article 3 (1) of the EIA Directive 2014/52/EU which include:
- (a) Population and human health.
 - (b) Biodiversity with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC.
 - (c) Land, soil, water, air and climate.
 - (d) Material assets, cultural heritage and landscape.
 - (e) The interaction between the factors referred to in points (a) to (d).

11.5 **Population and Human Health**

Introduction

- 11.5.1 Population and human health are dealt with predominantly under Chapter 5 of the submitted EIAR. I note that a number of concerns have been raised by some of the observers regarding potential negative impacts of the development to human health, particularly in relation to noise, shadow flicker and property devaluation. This section of the EIAR considers impacts on factors including population, employment, economic activity, land use, residential amenity, tourism, health and safety, electromagnetic interference and shadow/flicker. The potential effects on humans

with respect to air quality, noise, traffic and visual impact are addressed in the relevant sections below and are referred to herein where appropriate.

Population

- 11.5.2 The area around the site is remote, sparsely populated and has a very low population density. Some concerns have been raised that the development will result in depopulation. Within 2km of the proposed turbine locations, the population density is 0.4 persons per square kilometre. The closest inhabited dwelling is located within 1km of the nearest proposed turbine. There are only 7 dwellings within 2km of the turbine locations. The nearest settlement to the proposed development site is Rosscahill, located on the N59 between Moycullen and Oughterard. The nearest school is located c. 3km to the east of the site. The proposed location of the wind farm complies with the requirements of the Galway County Wind Energy Strategy with respect to low population requirements. It is not envisaged the construction or operational stages of the project will result in any material changes to population trends or density and there is no evidence to suggest that it will lead to depopulation.

Employment and Economic Activity

- 11.5.3 Windfarms by their nature have both economic and social impacts on an area. The construction and operational phases will provide employment. The EIAR cites a number of reports including the recently published report by Siemens entitled “*As Enterprising Wind - A Economic Analysis of the Job Creation Potential of the Wind Energy Sector in Ireland*” which sets out the economic benefits derived from wind farm developments. It is envisaged that during the construction phase of the project over 100 people will be employed. There will be spin off benefits to the local economy and thus it is envisaged the project will have positive direct and indirect economic impacts. Maintenance staff will be employed during the operational phase which will be a long term significant positive impact. The development will also result in a rates payment of €750,000 per annum.
- 11.5.4 A Community Benefit Package is being proposed as part of the project in the range of up to €4 million over the lifetime of the scheme. The number and size of grant allocations will be decided by a Community Fund Liaison Committee and various groups and projects will benefit from it. It is stated in the EIAR that the role of

community benefit has significant positive socio economic impacts within local communities.

- 11.5.5 The proposed development would offer significant benefits in terms of renewable energy production and reductions in greenhouse gas emissions during its operational phase. This will be a long term significant positive impact.

Tourism and Recreation

- 11.5.6 There are currently no tourist attractions in the vicinity of the site except for the disused 'Sli Chonamara marked walking route. The EIAR refers to the BiGGAR Economic Study in 2016 – "*Wind Farms and Tourism in Scotland*" which assessed the relationship between the development of onshore wind energy and the sustainable tourism sector in Scotland. The report concluded that the development of on shore wind energy does not have a detrimental impact on the tourism sector. The EIAR also refers to Failte Ireland Surveys 2007 and 2012, the most recent of which noted that of 1,000 tourists surveyed, only 21% claimed wind turbines had a negative impact on the landscape. 32% said it enhanced the surrounding landscape and 47% said it made no difference.
- 11.5.7 The development proposes the creation of recreation and amenity walks as a community gain. This would involve upgrading the existing tracks within the site and creating new walkways as marked trails with associated signage. These trails will have a positive impact on the tourism and recreation amenities of the area.

Human Health and Safety

- 11.5.8 A number of health impact studies are referred to in the EIAR which conclude that there is no evidence of any direct link between wind turbines and human health. This includes the recent HSE Public Health Medicine Environment and Health Group whose "*Position Paper on Wind Turbines and Public Health*" published in February 2017 concludes that current scientific evidence on adverse impacts of wind farms on health is weak or absent.
- 11.5.9 I am satisfied the wind turbines themselves pose no threat to the health and safety of the general public. The turbines will be fitted with anti-vibration sensors to deal with any imbalance caused by icing of the blades and will also incorporate lightning protection conduits.

Electromagnetic Interference

- 11.5.10 Wind turbines have the potential to interfere with broadcast signals by acting as a physical barrier or causing a degree of scattering to microwave signals. As part of the EIAR process, consultation with national and regional broadcasters and fixed and mobile phone operators was carried out. Following responses, appropriate exclusions zones were incorporated into the design of the windfarm.
- 11.5.11 The extremely low frequency electric and magnetic fields associated with the operation of the proposed cables fully comply with the international guidelines for ELF – EMF set by the International Commission on Non-Ionizing Radiation Protection as well as the EU guidelines for human exposure.

Property Values and Land Use

- 11.5.12 The EIAR refers to the largest study of the impact on wind farms on property values carried out to date “*The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi Site Hedonic Analysis*” published in 2009 by the Lawrence Berkley National Laboratory for the US Department of Energy. It is stated that the study found no evidence that home prices surrounding wind facilities are consistently, measureable and significantly affected by either the view of wind facilities or the distance of the home to those facilities. An update of the study carried out in 2013 concluded that there was no statistical evidence that home prices near wind turbines were affected in either the post construction or post announcement/pre construction period. A further report published in October 2016 – “*Impact of Wind Turbines on House Prices in Scotland*” by Climate Exchange also found no evidence of a consistent negative effect on house prices. Whilst the concerns of some of the observers are noted, no empirical evidence has been submitted to demonstrate that the development will have an adverse impact on property values. Having regard to the lack of residential development in the vicinity of the turbines, I am satisfied no adverse impacts in this regard are likely to arise.
- 11.5.13 In terms of land use, the development will have no impact on land uses within the area. The footprint of the proposed development site, including turbines, road etc. will occupy only a small percentage of the study area. The main land use of forestry on the site will continue to co-exist with the proposed wind farm.

Residential Amenity

- 11.5.14 The proposed wind farm site is predominantly located on a site used for commercial forestry. There is only 1 property located within 1.5km of a proposed turbine location. Whilst I note the concerns of the resident of this property regarding the impact of the development on their residential amenity, this dwelling is already located within the recently constructed Uggool Wind Farm. Any impacts to the residential amenity of this dwelling arising from the proposed development are, therefore, likely to be minimal.
- 11.5.15 The EIAR acknowledges that there will be an increase in noise and dust levels in the vicinity of the proposed site during the construction phase. These can be addressed through appropriate mitigation. During the operational phase, the noise environment will remain relatively unchanged as turbine noise from the existing Uggool development is already contributing to the ambient noise levels.
- 11.5.16 The construction phase of the proposed development will last c. 18 months. Construction materials and turbines will be delivered to the site from Galway City and will utilise the Doon Road (L53453). Impacts on the road network are predicted to be short term and temporary.

Shadow Flicker

- 11.5.17 The Wind Energy Development Guidelines note that shadow flicker effects last for a short period and happen only in certain combined circumstances i.e. when the sun is shining and is at a low angle (after dawn and before sunset), the turbine is directly between the sun and the affected property and there is enough wind energy to ensure the turbine blades are moving. The guidelines recommend that shadow flicker at neighbouring dwellings within 500m should not exceed 30 hours per year or 30 minutes per day. It is detailed in the EIAR that this standard has been applied to all properties located within ten rotor diameters (1.5km) of the proposed turbine locations. The Target Review document relating to the guidelines states that a condition should be attached to all planning permission for wind farms to ensure that there will be no shadow flicker at any existing dwelling or other existing affected property and where such shadow flicker does occur, than turbine shut down will occur to eliminate the impact.

- 11.5.18 The EIAR uses specialist computer software programme to assess shadow flicker impacts associated with the turbines. The assessment also considered the cumulative impact with other wind farm developments in the vicinity of the site.
- 11.5.19 The assessment identifies that there is only one property located within the 1.5km radius of the proposed turbine locations. The shadow flicker assessment results are set out in section 5.8.6. This notes that the subject dwelling (H1) may experience daily shadow flicker in excess of the recommend threshold on 50 days during the year as a result of the development. In terms of annual shadow flicker at this property, the EIAR details that when the regional sunshine average of 25% is taken into account, the predicted annual shadow flicker is significantly lower than the total annual guideline limit. The EIAR considers cumulative shadow flicker and includes the operational Uggool wind farm. It is identified that House 1 will exceed the daily limit but does not exceed the annual limit when cumulative impacts are evaluated.
- 11.5.20 The EIAR sets out a mitigation strategy to control the level of daily shadow flicker experienced at the affected dwelling. Whilst the concerns of the resident of this property and others in the vicinity are noted regarding shadow flicker impacts, based on the measures outlined, I am satisfied that shadow flicker will not result in an unacceptable negative effect to this residence or any other property. The issue can be adequately addressed by way of condition.

Features and measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment

- A Site Specific Emergency Response Plan will be developed prior to the construction of the facility and will include details on the response required and the responsibilities of all personnel in the event of an emergency.
- During construction, all staff will be made aware of and adhere to the Health and Safety Authority's Guidelines "*Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction)*" Regulations 2006.
- Stock Proof fencing will be erected around borrow pits.
- Best practice measures for noise control, reduction of dust impacts and construction traffic management.

- Measures to limit the incidence and duration of shadow flicker at the affected property including a screening assessment and turbine control systems.

Residual Impacts

11.5.21 The EIAR identifies that during the construction phase there will be a short term slight negative impact to health and safety, traffic and residential amenity and short term imperceptible negative impact from noise. During the operational phase, there will be a long term, imperceptible impact from shadow and flicker.

Conclusion

11.5.22 I have considered all of the written submissions made in relation to population and human health, in addition to those specifically identified in this section of the report. I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed scheme, proposed mitigation measures and measures within suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct or indirect impacts in terms of population and human health. I am also satisfied that the cumulative effects are not likely to arise and that approval should not be withheld on the grounds of such cumulative effect.

11.6 Biodiversity

Introduction

11.6.1 Biodiversity and Ornithology are addressed in Chapters 6 and 7 of the EIAR. Please refer to sections 10.3 and 10.4 above for a further detailed assessment of the potential impacts on ornithology and bats. The Board is advised that the application is accompanied by a Natura Impact Statement (NIS) (revised March 2019). Whilst there will be a degree of overlap, the revised NIS is dealt with in detail in section 12 below.

Existing Environment

11.6.2 The EIAR sets out detail regarding the existing environment in terms of flora and fauna. Detailed surveys were undertaken to determine patterns of bird usage on the application site and its vicinity. Detailed surveys were also undertaken regarding bats. Surveys were undertaken with regard to habitat classification, water quality as well as other species including the Kerry Slug, Marsh Fritillary, Otter, non volant

mammals, reptiles and amphibians. Updated aquatic and Otter surveys undertaken in March 2019 were submitted by the applicant to the Board as part of their response to submissions on the 19th of March 2019. The potential impacts on biodiversity are set out below.

Potential Impacts

Designated Sites

- 11.6.3 For a detailed assessment of the impact of the development on designated sites, please refer to section 12 below.
- 11.6.4 Table 6.4 and 6.5 of the EIAR sets out the designated sites within the potential zone of influence of the project.
- 11.6.5 The potential impacts on the designated sites is set out in Table 6.21 and 6.22 of the EIAR. It is determined that there will be no adverse impacts to any of the designated sites.

Habitat Impacts

- 11.6.6 A summary of the survey work undertaken is set out in section 6.2.4.1 of the EIAR. It notes that multidisciplinary surveys comprehensively covered the entire study area and based on the survey findings, furthermore detailed targeted surveys were carried out for habitats, features and locations of ecological significance. Figure 6.3 of the EIAR is a habitat map which shows the location and relative cover of the habitats recorded. A total of 18 different habitats were recorded. A detailed description of each of these habitats is set out in the EIAR.
- 11.6.7 I note concerns were raised in the previous Inspectors Report regarding the lack of detail of the site survey work carried out to map and identify the habitats present. In the current application, there is also a paucity of detail regarding the dates of surveys and survey routes. The submission by the Department of Culture Heritage and the Gaeltacht also states that specific details of the areas of habitats that fall within the footprint of the development and which would be directly affected by construction and associated works area are lacking. I note however, that a description of each habitat within the study area is summarised on Table 6.29 of the EIAR and is mapped in Figure 6.3a of the EIAR. I am satisfied that the EIAR provides a detailed description of the habitats present across the site and that these are detailed to a

sufficient level to enable an assessment of potential impacts.

- 11.6.8 The primary land use in the area is commercial forestry. The remainder of the site is occupied by marginal farmland and peatland habitats. Conifer plantations cover c.89% of the study area. The EIAR notes that over much of the southern and western sections of the site, the forestry was burned in early 2017. It is anticipated that this will be cleared and replanted in advance of planned rotation. Lowland blanket bog cover c.3.8% of the site. A total of 7 habitats of significance are listed in the EIAR – refer to Table 6.13.
- 11.6.9 Habitat loss will result from the construction of the turbine bases and hardstands and for the 25 wind turbines – see Table 6.29 for further information. Direct impacts on lowland blanket bog and cut over blanket bog have been largely avoided in the design of the windfarm itself. The overall loss of Blanket Bog associated with the development amounts to less than 1.25% of the overall amount of the habitat recorded within the study area. Potential indirect effects include drainage associated with the construction phase of the development. The effects will be localised and is not considered significant given the peatland habitat at this location is already disturbed, degraded and subject to drainage associated with forestry activities. There will be no additional habitat loss during the operational phase.
- 11.6.10 In terms of potential impacts to Dystrophic Lake and Acid Oligotrophic Lake habitats, it is anticipated that there will be no direct habitat loss associated with the development. Potential indirect effects could arise from run off and pollutants entering these waterbodies during construction. However, it is considered that these potential impacts could be managed through appropriate mitigation.

Kerry Slug

- 11.6.11 Kerry Slug is listed in Annex II and IV of the E.U. Habitats Directive. There are records for this species in the locality of the Ardderroo site including a population discovered at Lettercraffoe c. 5km from the site. The species was also recorded at a number of sites in the Cloosh forestry area. A total of 5 areas within the development site were surveyed for Kerry Slug during the period April to May 2014. I note that no recent surveys were undertaken to inform the current application.
- 11.6.12 The surveys found no presence of the Kerry Slug and it is stated in the EIAR that it is unlikely to occur at the site of the development. Given the absence of this species,

no impacts arise. This conclusion of the EIAR is accepted.

Marsh Fritillary

- 11.6.13 The butterfly species Marsh Fritillary is listed in Annex II of the EU Habitats Directive. There are known populations of the species at breeding sites in Connemara and it is known to be present within the Connemara Bog Complex SAC.
- 11.6.14 In September 2013, habitats were assessed for their potential to support March Fritillary Butterfly and no suitable habitat was recorded. The submission of the Department notes that only limited details of the survey carried out in relation to March Fritillary are provided. I am satisfied however, on the basis of the information set out in the EIAR which includes a number of recent walkover surveys and the nature of the habitat present, that there is unlikely to be any significant population of this species present. The EIAR does not identify any significant impacts on this species. This conclusion is accepted.

Aquatic Species

- 11.6.15 The site primarily drains to the Owenboliska catchment which is within the Connemara Bog Complex SAC. The Owenboliska catchment contains spawning Atlantic Salmon and Sea Trout as well as Brown Trout. Atlantic Salmon is listed in Annex II of the EU Habitats Directive and is a Qualifying Interest of the Connemara Bog Complex SAC. Details of fish counts are set out in section 6.3.1.2.10 of the EIAR.
- 11.6.16 Details of the river and aquatic surveys undertaken is set out in section 6.2.4.3 of the EIAR. Areas that were identified as providing a potential habitat for Otter were also subject to targeted surveys undertaken in 2015 and 2017. Further Otter surveys were undertaken in March 2019. No Otter breeding or resting sites were recorded during the dedicated surveys. Notwithstanding this, watercourses in the study area offer potential foraging and commuting habitat for the species.
- 11.6.17 The EPA Envision map viewer was consulted in October 2018 regarding the water quality status of the Owenbokliska River. The WFD River Waterbody Status for the Owneboliska River surrounding the development site is Good Status. Water sampling was carried out downstream of the site on the 27th September 2013. This indicated that the Ardderroo River at the site is poor to moderately polluted and that the Sruffaunbeg /Owenboliska river system is moderately polluted. Further water

sampling was carried out in March 2019.

- 11.6.18 The development site is not within a catchment area that has been mapped as sensitive for Freshwater Peal Mussel (EU Habitats Directive Annex II and IV). Section 6.3.1.2.6 of the EIAR notes a report on the suitability of the Owenboliska River catchment as habitat for Freshwater Peal Mussel at the Uggool windfarm site to the immediate west, carried out in December 2011, which found no historical evidence of this species in the river.
- 11.6.19 In terms of potential impacts, the watercourses have potential as a habitat for a number of species that are listed on Annex II/IV of the EU Habitats Directive including Otter and Atlantic Salmon. There will be no direct loss of habitat associated with the development during either the construction or operation phase. Potential indirect effects may include deterioration of surface water and habitat quality resulting from the run off of silt, hydrocarbons and other pollutants during the construction and operation phase of the development. Such effects can however, be managed through appropriate design and mitigation.
- 11.6.20 Given that there were no Otter breeding site or holts observed in the study area, direct impacts to Otter are not anticipated. There will be no loss of resting or breeding places associated with the development.
- 11.6.21 In terms of displacement, it is noted that it is unlikely that the study area is utilised with frequency by a large Otter population. All major infrastructure is located over 50 metres from any watercourse which provides a potentially suitable habitat for this species.
- 11.6.22 Direct impacts on Atlantic Salmon and other aquatic receptors are also not anticipated. There are no in stream works associated with the development. There will be no loss of fisheries habitat such as spawning gravels or nursery areas.
- 11.6.23 There is potential however, for fragmentation of Otter and Salmon/aquatic habitat at the location of the new bridge crossing on the Owenboliska River.

Bats

- 11.6.24 For a detailed assessment of potential impacts to bats please refer to section 10.4 above. Information regarding the bat surveys undertaken to inform the current application is set out in section 6.2.4.4.2 and Appendix 6.2 of the EIAR. It is noted

that the landscape surrounding the site contains a range of habitats suitable for most bat species. The surveys identify that overall activity levels for Soprano Pipistrelle, Unidentified Pipistrelle and Myotis sp. were moderate. Activity levels for Common Pipistrelle, Leisler's Bat, Brown Long Eared Bat and Lesser Horseshoe Bat were assessed as Low. A single Nathusius Pipistrelle Pass was recorded indicating that the presence of this species within the site is rare. In terms of roosts, trees within the study area were considered not of sufficient size or age to contain potential roost features and are considered of Low suitability value. The main house and surrounding sheds at Letter Lodge showed Moderate roosting potential.

- 11.6.25 There will be no net loss of bat foraging/roosting habitat associated with the proposed wind farm development including the grid connection and transport route.
- 11.6.26 There is potential for bats to be disturbed during the construction phase and by the noise of turbines during the operational phase. However, the application site is not utilised by large populations of bat species and activity levels are Low to Moderate. In this regard, displacement is considered unlikely.
- 11.6.27 In terms of potential mortality impacts, only the bat roost at Letter Lodge was identified as a roost location. This will be retained as part of the development proposal. Activity levels for species at high to medium risk of collision is assessed as low (Leisler's Bat, Nathusius Pipistrelle and Common Pipistrelle). Activity levels for Soprano Pipistrelle and Unidentified Pipistrelle, species at medium risk of collision, is assessed as moderate. In addition, bat activity at height was significantly less than at ground level. Provided there is no significant change in activity as a result of the development, significant negative effects are not predicted. Post construction activity monitoring and fatality searches will be undertaken to monitor any changes. No significant negative impacts during the decommissioning phase are identified.

Birds

- 11.6.28 Please refer to section 10.3 above for detail assessment of ornithological impacts. It is considered that the potential effect of the proposed development on birds will not be significant. Effects associated with habitat loss and fragmentation, disturbance, displacement, collision risk and cumulative effects will be no greater than Long-term slight negative.

Other Species

- 11.6.29 No Badger setts or evidence of the species was recorded from the development footprint of the study area. Significant impacts are, therefore, unlikely.
- 11.6.30 The scats of Red Fox were regularly observed across the site. It is also assumed that the Pine Marten is present. Red Deer was also recorded. Mammals such as Pygmy Shrew, Hedgehog and Stoat are also likely to be present.
- 11.6.31 It is detailed in the EIAR that there is nothing to suggest that the study area is used by populations of these species of higher than local significance. In this regard, no significant impacts are likely to arise.
- 11.6.32 Common Frog was recorded in wet areas within the site and it is likely to breed in the study area. It is not considered that the development will result in a significant loss of suitable habitat for reptile and amphibians as suitable habitat is widespread in the study area.

Features and measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment

- 11.6.33 Section 6.5 of the EIAR sets out mitigation measures. It notes that the proposed development has been designed to avoid ecologically sensitive areas and has been constraint led from the initial design phase. Best practice measures will be implemented including a Construction and Environmental Management Plan. Periods within which vegetation can be removed will be restricted and measures are set out to control the spread of invasive species.
- 11.6.34 In term of potential Otter populations, a pre-construction mammal survey will be undertaken to ensure no holts have become established in the development site. With regard to potential habitat fragmentation due to proposed bridge crossings, the welfare of Otters will be ensured primarily through the provision of continued safe access for Otters to their ranges and foraging habitats. Watercourses will be crossed by clear span structures and part of the river bank will be retained to provide dry passage for otter under the structure.
- 11.6.35 To protect water quality, the development has been designed so that all large scale infrastructure such as turbines, site compounds and borrow pits are located at distances of over 50 metres from any watercourse and so that water crossings that

occur on access tracks are minimised and where possible use existing bridges. A suite of measures is also set out (refer to section 9 of the EIAR) to ensure that the hydrological function of the watercourses on site and in the wider catchment are not affected by the proposed development.

- 11.6.36 The proposed development will result in the permanent loss of c. 1.5ha of Annex 1 Bog and Wet Heath habitats. A bog restoration programme will be undertaken, details of which are set out in section 6.5.6 of the EIAR. It is envisaged that the long term residual effect of this measure will be Slight Positive. No other significant residual impacts are identified.
- 11.6.37 A number of mitigation measures are set out to protect bats including buffer distances; habitat management; noise restrictions; lighting restrictions, particularly at Letter Lodge and post construction monitoring and fatality searches during the operational phase for a period of 3 years.
- 11.6.38 Section 7.6 of the EIAR sets out a number of mitigation measures regarding ornithology. These include mitigation by design measures such as ensuring that the development avoids wildlife refuge site and that the hard standing areas have been designed to the minimum size necessary to minimise habitat loss. A number of specific construction phase mitigation measures are also proposed. These relate to issues such as noise control measures and seasonal restrictions. It is also proposed to appoint an Ecological Clerk of Works to manage certain aspects, particularly during the construction phase. A detailed post construction bird monitoring programme is included in the EIAR (Appendix 7.8) which includes a programme of works to monitor parameters associated with collision, displacement/barrier effects and habituation during the lifetime of the project.

Residual Effects

- 11.6.39 Provide all mitigation measures are implemented in full, no significant residual effects on the nearby designated sites, habitats or flora and fauna are expected from the development.

Conclusion

- 11.6.40 Overall it is considered that the value of the development site and surrounding area for biodiversity and specifically ornithology and bat features has been adequately surveyed and quantified and allows for an evaluation of impacts to be completed. I

have considered all of the written submissions made in relation to biodiversity, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions including monitoring conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects in terms of biodiversity.

11.7 **Land and Soil**

Introduction

11.7.1 Land and Soil are dealt with under chapter 8 of the EIAR.

Existing Environment

11.7.2 The soils and geology assessment of the EIAR is based on a desk study and site investigations including over 1,700 peat probe depths carried out between 2013 and 2018. Gouge cores were also undertaken at each turbine location and 8 trial pits at all potential borrow pit locations. The majority of the proposed development site area is covered by blanket bog that has been planted over with conifer plantations. Glacial till underlies much of the blanket peat substrate.

11.7.3 The peat depths recorded at the turbine locations varied from 0.3 to 3.7 metres with an average depth of 1.7m. A summary of the peat depths at each proposed turbine location is set out in Table 8.4 of the EIAR. With respect to the existing access roads, peat depths were typically less than 2m in the north of the site, with localised depths of up to 3.4 metres. To the south of the site, depths varied between 1m and 4m with localised depths up to 7.2m. On the new access road, peat depths were typically less than 2.5m to the north of the site and between 1m and 4m to the south.

11.7.4 The granite bedrock at the site is classified as “Medium” importance. The peat deposits are classified as “Low” importance. It is noted in the EIAR that there are no recorded Geological Heritage sites in the development area or within 5km of it. This is confirmed in the submission made by the Geological Survey of Ireland.

11.7.5 The proposed development will involve the removal of peat, subsoil and bedrock. Estimated excavation volumes are set out in tables 8.8 and 8.9 of the EIAR. 227,370m³ of peat and 281,550m³ of spoil will be excavated. Appendix 4.2 sets out

a Peat and Spoil Management Plan which describes how peat and soil will be excavated from infrastructure locations such as turbine bases and roads and will be handled and placed/reinstated on site. The plan also provides construction details for the types of roads which will be put place at the site and the proposed peat and spoil placement/reinstatement areas which will be developed at the site. 510,000m³ of peat and spoil will be reinstated – see Table 2, Appendix 4.2.

Potential Impacts

11.7.6 Potential impacts of the development include:

- Permanent removal of peat, subsoil and bedrock at excavation locations. Mitigation measures to reduce the impacts include placement of turbines, use of floating roads and removal of minimal volumes of material. Residual impacts from excavation of peat are negative, direct, slight, likely, permanent impact on peat, subsoil and bedrock.
- Potential contamination of soil by leakages and spillages and alteration of peat/soil geochemistry. Mitigation measures include management and storage of fuels, bunding of the substation, regular inspection of plant and an emergency plan to deal with accidental spillages. Residual impacts from contamination are imperceptible, direct, short term and low probability.
- Potential erosion of exposed subsoil and peat during tree felling, access road and turbine construction work. Mitigation measures include appropriate storage of removed peat for re-use including landscaping works and reinstatement of borrow pits. Excess peat is to be stored appropriately and silt fences installed. To minimise erosion, stripping of peat will not take place during extremely wet period and brash mats will be used during tree felling. Residual impacts identified are negative, slight, direct, likely impact on peat, subsoils and weather rock.

Peat Stability

11.7.7 Appendix 8.1 of the EIAR comprises a peat stability study. Peat instability or failure refers to a significant mass movement of a body of peat that would have an adverse impact on the proposed development, proposed construction access road and the surrounding environment. A walkover including intrusive peat depth probing, a

ground investigation including trial pits, desk study, stability analysis and risk assessment was carried out to assess the susceptibility of the site to peat failure. The peat stability study determines the stability i.e. Factor of Safety (FoS) of the peat slopes where construction is proposed during the construction of the wind farm. This involved a geotechnical assessment of each of the infrastructure locations and included peat depth measurements and shear strength testing. A FoS of less than 1.0 indicates that a slope is unstable and a FoS greater than 1.0 indicates a stable slope. An acceptable level of FoS for slopes is generally taken as a minimum of 1.3.

- 11.7.8 The study which included an analysis of over 920 of the peat probe locations, showed that the site has an acceptable margin of safety and is suitable for the development. The analysis indicated peat shear strengths in the range 5 to 52kPa, with an average value of 16kPa. Along the proposed construction access road, strengths ranged from 14 to 36 kPa with an average of 22kPa. The strengths recorded are indicative of well drained peat and are significantly higher than those recorded at sites of known peat failures.
- 11.7.9 The FoS results are set out in Table 8.6 of the EIAR and Table 4 of the Peat Stability Assessment Report in Appendix 8.1. A undrained (short term stability) and drained (long term stability) analysis was undertaken including an assessment of loading conditions which examines the effect of rainfall on the existing stability of the natural peat slopes. The undrained analysis for load condition 2 (which is considered the most critical load case as most peat failures occur in the short term upon loading of the peat surface) indicated that only 2 no. FoS points were marginally less than 1.3. These points are subject to additional mitigation measures which I consider reasonable. The FoS results for the drained analysis calculated a load condition 1 in excess of 1.3 for all locations with the exception of 5 points, which again are subject to additional control measures that are comprehensive. Based on the stability assessment carried out on the peat slopes, the calculated FoS's are generally acceptable. Localised areas of deeper peat deposits are present which may require specific construction methods, but do not represent a peat slide risk. The risk rating for each infrastructure element at the Ardderroo wind farm is, therefore, designated as trivial and tolerable following mitigation.

Feature and measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment

11.7.10 The EIAR sets out in Section 8.5.3.4 the potential impact of peat instability and failure. It is detailed however, that based on the recommendations set out in the peat stability assessment that there is a low to medium risk of peat instability/failure at the wind farm site. A number of mitigation measures are detailed including prevention of undercutting of slopes and unsupported excavation, management of the drainage system, prevention of placement of loads/overburden on marginal ground and monitoring systems. The Peat Stability Assessment Report (Appendix 8.1), Peat and Spoil Management Plan (Appendix 4.2) and the preliminary Construction and Environment Management Plan (Appendix 4.5) include additional details of proposed mitigation measures.

Conclusion

11.7.11 I am satisfied that the applicant has carried out a robust assessment of potential impacts on soils and geology and the potential for peat failure at the development site. The assessment undertaken is the result of expert analysis and based on extensive site inspection and testing. The mitigation measures as detailed represent good construction practice. I am satisfied that the development does not present an undue risk of peat instability and that that there will be no significant residual impacts.

11.7.12 I have considered all of the written submissions in addition to those specifically identified in this section of the report made in relation to land, soil and geology. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects in terms of land, soils and geology.

11.8 Water

Introduction

11.8.1 The issue of water is addressed in Chapter 9 of the EIAR.

Existing Environment

- 11.8.2 The EIAR provides an outline of the surface and groundwater regimes on the site. The assessment is informed by detailed drainage mapping, constraints mapping and hydrological baseline monitoring and sampling undertaken between 2016 and 2019. The site is covered with blanket bog and there are a number of small to medium sized lakes. The smaller lakes are generally isolated, while the larger ones are sources of streams or are situated along routes of streams that flow through the site. Recharge rates at the site are low due to the peatland environment.
- 11.8.3 The subject site is located in the Owenboliska River Catchment within the regional Owenboliska-Cashla-Screeb-Coastal catchment. The temporary construction access track is located within the Lough Corrib surface water catchment. The two main rivers draining the site are:
- The Owenboliska River which originates from Seecon Lough approximately 2.5km to the west of the site boundary and flows in a south easterly direction through the centre of the southern section of the site where it is joined by several tributaries.
 - The Abhainn n nArd-doiru (Ardderroo River) originates in the northern section of the site and flows in a southerly direction delineating the eastern boundary of the site. It drains into Loch na nArd-doiru at the site's southern boundary which then drains onto the Owenboliska River via a smaller unnamed lake.
- 11.8.4 The tributaries from these rivers flows through several bog lakes and pools and give rise to seven sub catchments which are set out in Table 9.3 of the EIAR. There are also a number of manmade drains within the site, associated with the forestry plantations. There are culverts at stream crossings and low points under the access roads, which drain to down gradient forest plantations.
- 11.8.5 OPW flood risk mapping does not indicate any records of areas within the site as being at risk of flooding. However, a recurring flooding incident is mapped downstream of the site on the Owenboliska River just upstream of Boliska Lough. CFRAM Preliminary Flood Risk Assessment maps indicates that the 100 year fluvial flood zones mapped within the site boundary generally occur in close proximity to the stream channel itself. All proposed turbine locations, substation, construction compounds, met mast, borrow pits and access roads are located at least 50m away

from streams and are outside of the fluvial indicative 100 year flood zone.

11.8.6 Q-rating data for EPA monitoring points on the Owenboliska River 3.5km south of the development site boundary indicates a Q4 rating (Good status) from 2004 to date. A Q rating point located on the tributary originating from Buffy Hill in the site area also has a Q4 rating. The results of surface water sampling is set out in Table 9.5 of the EIAR and indicate slightly acidic PH values (between 4 and 6.5) for surface waters, typical of peatland environments and consistent with underlying granite bedrock. The water sampling results set out in the EIAR indicates that the total suspended solids at all sampling locations were <10mg/L which is below the Freshwater Fish Directive. All nutrient levels were generally low.

11.8.7 In terms of hydrogeology the underlying bedrock within the EIAR boundary is commonly known as Connemara Granite. This is classified as a Poor Aquifer (PI-bedrock which is generally unproductive except in local zones). The vulnerability rating of the aquifer within the EIAR site ranges between 'Low to Moderate' vulnerability to 'High to Extreme' vulnerability and this reflects the varying depth of local subsoils and peat. The Spiddal groundwater body underlines the site and is assigned a 'good status'.

Potential Impacts

11.8.8 There are no groundwater wells within the same catchment as the development site and there are no well supplies down gradient of any development area that can be impacted on.

11.8.9 It is stated in the EIAR that there will be no impact to public water supply. Boliksa Lough, located c. 5km downstream is used as a public water supply. Implementation of a surface water management plan and drainage plan will ensure that surface water from the development will be of high quality and will, therefore, not impact on the quality of downstream rivers and lake. The drainage design does not rely on the assimilative capacity of streams or lakes to reduce impacts on downstream water quality.

11.8.10 The designated sites of the Connemara Bog Complex SAC and Lough Corrib SAC are hydrologically connected to the wind farm and are, therefore, sensitive in terms of potential impacts. Concerns have been raised by some parties regarding potential hydrological impacts on the SAC. As part of the baseline surveys, piezometers were

installed in the area of the proposed turbine locations to investigate the hydrological regime between the turbines closest to the NHA and SAC in terms of assessing potential hydrological impacts. The water level monitoring demonstrates that the peat water and mineral subsoil groundwater flow direction in the areas of proposed turbines T1 and T5 is towards local streams within the site and not towards the NHA. The monitoring at T24 demonstrates that the ground water flow direction in the areas of the proposed turbines on the south/southeast of the site is towards the rivers which border the site and not towards the Connemara Bog Complex SAC. It is evident that none of the proposed development areas are hydrologically connected to the designated bog in terms of peat water or groundwater flow paths. There is no potential to impact on peat water or groundwater levels within the SAC in terms of alteration of groundwater flow paths or groundwater levels. No significant impacts on designated sites are anticipated. This is considered reasonable.

- 11.8.11 The proposed development footprint (increase in permeable areas) would result in an average increase of daily surface water run off of 125m³/day. This represents a 0.15% increase in the average daily/monthly volume of runoff from the site. The EIAR concludes that this increase is negligible and that there will be no risk of exacerbated flooding down gradient of the site.
- 11.8.12 Potential risks to water quality generally relate to surface waters only as the groundwater body underneath the site is protected by a covering of blanket bog. The primary risk to groundwater is from cementitious materials and hydrocarbon spillage and leakage. Surface waters such as the Owenboliska River and Ardderroe River are very sensitive to potential contamination. These rivers and associated lakes are known to contain trout and are important locally for fishing.
- 11.8.13 Potential construction impacts may arise from clear felling; earthworks; excavation works and borrow pit dewatering; hydrocarbon release; wastewater contamination of ground and surface water; release of cement based products and morphological changes to water courses and drainage patterns.
- 11.8.14 During the operational phase, drainage control measures will ensure that surface runoff from the developed areas of the site will continue to be of good quality and will, therefore, not impact on the quality of down stream rivers and streams. The present drainage regime of the site will not be altered in any way. Impacts on water

quality during the operational phase of the wind farm will be negligible to none.

Features and measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment

- 11.8.15 The EIAR sets out a suite of drainage measures to be carried out during the construction phase. A buffer zone of 50m will be put in place for on-site streams and lakes. The drainage design will ensure that water is kept clean by avoiding natural drainage features, minimising works in or around artificial drainage features and diverting clean surface water flow around excavations, construction areas and temporary storage areas. Drainage management will also ensure that drainage water from work areas within the site that might carry silt or sediment is collected and routed towards stilling ponds prior to diffuse release over vegetated surfaces. There will be no direct discharge to surface waters. All run off from work areas will be attenuated and treated to a high quality prior to being released. Pre-emptive site drainage management will be carried out to ensure that large excavations and movements of peat/subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast.
- 11.8.16 Section 9.4.3 onwards of the EIAR sets out detailed mitigation measures to address potential construction phase impacts including use of filtration treatment including silt traps, silt fences, silt bags; management of hydrocarbons; management of run off; avoidance of wet cement batching at the site and measures to prevent concrete and fuel spillages. There is to be ongoing monitoring of the mitigation measures during construction. No significant residual impacts are identified.

Conclusion

- 11.8.17 It is detailed in the EIAR that overall the proposed development presents no significant impacts to surface water and groundwater quality provided the proposed mitigation measures are implemented. Inland Fisheries Ireland have specifically identified the importance of the Owenboliska River catchment in ecology terms and the need for comprehensive measures to protect salmon and trout spawning and nursery habitat. Irish Water have also noted the importance of water quality having regard to the fact that the Bolliska Lough Public Water Supply has its abstraction point approximately 5km downstream of the site.

11.8.18 In this context, I note the suite of measures proposed to mitigate potential negative surface water quality impacts including fuel and oil storage and bunding, management of cement, measures to be employed during watercourse works and tree felling and that it is intended that the implementation of the CEMP will be overseen by an Ecological Clerk of Works. The drainage management on site will have several stages and uses avoidance controls, source controls, in line controls, water treatment controls and outfall controls. I am satisfied that the proposed comprehensive water management plan will ensure that surface runoff from the developed site will be of a high quality and, therefore, will not significantly impact on the quality of downstream surface water bodies, including those flowing through the SAC. I am satisfied overall that the development would not have a significant adverse impact on water quality subject to the proper implementation of the proposed mitigation measures. These measures are comprehensive and are described as pre-emptive and proactive with ongoing inspection, water quality monitoring and maintenance.

11.8.19 I have considered all of the written submissions in relation to Water Quality, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions including monitoring conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects in terms of Water Quality.

11.9 **Air and Climate**

Introduction

11.9.1 The issue of air quality and climate is addressed in Chapter 10 of the EIAR.

Air Quality

Existing Environment

11.9.2 The subject site is located in a predominantly rural area. Due to the general character of the area, existing levels of air pollutants in the area is low and it is expected that air quality in the existing environment is good. During the operational phase of the project, there will be no direct emission from the wind turbines. There is anticipated to be some minor indirect emissions during the construction phase

primarily vehicular and dust related.

Potential Impacts and Features and measures to avoid, prevent, reduce of offset likely significant adverse effects on the environment

- 11.9.3 The construction of turbines, mast, site roads, substation and other associated infrastructure including the borrow pits, and construction compounds will require the operation of construction vehicles and plant on site. Potential impacts from exhaust emissions will not however, be significant and will be restricted in terms of duration and location. A number of mitigation measures are proposed including good maintenance of construction machinery, switching off of machinery when not in use and the use of on-site borrow pits to obtain material, thus reducing delivery vehicles accessing the site.
- 11.9.4 In terms of dust, and its impacts on local residents and the community, it is envisaged that there will be some short term negative impacts. Concerns have been raised by a number of parties regarding such impacts. These impacts however, will be limited in duration and a range of mitigation measures are set out to reduce impacts including dust suppression measures, storage of plant and materials in dedicated areas, minimising stockpiling, cleaning of haul routes and implementation of a Construction and Environmental Management Plan.
- 11.9.5 Whilst I acknowledge that there may be some impacts to local residents and the local community during the construction of the project, I consider that these impacts will generally be short term and temporary and can be appropriately managed and mitigated through the implementation of a Construction and Environmental Management Plan and good construction management practice. Appropriate measures have been outlined in the EIAR in this regard. I am satisfied that subject to the implementation of such measures that no residual impacts on air quality are anticipated during the construction phase. As noted, during the operational phase, the turbines will have no adverse impacts on air quality. Potential impacts from the exhaust emissions associated with machinery and plant that are intermittently required for on-site maintenance will be imperceptible. There will be no significant residual impacts.

Climate

- 11.9.6 It is identified in the EIAR that the development will have a significant and positive

impact on the climate in terms of renewable energy production and reductions in greenhouse gas emissions. The EIAR analyses potential carbon losses and savings with regard to climate change impacts (carbon balance) using a Scottish guidelines methodology '*Calculating carbon savings from wind farms on Scottish peat lands*'. The development would result in emission savings of CO₂ oxides of nitrogen and sulphur dioxide but would cause the loss of carbon fixing plants and have impacts on the natural hydrological regime of the peatlands, thus allowing the decomposition of carbon.

- 11.9.7 The EIAR outlines that the wind farm will give rise to total losses of 164,249 tonnes of carbon dioxide over its lifetime. The wind turbines account for 73,571 tonnes or 45%, with losses from soil organic matter, reduced carbon fixing potential and the felling of forestry accounting for the remaining 55% of 90,678 tonnes. In terms of carbon saving, 135,074 tonnes of carbon dioxide will be displaced per annum from the largely carbon based traditional energy mix by the proposed windfarm. Therefore, over the 30 year life of the wind farm, 4,052,220 tonnes of carbon dioxide will be displaced from traditional carbon based electricity generation. The carbon loss of 164,249 tonnes would be offset by the proposed development in 14.6 months of operation. The development will, therefore, have long terms significant positive effects on climate. There will be residual positive impacts from the operation of the proposal in terms of fossil fuel displacement.

Conclusion

- 11.9.8 I have considered all of the documentation in respect of air quality and climate and all of the written submissions in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects in terms of air quality and climate.

11.10 Noise and Vibration

Introduction

- 11.10.1 The issue of noise and vibration is addressed in chapter 11 of the EIAR.

Existing Environment

- 11.10.2 Seven noise sensitive locations are identified within 2km of the wind turbines, the nearest of which is a residential dwelling identified as H01 which is located 1.13km from turbine 7. Background noise levels for day and night periods at various wind speeds were measured in accordance with best practice guidance contained in the Institute of Acoustics document '*A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind turbine Noise*'. Two surveys were undertaken to inform the survey including baseline noise monitoring at the two nearest noise sensitive locations to the proposed wind turbines for a duration of 3 weeks and an attended baseline noise survey at the nearest sensitive location to the alternative wind farm access road. I consider the methodology and monitoring locations set out to be reasonable and representative of the nearest noise sensitive receptors.
- 11.10.3 Prevailing noise levels are characterised by road traffic and other agricultural and anthropogenic sources. The derived background noise levels as indicated in Table 11.4 and 11.8 are considered typical for a rural area with low noise levels. There were no perceptible sources of vibration noted at either survey locations.

Construction Phase

Potential Impacts

- 11.10.4 During construction the construction phase, noise impacts may arise from construction activities such as site preparation and construction of the turbine foundations, roads and substation. There will also be increased construction vehicular movement. There will be potential blasting and rock breaking operations from the borrow pits. The predicted noise levels for these various construction activities is set out in sections 11.6.2.1, 11.6.2.2, 11.6.2.3 and 11.6.2.4 of the EIAR. Concerns have been raised by a number of parties regarding potential adverse noise impacts both during the construction and operational phases.

Features and measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment

- 11.10.5 A suite of mitigation measures to manage noise and vibration are set out in the EIAR. In general, it is anticipated with the implementation of these measures that noise levels associated with the construction phase will not exceed recommended

levels. There will be increased noise levels at the borrow pits, however, predicted levels will be within best practice construction noise criteria.

- 11.10.6 Whilst I accept that there may be some nuisance during the construction phase to local residences, particularly dwelling H01, I am satisfied with the implementation of appropriate construction management including those outlined for blast events at the proposed borrow pits, that no significant adverse impacts are likely to arise. Concerns were raised in the previous application that there was no assessment of potential noise impacts from vehicular traffic during the construction state on local roads around the site. This is now assessed in the EIAR and the predicted increase in noise levels due to additional traffic during the initial construction phase along the Doon Road, west of the N59 junction is predicted to be greater than 5dB and that it will have a temporary and slight impact. The impact however, will be temporary and over a short duration.

Operational Phase

Potential Impacts

- 11.10.7 The EIAR sets out that wind turbine noise criteria curves have been derived following a detailed review of the background noise data conducted at the nearest noise sensitive location (see table 11.25). Having regard to relevant guidance including the Wind Energy Guidelines and the EPA document '*Guidance Note for Noise: License Application, Surveys and Assessments in Relation to Scheduled Activities (NG4)*', as well as the operational noise limits set by the Board with respect to the Knockranny Wind Energy Development (Appeal Reference PL07.243094) the proposed operational limits in $L_{A90, 10min}$ for the proposed development are:

40dB $L_{A90, 10min}$ for quiet daytime environments of less than 30 dB $L_{A90, 10min}$;

45 dB $L_{A90, 10 min}$ for daytime environments greater than 30dB $L_{A90, 10min}$ of a maximum increase of 5dB above background noise (whichever is higher), and

43dB $L_{A90, 10min}$ of a maximum increase of 5 dB above background noise (whichever is higher) for nighttime periods.

I consider the justification for the above noise parameters to be reasonable.

- 11.10.8 A series of computer based prediction models have been prepared to quantify the cumulative noise levels associated with the operational phase of the development,

including other proposed and operational wind turbine developments in the wider area.

- 11.10.9 Based on detailed information including site layout, turbine emission levels and turbine heights, worst case noise levels for a range of operational wind speeds are predicted at relevant noise sensitive locations (7 in total). The predicted levels are compared against the adopted noise criteria curves. The results of the modelling are set out in Table 11.26.
- 11.10.10 The predicted cumulative noise levels for the various wind speeds are within the relevant best practice guidance noise limit criteria at all locations, with the exception of one dwelling - H01. The EIAR notes however, that this dwelling is located on the Ugool Wind Farm site and a review of the predicted omni directional turbine levels at this location confirms that the turbine noise associated with the operation of the Ugool development contributes to the highest level of noise and is the dominant source of noise affecting this dwelling. While the predicted worst case noise levels will increase slightly at H01 with the operation of the Ardderroo wind farm development, the increase will be largely imperceptible and the noise levels will remain largely unchanged as turbine noise from the existing Ugool development is already contributing to the ambient noise levels at this location.
- 11.10.11 With regard to potential noise impacts to human health, I note the further information submitted by the applicant in their response to the Board dated the 19th of March 2019 which provides details of a further more recent World Health Organisation publication – *“Environmental Noise Guidelines from the European Region”*. This concludes that the evidence on health effects from wind turbine noise is either absent or rated low/very low quality.
- 11.10.12 As the predicted operational noise levels will be within the relevant best practice noise criteria curves for wind farms, noise mitigation measures are not proposed. The EIAR states that post commissioning monitoring will be necessary to ensure the operational noise levels comply with the relevant day and night time criteria. This can be addressed by condition.
- 11.10.13 Should the absolute noise outdoor limit of 40dB LA90, 10min to be applied within the curtilage of noise sensitive properties (that has been put forward as part of the Department of Environment, Community and Local Government (DECLG) document

Proposed Revisions to Wind Energy Development Guidelines 2006 – Targeted Review in relation to Noise, Proximity and Shadow Flicker) come into play, it is noted that the noise limits at some of the higher wind speeds as set out in Table 11.26 may be exceeded. Should specific issues arise during post commissioning monitoring, curtailment measures can be implemented for specific turbines in specific wind conditions. This can form part of the noise monitoring plan to be agreed with the Planning Authority.

11.10.14 No significant noise impacts are predicted to arise from the operation of other elements of the development including the substation. The worst case predicted level from this is expected to be in the order of 2dB(A) at H01, H02 and H03. These noise levels will be inaudible at noise sensitive locations and will not add to the overall noise levels associated with the proposed turbines.

11.10.15 In conclusion, it is my opinion, based on the analysis undertaken, that the proposed development will not have a significant adverse impact on residential properties arising from noise. I have no reason to doubt the veracity of the information contained in the EIS in respect of the noise analyses undertaken, however, notwithstanding this conclusion, there will be an onus on the applicant to comply with best practice as per the guidelines in relation to noise generation and this can be addressed by way of condition. I also note that the Wind Energy Guidelines acknowledge that noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 metres. In this case, the nearest property is over 1km from the closest turbine.

Residual Impacts

11.10.16 No significant residual impacts identified.

Conclusion

11.10.17 I have considered all of the written submissions made in relation to noise and vibration in addition to those specifically identified in this section of the report. I am satisfied that the impacts identified would be avoided, managed and/or mitigated by the measures, which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct or indirect impacts in terms of noise and vibration. I am also satisfied that cumulative effects are not likely

to arise and that approval should not be withheld on the grounds of such cumulative effects.

11.11 **Material Assets**

Introduction

11.11.1 Material Assets are addressed in Chapter 14 of the EIAR and it considers Roads and Traffic, Telecommunications and Aviation.

Roads and Traffic

11.11.2 The assessment of the traffic impact was undertaken for both the construction and operational stages of the development. The proposed haul routes and turbine delivery routes are considered. The proposed transport route for the wind turbine plant is from Galway City, along the N59 via Moycullen and then onto the L53453 Doon Road at the recently improved junction on the N59. Although not part of the application, the EIAR also considers the impacts of a potential alternative construction access road which would provide access for large turbine plant delivery vehicles and construction vehicles.

11.11.3 Figure 15.1 of the EIAR identifies the route for the wind turbine plant. A detailed assessment of the geometry of the route was undertaken based on the turbine component design vehicles. It is envisaged that various locations along the delivery route will require temporary alterations to accommodate the large wind turbine vehicles. Specific measures are set out in the EIAR to address the traffic management of abnormal load deliveries. It is noted that significant improvement to the local road infrastructure have already been permitted in order to facilitate adjacent wind energy developments including the upgrade to the Doon Road and its junction with the N59.

Potential Impacts

11.11.4 Traffic volumes were counted on local roads to inform the assessment and supplement existing data. An assessment of the traffic generation for the different stages of the construction phase including stage 1 – road improvements, stage 2 – concrete pouring, site preparation and groundworks and stage 3 - turbine construction stage is set out in the EIAR and summarised in tables 14.14 to 14.25. Generally the percentage increase of traffic on the local road network is predicted to

be low. The greatest impact on the local road network is likely to be during the phase when the very large turbine components would be delivered to the site. The delivery of the large turbine components will take place over 67 weekdays and will result in a 1.4% increase in traffic volumes on the N59 and 26% on the L53453 Doon Road.

- 11.11.5 The effect of the development on junctions was also assessed including the N59/L53453 junction. The analysis shows that the maximum ratio of flow to capacity (RFC) at the junction will increase from 1.2% to 10.9% which is within acceptable limits. The EIAR notes that impacts on the local road network during the construction phase are likely to be slight to moderate and temporary in duration. In the event that the alternative construction access road is implemented, there will be no negative impacts on the existing Doon Road or the existing N59/Doon Road junction.
- 11.11.6 During the operational stage, traffic volumes generated by the development will be minimal and comprise the occasional site visit by maintenance staff. Traffic impacts will be negligible. The recreational amenity trails may generate some additional traffic but the impact is expected to be negligible.
- 11.11.7 During decommissioning, the traffic impacts will be far less than those during the construction phase. Section 14.1.10 of the EIAR sets out the projects whereby there could be a cumulative impact. In terms of the adjacent windfarms at Cloosh and Knockranny, it is predicted that there will be a moderate impact if they are constructed at the same time and no cumulative impact if they proceed at different times.

Features and measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment

- 11.11.8 Detailed mitigation measures are set out in section 14.1.11 of the EIAR. A detailed Traffic Management Plan incorporating all the mitigation measures will be set out as part of the construction phase CEMP and will be finalised and agreed with relevant parties prior to construction. This will include detailed information regarding such matters as delivery programme and times, travel plan for construction workers, information to locals, pre and post construction condition surveys etc. No mitigation measures are required during the operational phase. In the event that the development is decommissioned, similar mitigation measures as set out for the construction stage will be put in place.

11.11.9 I note that no objections to the development have been raised by TII and Galway County Council are generally satisfied with the information provided in the EIAR. The construction phase will undoubtedly give rise to additional traffic, in particular, abnormal loads on the local road network and this will have some impact to local residents and may give rise to some inconvenience. Such impacts however, will be short terms and temporary in nature.

Residual Impact

11.11.10 The additional traffic is anticipated to have a slight to moderate residual impact on road users. This impact however, will be temporary and will be minimised through the implementation of the mitigation measures detailed. There will be no significant residual impacts during the operational or decommissioning stages. The potential for cumulative impacts does not arise if the development is carefully phased to avoid coinciding with the construction of other wind energy development. Such phasing can be addressed in the Traffic Management Plan.

Other Issues

11.11.11 I note that some concerns were raised by TII regarding the proposed alternative construction access road during the operational phase and that no clarity is provided in relation to the extent and duration of the proposed temporary re-openings, nor any explanation as to why the existing Doon Road junction could not be used. However, the alternative construction access road, whilst assessed in the EIAR, does not form part of the application. It is stated in the application documentation, that should the wind farm development receive favourable consideration, a decision on whether to use the existing road or alternative construction access road will be made following consultation with the local residents. If it is deemed that the alternative access is necessary, it will be subject to a future separate planning application. I, therefore, consider that any future restrictions on the use of this alternative route use during the operational stage should be form part of the assessment of such future application should it come to fruition. In any event I note that the route (if constructed) would only be used in exceptional circumstances during the operational phase.

11.11.12 TII also raised concern in their submission that no technical load assessment of structures along the construction access route and their capacity to accommodate the abnormal loads proposed appears was undertaken in the EIAR documentation

and that an assessment review of all structures on the national road network along the haul route is required to confirm that all structures can accommodate the proposed loading associated with the delivery of turbine components where the weight of the delivery vehicle and load exceed that permissible under the Road Traffic Regulations. The submission by Galway County Council notes that no detailed design drawings have been prepared for the junction of the N59 and the L53453.

11.11.13 In response, the applicant states that the proposed delivery route for the abnormal loads has been used during the construction phase for the recently constructed Galway Wind Park wind farm. Accordingly the delivery route has a proven capacity to provide a safe and appropriate access for turbines. Further consultation will take place with TII and Galway City and County Council prior to the construction phase in relation to any structural assessment of the delivery route that may be required as well as the junction of the N59 and L53453. TII acknowledged in their subsequent submission that the points raised in their first submission were addressed and requested that this matter be further addressed by condition.

11.11.14 Having regard to the foregoing, I am satisfied that no significant adverse impacts are likely to arise and future measures regarding any structural assessments of the delivery route that may be required and any further measures to improve the junction of the N59 and L53453 can be dealt with through a detailed Construction Traffic Management Plan. This can be addressed by way of an appropriate condition.

Telecommunications

11.11.15 Potential impacts arise from electromagnetic interference on existing telecommunications services as a result of the rotating blades. The alternating current, electrical generating and transformer equipment associated with wind turbines also generates its own electromagnetic field which can interfere with broadcast communications. The most significant potential effect occurs where the wind farm is directly in line with the transmitter radio path.

11.11.16 I note that the applicant has through the scoping exercise prior to the production of the EIAR, made contact with a wide range of agencies involved in the communications industry and services. These are summarised in table 14.32. Only one operator flagged a potential interference issue and this impact was mitigated by

design ensuring the turbine locations were beyond the potential interference zone. No other interference issues or negative impacts on telecommunications were identified during the process of scoping and consultation.

11.11.17 During the operational phase, in the event of interference occurring, effects can be addressed with the use of divertor relay links out of line with the windfarm. The EIAR states that it is a standard practice of 2RN to produce a Protocol Document for wind farm development which will be signed by the developer. This Protocol Document ensures that in the event of any interference occurring to television or radio reception due to the operation of the wind farm, the required measures, as set out in the document will be carried out by the developer to rectify this.

Aviation

11.11.18 Wind turbines have the potential to affect other single types used for communication and navigational systems, for example tower to tower microwave communication links and airborne and ground radar systems. Interference with radar systems occurs when wind turbines are located close to an airport or directly in line with the instrument landing approach. The nearest operational airport to the proposed development is Knock International Airport, located approximately 68 km to the north east of the site and, therefore, outside the range at which such issues would be expected.

11.11.19 It is detailed in the EIAR that the obstacle warning system required for all tall structure by the Irish Air Corps and the Irish Aviation Authority (IAA) will be agreed ahead of turbine construction as is standard for permitted wind farms. I note that one submission raises a concern regarding the use of such turbine lighting. As noted by the applicant, any lighting affixed to the turbines will be of a suitable intensity, as required by the IAA and subject to their agreement. Such lighting is designed to be visible and serve as a warning to aircraft and the intensity of lighting will not cause any negative impact to residential properties, the closest of which is over a kilometer from any proposed turbine location. The submission by the IAA raised no objection to the proposal and suggest 2 conditions regarding an aeronautical obstacle warning light scheme and provision of as constructed coordinates in WGS84 format together with ground and tip elevations at each wind turbine location. This is considered reasonable.

Conclusion

11.11.20 I have considered all of the written submissions made in relation to Material Assets, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct indirect or cumulative effects in terms of Material Assets.

11.12 Cultural Heritage

11.12.1 Cultural Heritage and Archaeology is set out in Chapter 12 of the EIAR. The assessment is based on both a desktop review including maps, photographic sources and archaeological inventories and a comprehensive programme of field walking of the study area.

11.12.2 The EIAR identifies that there is one recorded monument (reference GA067-021 enclosure) on the development site. The Archaeology Survey of Ireland (ASI) file for this site describes the monument as a non antiquity and it is suggested that this enclosure is more likely to be a feature associated with a pre famine settlement in the area, such as an animal enclosure or cultivation plot. The monument is located c. 350 metres from the nearest infrastructure associated with the windfarm and thus no adverse impacts are predicted. Mitigation measures including the imposition of a buffer zone of 30 metres around the monument during the construction phase are proposed. Any potential visual impacts to this feature are limited due to its inaccessible location and the fact that much of the surrounding landscape is covered plantation forestry.

11.12.3 It is detailed in the EIAR that there are four hilltop cairns located within 2 km of the site boundary and the visual impact of the development on these features is assessed. The EIAR notes that the cairns around the proposed wind farm site are extremely low profile monuments and are almost indistinguishable from the surrounding landscape to the untrained eye. There is a considerable separation distance between the turbines and the cairns. The proposed turbines will be visible in the intervening landscape between the cairns. It is set out that the setting of the cairns has already been changed by plantation forestry and other permitted

windfarms and from observations on site, I would concur with this assessment. On this basis, the EIAR describes the visual impact on the cairns as slight but concludes that the setting will not be altered to a significant degree. I am satisfied that whilst the proposal will alter the setting and character of the area, I do not consider this alteration is an inappropriate change in the context of the archaeological features of interest.

- 11.12.4 The development site is located in a wider area associated with Bronze Age burial features of cairns and cists. Table 12.2 of the EIAR sets out details of recorded monuments within 2km of the site boundary. The EIAR notes that there is potential for unknown archaeological resources to be uncovered during the construction phase of the project and in this regard, monitoring of all ground works will be undertaken during the construction phase to avoid any potential direct or indirect impacts on sub surface archaeological material.
- 11.12.5 A number of architectural and cultural heritage features were identified on the development site, including features such as small clachan settlements, field walls, buildings of vernacular interest, townland boundaries, stepping stones, weir etc. Impacts on these features was designed out through the iterative process. The only feature that will be impacted upon to any degree by the development are some field walls and it is considered that these have a relatively low architectural and cultural value. Written and photographic records will be maintained of all field walls impacted by the development and I am satisfied that this is an appropriate approach.

Conclusion

- 11.12.6 I consider that that the conclusions of the EIAR are acceptable. I note that no objections to the development have been raised by the Department of Culture, Heritage and the Gaeltacht. I am satisfied, subject to archaeological monitoring during the construction phase, that the development would not have any significant adverse archaeological impacts and no significant residual impacts are likely to arise.
- 11.12.7 I have considered all of the written submission made in relation to Cultural Heritage in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation

measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any direct, indirect or cumulative effects in terms of Cultural Heritage

11.13 Landscape

Introduction

11.13.1 Landscape is considered in Chapter 13 of the EIAR.

Existing Environment

11.13.2 The elevation of the site ranges from 70mOD to 227mOD. The site is positioned within a horseshoe shaped hilltop ridgeline which significantly screens the site from view. Much of the site is covered with coniferous forestry.

11.13.3 The development site is characteristic of the 'Mountain Moorland' landscape type as identified in the Wind Energy Development Guidelines (2006). The Guidelines note that larger wind energy developments can generally be accommodated because they correspond in terms of scale in the typical extensive areas of continuous unenclosed ground. All spacing and layout options are usually acceptable, however random layouts are best for hills as the open expanse of these landscapes can absorb a number of wind energy developments. There are generally no height restrictions. The proposed scheme is in accordance with these recommendations as it is situated on a hillside within an undulating area of hills that is characterised by a mix of land uses.

11.13.4 Chapter 4 of the Galway Wind Energy Strategy (WES) provides strategic guidance on the capacity of different landscape character areas (LCA's) within the County for wind energy developments. These LCA's are based on the Co. Galway Landscape Character Assessment published in 2002. It is indicated that the subject site is within Landscape Character Area 10 – East Connemara Mountains. This area is described as scenic but not remarkable and has a landscape sensitivity 'Class 3 – High' with pockets of 'Class 4 – Special'.

11.13.5 Table WE10 of the WES indicates that LCA 10 has an overall low to moderate sensitivity and notes that "*this large scale landscape is less sensitive to wind energy development*". Table WE7 states that LCA10 is appropriate for a large wind farm (defined as 11-25 turbines) in 'Strategic Areas' and medium developments (6-10

turbines) in areas 'Acceptable in Principle' and 'Open for Consideration'. Figure 13.2 of the EIAR superimposes the development site outline over the LCAs and this indicates that the site is located entirely within an area with the Landscape sensitivity of Class 3 – High. LCA10 is also the only LCA containing any Strategic Area and also contains 75% of the 'Acceptable in Principle' Area, clearly identifying this LCA as an area in which wind farm development is to be concentrated. The current County Development Plan includes the same basic landscape characterisation and sensitivity ratings.

11.13.6 Having regard to the strategic designation of most of the site in the Co. Galway WES, I am satisfied that the area can generally accommodate a large wind farm subject to consideration of impacts on specific vantage points. The EIAR includes a series of photomontages which assesses the visual impact of the turbines, particularly from designated views and focal points.

Potential Impacts

11.13.7 The EIAR considers the landscape and visual impacts within a 20km radius of the site. A detailed methodology is provided and possible limitations considered. The methodology is based on establishing a Zone of Theoretical Visibility (ZTV) using proprietary software, based on a Digital Terrain Model of the Area. The ZTV indicates where the wind farm is likely to be visible, how much of it will be visible and the extent and pattern of visibility. The assessment is based on a bare ground scenario i.e. no land cover and absence of all natural or man made features from the landscape including vegetation, houses and other buildings. I am satisfied that the ZTV is a reasonable representation of views on the ground and that the methodology for undertaking the landscape and visual impact assessment is robust.

11.13.8 The mapping in the EIAR indicates that the proposed turbine visibility is limited to the local area in the immediate vicinity of the site, enclosed by the horseshoe shaped hilltop ridgeline that surrounds the site. Outside the horseshoe shaped valley, visibility abruptly ends or is limited to much smaller numbers of turbines, likely those on higher ground to the north of the site. Within 10km of the site, to the southeast, south and west, turbine visibility is limited to small pockets of land where only small numbers of turbines will be visible in the majority of cases. Beyond 10km from the site, turbine visibility is even more limited. The cumulative visibility of the windfarm in

the context of other operational and permitted windfarms is also considered and it is demonstrated that the development will add very little to the pattern of wind turbine visibility in the area. Cumulative visual effects will be localised and occur primarily in an area to the south which is not densely populated, containing dwellings but no settlements.

11.13.9 The EIAR uses photomontages to provide baseline information and to assess the visual impacts of 22 viewpoints within the ZTV. Views representative of each LCA are included as well as from landscapes of varying sensitivities. Only LCA10, in which the development is located, would experience direct effects on landscape character as a result of the proposed development. Views also represent major routes, local areas, scenic and protected views and settlements within a 20km radius of the site. I am satisfied that the viewpoints selected allow for an adequate assessment of the overall visual impacts, particularly from sensitive locations such as residential areas and designated views.

11.13.10 A summary of the viewpoint assessment is set out in Table 13.7 of the EIAR. The significance of the residual effect was not considered to be 'Profound' or 'Very Significant' at any of the 22 viewpoints locations. A residual visual effect of 'Significant' was deemed to arise at two of the 22 viewpoint locations. Both of these viewpoints are in close proximity to the development where the majority of the turbines will be in view. It is noted in the EIAR that at both locations, the viewpoints are at isolated locations on roads with limited through traffic and few visual receptors. Both viewpoints are also located within the horseshoe shaped hilltop ridge of higher topography, within which all proposed turbines will be visible but outside of which, visibility will be much more restricted. All other viewpoints were assessed as resulting in Moderate (1), Slight (9), Not Significant (10) or Imperceptible (1) residual visual effects.

11.13.11 The EIAR also includes an assessment of potential impacts to visual receptors including road users and residential and recreational receptors. In terms of Road User Receptors, an assessment from the N59 National Secondary Route, R336 Regional Route, N84 National Secondary Route and Local Road Network was carried out. No significant visual impacts are identified with the exception of the two viewpoints noted above. In terms of residential receptors, the closest house to the windfarm is located within the adjacent Ugool site and is c. 1.13km from the nearest

Ardderroo wind turbine. The majority of houses and residential receptors in the wider area are located outside the horseshoe hilltop ridgeline and this will ensure visibility is limited.

11.13.12 Potential recreational users include those utilising the Sli Chonamara (currently closed) and Western Way walking routes. The EIAR notes that the Sli route already passes through large sections of the Galway Wind Park and in this context, users would not be considered to have as high a sensitivity to the proposed development as would be the case if it were the first wind farm proposed. For the Western Way the impact is considered Not Significant.

11.13.13 Potential impacts on focal points/views listed for preservation in the County Development Plan are also considered. The significance of effects on these is presented in Table 13.10 of the EIAR and is identified as imperceptible (13), slight (1) and not significant (9) primarily because of the lack of visibility or the focal point or view being in the opposite direction to the proposed development.

11.13.14 Impacts during the construction phase are considered to be temporary and not significant. The visual impact of the meteorological mast is considered to be long term but not significant.

11.13.15 I note that concerns have been raised by one party regarding the potential visual impact of the development and particularly turbines 1, 2, 3, 4, 5 and 6 and that they will have a significant negative impact on the amenity of the residential areas to the east and north of the site. It is stated that the siting of these turbines is contrary to the County Landscape Character Assessment as they protrude over the mountain ridgelines and thus will have a negative impact on the views of the east Connemara Mountains when viewed from the east and north of the site. Concerns are also raised regarding the potential adverse cumulative visual impact, particularly in conjunction with the Lettercraffoe Windfarm. One submission states that the Knockranny windfarm is under judicial review and should not be considered as part of the visual impact assessment. It is submitted that if this scheme was omitted, the proposed turbines would be visually dominant.

11.13.16 Turbines no.s 1-6 are the most visible aspect of the development in the wider landscape as they are located on the relatively elevated northern part of the site. Similar concerns regarding the visual impact of these more elevated turbines were

raised and considered under the previous proposal for the site – Appeal Reference 07.PA0036. 2 of these more elevated turbines have been omitted in the current proposal. As per the Inspector’s conclusions in that case, it is evident that the omission of these turbines (previously identified as 1-8) would reduce the visual impact of the development in a number of views. Notwithstanding this, other permitted/proposed wind energy development would still be visible in the landscape. With regard to the fact that these turbines protrude over the mountain ridgelines, the Wind Energy Guidelines state that Mountain Moorland landscapes (typical of that of the application site) can accommodate wind energy developments on ridges and peaks and in this context, I am satisfied that the proposal is acceptable.

11.13.17 With regard to the issue of cumulative impacts, regard must be had to section 9.9.2 of the Wind Energy Guidelines regarding Mountain Moorland landscapes which states:

“given that these landscapes comprise hedgerows and often hills, and that views across the landscape will likely be intermittent and partially obscured, visibility of two or more wind energy development is usually acceptable.”

11.13.18 The Guidelines state that cumulative effects are generally acceptable in this landscape type, depending on the topography as well as siting and design of wind energy development involved. In principle, the visibility of several wind energy developments in the landscape at this location is acceptable.

11.13.19 The cumulative visibility of the proposed development along with all other existing and permitted windfarms in the vicinity is indicated on Figure 13.9 of the EIAR and includes Lettercraffroe. In addition cumulative photomontages are provided. Overall the EIAR concludes that the proposed development will not result in significant additional visual impacts over and above the already permitted/proposed wind energy developments. The main areas that will experience high levels of cumulative visibility are the areas to the south and immediately west of the proposed development, most of which lies within a 10km radius of the study area. It is considered that the cumulative visual impacts will be localised and will occur in areas that are not densely populated. The EIAR states that it is considered that cumulative impact can be described as long term and slight given the amount of wind farm development that has already occurred and the limited number of additional turbines

that will come into view as a result of the proposed Ardderroo development. With regard to the suggestion by one party that the Knockranny development should be omitted from the assessment, even if this development does not come to fruition, having regard to the extent of other permitted wind farms in the vicinity of the site including Uggool and Cloosh, I am satisfied that the development would not be visually dominant having regard to the existing landscape character.

11.13.20 The issue of cumulative visibility was given a detailed assessment in the previous proposal pertaining to the site with the Inspector noting that there are increased effects on the local area but the extent of impacts in the wider landscape is limited as the overall scale of this cluster is accommodated within the scope of the landscape and that the cumulative impact result in the wind farms being seen as a key characteristic of the overall landscape but not of sufficient dominance to be a defining characteristic of the area. I would concur with this assessment, and having reviewed the cumulative visual impact photomontages submitted with the current application, I am satisfied that the development will not result in any significant additional adverse cumulative impacts that would warrant a recommendation of refusal on cumulative visual impact grounds.

Conclusion

11.13.21 The subject site is located within a Strategic Area and partially within an area Open for Consideration for wind farm development. There are few residential receptors within the vicinity of the application site. There are a number of other large scale wind farms in operation in the vicinity and in this context, the landscape character of the area has irrevocably changed. The landscape has already been highly modified through forestry plantation, telecommunications towers, overhead electricity transmission lines, substations and existing and proposed wind farms. The visual assessment clearly indicates that the development will not have any significant adverse landscape or visual impacts. I am satisfied that the landscape generally has the capacity to absorb a development of the scale proposed. I consider that the development would not have any adverse impacts on sensitive receptors or on any of the designated views within the study area. Whilst I acknowledge that some change will occur to the landscape as a result of the development, any negative impacts are likely to be localised and would not constitute unacceptable detrimental impact on the character of the area as a whole. I note that the Board previously

raised no objections to the visual impact of the development under Appeal Reference 07.PA0036.

11.13.22 I have considered all of the written submissions in relation to landscape and Visual Impact, in addition to those specifically identified in this section of the report. I am satisfied that the majority of potential impacts would be avoided, managed and mitigated by measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions.

11.14 **Interactions between the Factors**

11.14.1 Chapter 15 of the EIAR, in setting out the interaction of impacts reiterates, in summary, the interactions arising as identified in the preceding chapters of the EIAR with a matrix provided in Table 15.1. I would concur that the most dynamic interactions pertain to human beings with other interactions between biodiversity, soils, hydrology, air quality, noise and landscape, between landscape and cultural heritage and between lands, soil, and geology and hydrology/hydrogeology and air and climate.

11.14.2 I have considered the interrelationships between factors and whether these might as a whole effect the environment, even though the effects may be acceptable when considered on an individual basis. In my assessment of each environmental topic, I have considered the likelihood of significant effects arising as a consequence of interrelationship between factors. Most interactions e.g. the impact of noise and air quality on the population and human health are addressed under individual topic headings. Given the generally modest impacts which are predicted to occur having regard to the nature of the proposed development, mitigation measures, or as a consequence of proposed conditions, I do not foresee any likelihood of any of these interrelationships giving rise to significant effects on the environment.

11.14.3 In conclusion, I am satisfied that there are no such effects and, therefore, nothing to prevent the approval for the development on the grounds of interaction between factors.

11.15 **Cumulative Impacts**

11.15.1 Section 6.11 and 6.12 of the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) sets out guidance regarding cumulative effects. This states:

“Effects are not to be considered in isolation but cumulatively i.e. when they are added to other effects. A single effect on its own may not be significant in terms of impact on the environment but, when considered together with other effects, may have a significant impact on the environment. Also, a single effect which may, on its own, have a significant effect, may have a reduced and insignificant impact when combined with other effects.

The Directive requires that EIAR describes the cumulation of effects. Cumulative effects may arise from:

- The interaction between the various impacts within a single project.*
- The interaction between all of the different existing and/or approved projects in the same area as the proposed project.”*

11.15.2 The EIAR sets out a detailed assessment of the potential cumulative impacts of the project, the methodology of which is detailed in Section 2.6.

11.15.3 The list of other projects or activities included in the Cumulative Assessment are set out in Section 2.6.2 of the EIAR and include:

- Improvement to R336 Scrib to Bearnna via Ros an Mhil
- 110k Overhead line
- Knockranny/Letter 110/38 kV Electricity Substation
- 110kV Letter-Galway Underground Cable
- N59 Moycullen By Pass
- N59 Maam Cross – Oughterard Upgrade
- Connemara Greenway
- Uggool Wind Farm
- Cloosh Wind Farm
- Seecon Wind Farm
- Lettercraffroe Wind Farm
- Cloosh Wind Farm
- Knockranny Wind Farm

- Knockalough Wind Farm
- Shannagurraun Wind Farm
- Lettergunnet Wind Farm
- Inverin Wind Farm

11.15.4 A cumulative evaluation of the effects of the subject development and other relevant projects or activities on the environment is presented in each environmental factor topic chapters. The EIAR concludes for each factor that the cumulative effect of the development will not be significant.

11.15.5 I am satisfied that the cumulative assessment is robust and fully assesses the impacts of the current proposal in the context of other permitted and proposed windfarm developments and all other relevant existing and approved projects.

11.15.6 I note that the submission by the Department of Culture, Heritage and the Gaeltacht raised some concerns regarding the cumulative assessment set out in chapter 6 – Biodiversity and chapter 7 – Ornithology in that the assessment is unsupported by objective data including mapping of other wind farm development and/or catchment analysis of potential effects on water resources and water dependent habitats and species. It is also contended that there is insufficient detail of timelines for construction activities and phases of the Galway Wind Park development.

11.15.7 In response, the applicant has noted that a full detailed description of the relevant projects considered in the cumulative assessment including mapping of their location is set out in chapter 2 of the EIAR and cross referenced in chapters 6 and 7. Project specific information on the predicted ecological impacts associated with all relevant development is also set out.

11.15.8 It is acknowledged that no timelines for construction activities are provided in the EIAR chapters and that each development includes measures to ensure that they will not individually result in significant negative effects even if constructed simultaneously. I am satisfied that the matter of construction timing can be appropriately addressed in a construction management report to be submitted and agreed with the Planning Authority prior to the commencement of development.

11.15.9 With regard to water quality, it is detailed that the proposed wind farm has been designed so that no significant effect is predicted. The development, therefore,

cannot contribute to any significant cumulative effect. Having regard to the detailed suite of mitigation measures set out in the EIAR, this conclusion is reasonable.

11.15.10 The submission from the Department also states that it is unclear if the surveys reported on in the EIAR were carried out during the construction phases of nearby of adjoining projects. The applicant has clarified in their response initial surveys were undertaken to inform the EIAR in 2013 and 2014. Further surveys carried out in 2016, 2017 and 2018 were undertaken during the construction phase of some of the neighbouring development. However, no significant ecological differences in habitats or faunal abundance were recorded between 2013 and 2018 that were attributable to the neighbouring development. Water quality surveys updated in 2018 did not reveal any deterioration in water quality. I am satisfied, on this basis that the surveys undertaken are robust and establish an appropriate baseline for the assessment.

11.15.11 In conclusion, I consider that the cumulative assessment undertaken is satisfactory and provides an appropriate assessment of the interaction between all of the different existing and/or approved projects in the same area as the proposed project.

11.16 Reasoned Conclusion on Significant Effects

11.16.1 Having regard to the examination of the environmental information contained above, and in particular to the EIAR and supplementary information provided by the developer, and the submissions from the Planning Authority, prescribed bodies and observers in the course of the application, it is considered that the main significant direct and indirect effects of the proposed development on the environment are, and will be mitigated as follows:

Population and Human Health: Shadow flicker during the operational phase has the potential to impact on one dwelling. The EIAR sets out a mitigation strategy to control the level of daily shadow flicker experienced at the affected dwelling.

Biodiversity: There will be habitat loss at a localised level due to the construction of access roads, hard standing, borrow pits etc. There will be general disturbance particularly to birds and bats during the construction and operation phases and collision risk to certain bird species. There is potential for indirect impacts to aquatic species including Atlantic Salmon and Otter from polluted run-off entering watercourse during the construction phase. These impacts will be mitigated by a wide range of measures including implementation of a Construction and

Environmental Management Plan, watercourse protection measures, bog restoration programme, habitat management measures, pre-construction mammal surveys, bat protection measures, appointment of an Ecological Clerk of Works and a post construction bird monitoring programme.

Land, Soil and Geology: Potential impacts of the development include permanent removal of peat, subsoil and bedrock at excavation locations, potential contamination of soil by leakages and spillages, potential erosion of exposed subsoil and peat during tree felling, access road and turbine construction work and potential peat instability and failure. Mitigation measures are detailed including prevention of undercutting of slopes and unsupported excavation, management of the drainage system, prevention of placement of loads/overburden on marginal ground and monitoring systems. Other measures include use of floating roads, management and storage of fuels, bunding of the substation, regular inspection of plant and an emergency plan to deal with accidental spillages. Excess peat is to be stored appropriately and silt fences installed. To minimise erosion, stripping of peat will not take place during extremely wet period and brash mats will be used during tree felling.

Water: Potential indirect effects could be caused by the increase in run off, such as soil erosion and sediment release into the receiving watercourses. To mitigate impacts, a buffer zone of 50m will be put in place for on-site streams and lakes. A site drainage management plan will be implemented. There will be no direct discharged to surface waters. All run off from works areas will be attenuated and treated to a high quality prior to being released. Section 9.4.3 onwards of the EIAR sets out detailed mitigation including use of filtration treatment including silt traps, silt fences, silt bags; management of hydrocarbons; management of run off; avoidance of wet cement batching at the site and measures to prevent concrete and fuel spillages. The Construction and Environmental Management Plan also includes a suite of detailed mitigation measures related to surface water management.

Landscape and Visual: There will be some localised significant visual impact from intermittent sections of the local road network within the development site. Affected locations are generally at isolated places on roads with limited through traffic and few visual receptors.

Noise and Vibration: During the construction phase, noise impacts may arise from construction activities such as site preparation and construction of the turbine foundations, roads and substation. Predicted operational noise levels will be within the relevant best practice noise criteria curves for wind farms. A suite of mitigation measures to manage noise and vibration during the construction phase are set out in the EIAR. Post commissioning monitoring will be necessary to ensure the operational noise levels comply with the relevant day and night time criteria.

In conclusion, the EIAR has considered that the main direct and indirect effects of the proposed development on the environment would be primarily mitigated by environmental management measures.

I am, therefore, satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment.

12.0 **Appropriate Assessment**

12.1 **Introduction**

12.1.1 Article 6(3) of Directive 92/43/EEC (Habitats Directive) requires that any plan or project not directly connected with or necessary to the management of a European site(s), 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(s) in view of the site(s) conservation objectives. The Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000, as amended, and the European Union (Birds and Natural Habitats) Regulations 2011-2015.

12.1.2 In accordance with these requirements the Board, as the competent authority, prior to granting a consent must be satisfied that the proposal individually or in combination with other plans or projects, is either not likely to have a significant effect on any European Site or adversely affect the integrity of such a site, in view of the site(s) conservation objectives.

12.1.3 Guidance on Appropriate Assessment is provided by the EU and the NPWS in the following documents:

- 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).
- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG), 2009.

12.1.4 Both documents provide guidance on Screening for Appropriate Assessment and the process of Appropriate Assessment itself.

12.2 **The Natura Impact Statement**

12.2.1 The application was accompanied by a Natura Impact Statement (NIS). The NIS contained a Stage 1 Screening Assessment which concluded that a Stage 2 Appropriate Assessment was required.

12.2.2 The submission by the Department of Culture, Heritage and the Gaeltacht (28.01.2019) raised some concerns regarding the adequacy of the NIS as originally

submitted and it stated that the approach and analysis in the NIS was based on narrative and/or assessments and conclusions of the EIAR, rather than an examination of scientific evidence and data presented or cross referenced in the NIS itself and without specific reference to the conservation objectives.

12.2.3 On foot of this submission, in their response to the submission and observations, the applicant submitted a revised NIS to the Board on the 19th of March 2019. The submission noted that the revised NIS was updated in the following areas:

- Appending of EIAR Chapter 4, Description of the Proposed Development.
- Appending of EIAR Chapter 9, Water.
- Appending of relevant sections of the EIAR Chapters 6 and 7, Biodiversity and Ornithology. Updated baseline Otter and aquatic surveying.
- Appending of Construction and Environmental Management Plan.
- Inclusion of specific targeted assessment of the site specific conservation objective including conservation targets and attributes for each of the relevant Qualifying Interests and Special Conservation Interests.
- Updated cumulative assessment to provide greater detail and analysis of the potential cumulative effects specifically on the identified European sites.

12.2.4 Having regard to the fact that the amendments to the NIS contained significant additional information on the effects of the proposed development on the environment, in accordance with Section 37 (F) (2) of the Planning and Development Act, 2000 as amended, the applicant was requested to publish new public notices and issue a copy of the documentation to prescribed bodies.

12.2.5 The revised NIS outlines the methodology used for assessing potential impacts on the habitats and species within several European Sites that have the potential to be affected by the proposed development. It predicts the potential impacts for these sites and their conservation objectives, it suggests mitigation measures, assesses in-combination effects with other plans and projects and it identifies any residual effects on the European sites and their conservation objectives.

12.2.6 Having reviewed the revised NIS and the supporting documentation, I am satisfied that it provides adequate information in respect of the baseline conditions, does

clearly identify the potential impacts, and does use best scientific information and knowledge. Details of mitigation measures are provided and they are summarised in Section 5 of the revised NIS. I am satisfied that the information is sufficient to allow for Appropriate Assessment of the proposed development.

12.3 **Appropriate Assessment Screening – Stage 1**

12.3.1 I consider that the proposed development is not directly connected with or necessary to the management of any European site.

12.3.2 The Natura Impact Statement which accompanies the planning application includes a Stage 1 Screening Report as Appendix 1. It notes that there are 10 European Sites within the likely zone of impact of the development. 7 of these are cSACs and 3 are SPAs. There are no European sites within the proposed development area. All of the identified sites in the Screening Report are within a 15km radius of the proposed development. It notes that sites outside the 15km zone were also considered but that ongoing bird surveys revealed that the proposed development is not located on an identifiable migration route and, therefore, no other pathway for effects was identified. No potential effects on European sites that are outside the 15km buffer were identified. Having regard to the detailed bird surveys undertaken, I am satisfied with this approach.

12.3.3 Table 3.1 of Appendix 1 of the revised NIS includes a summary description of each of the European sites considered. The sites considered within the Stage 1 Screening and the distances from the development site are summarised below:

Name of Site	Site Code and Designation	Approximate distance from windfarm site	Approximate distance from temporary construction access road
Connemara Bog Complex	002034 SAC	0 km	3.3km south The site is located immediately adjacent to the study area. There is potential for direct effect to the Otter and indirect

			<p>effects arising from water pollution and hydrological change.</p> <p>Screened In</p>
Lough Corrib	000297 SAC	2.9km north	<p>2.9km north</p> <p>The windfarm study area is in an entirely separate hydrological catchment from the SAC. The development is outside the foraging range of the Lesser Horseshoe Bat. The temporary construction access road is located within the Corrib catchment. There is potential for indirect impacts arising from water pollution and hydrological change.</p> <p>Screened In</p>
Ross Lake and Woods	001312 SAC	2.9km east	<p>0.1km east</p> <p>The windfarm study area is in an entirely separate hydrological catchment from the SAC. The windfarm site is close to the foraging range of the Lesser Horseshoe Bat. The alternative wind farm access road is located within 100m of the SAC. There is potential for indirect impacts arising from water pollution.</p> <p>Screened In</p>

Gortnandarragh Limestone Pavement	001271 SAC	4.6km north	2.4km north east No surface water, groundwater of habitat connectivity. No source pathway receptor chains for direct or indirect impacts. Screened Out
Kilkieran Bay and Islands	002111 SAC	12.6km west	16.1km west No surface water, groundwater of habitat connectivity. No source pathway receptor chains for direct or indirect impacts. Screened Out
Galway Bay Complex	000268 SAC	12.9km south east	14.1km south east No direct surface water, groundwater of habitat connectivity. The outfall of the Owenboliska is separated from the SAC by approx. 12km of seawater offering a buffer to any potential effects as a result of the development. No source pathway receptor chains for direct or indirect impacts. Screened Out
Cloughmoyne	000479 SAC	14.8km north east	13km north east No surface water, groundwater of habitat connectivity. No

			<p>source pathway receptor chains for direct or indirect impacts.</p> <p>Screened Out</p>
<p>Connemara Bog Complex</p>	<p>004181 SPA</p>	<p>0.2km south</p>	<p>8.4km south west</p> <p>The development is located within the potential foraging range of the SCI species associated with the SPA. Consequently, the potential for direct and indirect impacts on the SCI species cannot be discounted.</p> <p>There will be no direct effects on the supporting wetland habitat of waterbirds within the SPA. There is potential for indirect effects with regard to surface water pollution as the south western corner of the wind farm study area drains to Lough Boliska which is within the SPA.</p> <p>Screened In</p>
<p>Lough Corrib</p>	<p>0040420 SPA</p>	<p>6km west</p>	<p>4.4km west</p> <p>The development is located within the potential foraging range of SCI species associated with the SPA.</p> <p>There will be no direct effects on the supporting wetland</p>

			<p>habitat of the waterbird within the SPA. There is potential for indirect effects with regard to surface water pollution as the alternative wind farm access road is located upstream of Ross Lake which ultimately drains to Lough Corrib.</p> <p>Screened In</p>
Inner Galway Bay	004031 SPA	14km south west	<p>15km south west</p> <p>The development is located outside the potential core foraging range (in excess of 12km) of the SCI species associated with the SPA.</p> <p>There will be no direct effects on the supporting wetland habitat of waterbirds within the SPA. There is no potential for indirect effects with regard to surface water pollution as there is no direct hydrological linkage between the development and the SPA.</p> <p>Screened Out</p>

12.3.4 The Board should be aware that the temporary construction access road does not form part of the current application. However, potential impacts of this alternative route, should it come to fruition in the future, have been assessed in both the EIAR and the revised NIS.

12.3.5 Based on my examination of the revised NIS Report and supporting information, the NPWS website, aerial and satellite imagery, the scale of the proposed development and likely effects, separation distance and functional relationship between the proposed works and the European sites, their conservation objectives and taken in conjunction with my assessment of the subject site and the surrounding area, I would conclude that a Stage 2 Appropriate Assessment is required for 5 of the European sites referred to above, namely the:

- Connemara Bog Complex SAC (002034)
- Lough Corrib SAC (00297)
- Ross Lake and Woods SAC (001312)
- Connemara Bog Complex SPA (00418)
- Lough Corrib SPA (004042)

12.3.6 I note that in the previous assessment undertaken in respect of the development proposed under 07.PA0036, concerns were raised by the Inspector that the Lough Corrib SAC and Lough Corrib SPA were excluded from the Stage 2 Appropriate Assessment. This was reflected in the Board Order which stated *“In addition, the Appropriate Assessment screening documentation screens out sites that host qualifying interests that could have connectivity with and could be subject to impacts from the proposed development, namely the Lough Corrib Special Area of Conservation, the Lough Corrib Special Protection Area and the Inner Galway Bay Special Protection Area.”* In the current proposal, the revised NIS includes both sites in the Stage 2 Appropriate Assessment and an analysis of the potential impacts of the development on the relevant qualifying interests of these sites is carried out.

12.3.7 I note that the previous Inspector’s Report also considered that the Inner Galway Bay SAC should be included in the Stage 2 Appropriate Assessment. The report stated that this SPA supports several wintering waterbirds that are known to be present at the development site and in this context, potential impacts on these qualifying interests could not be ruled out. The Stage 1 Screening Assessment submitted by the applicant notes that the proposed wind farm development is located in excess of 12km outside the zone of sensitivity of SCI species associated with this SPA. Furthermore, these species are not particularly vulnerable to wind energy development due to their flight behaviour and habitat requirements. Having regard to

the bird survey data contained in the revised NIS and the distance of this European Site from the subject site, I am satisfied that it can be screened out from further assessment.

12.3.8 In conclusion, the remaining sites namely:

- Gortnandarragh Limestone Pavement SAC (001271)
- Kilkiernan Bay and Islands SAC (002111)
- Galway Bay Complex SAC (000268)
- Cloughmoyne SAC (000479)
- Inner Galway SPA (004031)

can be screened out from further assessment because of the scale of the proposed works, the nature of the Conservation Objectives, Qualifying and Special Conservation Interests, the separation distances and the lack of a substantive linkage between the proposed works and the European sites. It is, therefore, reasonable to conclude that on the basis of the information on file, which I consider adequate to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on these 5 European Sites in view of the sites' conservation objectives and a Stage 2 Appropriate Assessment is not, therefore, required for these sites.

12.4 Stage Two- Appropriate Assessment

12.4.1 **Relevant European Sites:** The Conservation Objectives and Qualifying Interests for these sites are set out below.

Site Name	Qualifying Interests	Distance
Connemara Bog Complex SAC (002034)	1065 Marsh Fritillary <i>Euphydryas aurinia</i> 1106 Salmon <i>Salmo salar</i> 1150 Coastal lagoons 1170 Reefs 1355 Otter <i>Lutra lutra</i>	Wind farm development boundary shares border with this SAC. 3.3km south of temporary

	<p>1833 Slender Naiad <i>Najas flexilis</i></p> <p>3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p> <p>3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i></p> <p>3160 Natural dystrophic lakes and ponds</p> <p>3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation</p> <p>4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>4030 European dry heaths</p> <p>6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p>7130 Blanket bogs (* if active bog)</p> <p>7140 Transition mires and quaking bogs</p> <p>7150 Depressions on peat substrates of the Rhynchosporion</p> <p>7230 Alkaline fens</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p>	<p>construction access road.</p>
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<p>Lough Corrib SAC (000297)</p>	<p>1029 Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></p> <p>1092 White-clawed Crayfish <i>Austropotamobius pallipes</i></p> <p>1095 Sea Lamprey <i>Petromyzon marinus</i></p> <p>1096 Brook Lamprey <i>Lampetra planeri</i></p> <p>1106 Salmon <i>Salmo salar</i></p> <p>1303 Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i></p> <p>1355 Otter <i>Lutra lutra</i></p> <p>1393 Slender Green Feather-moss <i>Drepanocladus vernicosus</i></p> <p>1833 Slender Naiad <i>Najas flexilis</i></p> <p>3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p> <p>3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i></p> <p>3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.</p> <p>3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation</p>	<p>2.9km north of wind farm site.</p> <p>2.9km north of temporary construction access road.</p>
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	<p>6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites)</p> <p>6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p>7110 Active raised bogs</p> <p>7120 Degraded raised bogs still capable of natural regeneration</p> <p>7150 Depressions on peat substrates of the Rhynchosporion</p> <p>7210 Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></p> <p>7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)</p> <p>7230 Alkaline fens</p> <p>8240 Limestone pavements</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>91D0 Bog woodland</p>	
<p>Ross Lake and Woods SAC (001312)</p>	<p>1303 Lesser Horseshoe <i>Bat Rhinolophus hipposideros</i></p> <p>3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.</p>	<p>2.9km east of wind farm site and 0.1km east of temporary construction access road.</p>

<p>Connemara Bog Complex SPA (004181)</p>	<p>A017 Cormorant <i>Phalacrocorax carbo</i> A098 Merlin <i>Falco columbarius</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i> A182 Common Gull <i>Larus canus</i></p>	<p>0.2km south of wind farm site.</p> <p>8.4km south west of temporary construction access road.</p>
<p>Lough Corrib SPA (004042)</p>	<p>A051 Gadwall <i>Anas strepera</i></p> <p>A056 Shoveler <i>Anas clypeata</i></p> <p>A059 Pochard <i>Aythya ferina</i></p> <p>A061 Tufted Duck <i>Aythya fuligula</i></p> <p>A065 Common Scoter <i>Melanitta nigra</i></p> <p>A082 Hen Harrier <i>Circus cyaneus</i></p> <p>A125 Coot <i>Fulica atra</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A182 Common Gull <i>Larus canus</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A395 Greenland White-fronted Goose <i>Anser albifrons flavirostris</i></p>	<p>6km west of wind farm study area.</p> <p>4.4km west of temporary construction access road</p>

Connemara Bog Complex SAC (002034)

Brief Description of the Site

- 12.4.2 As noted in the NPWS Site Synopsis, the Connemara Bog Complex is located immediately adjacent to much of the south eastern boundary of the study area. The footprint of the development is within the Owenboliska catchment and surface water drains to this river within the Connemara Bog Complex SAC. The site supports a wide range of habitats, including extensive tracts of western blanket bog, which form the core interest, as well as areas of heath, fen, woodlands, lakes, rivers and coastal habitats. The Connemara Bog Complex is characterised by areas of deep peat surrounded by rocky granite outcrops covered by heath vegetation. However, the main habitat within this site is lowland Atlantic blanket bog.
- 12.4.3 Both oligotrophic and dystrophic lakes are found within Connemara Bog Complex SAC, with the greatest concentration in the west of the site. The rare species Slender Naiad (*Najas flexilis*) and Pillwort (*Pilularia globulifera*) have both been recorded from oligotrophic lakes at this site however, Slender Naiad has not been located in the Owenboliska catchment. Nine species protected under the Flora (Protection) Order, 2015, occur within this site. All are also listed in the Irish Red Data Book, and Slender Naiad is listed on Annex II of the E.U. Habitats Directive. The Annex II butterfly species, Marsh Fritillary, is known to occur at this site. Atlantic Salmon, a species listed under Annex II of the E.U. Habitats Directive, occurs in many of the rivers within the site. Otter have been recorded as occurring in the Connemara Bog Complex.
- 12.4.4 The site is of national importance for wintering populations of Greenland Whitefronted Goose. There is an internationally important breeding area for Cormorants at Lough Scannive. Golden Plover, a species listed on Annex I of the E.U. Birds Directive, nests at up to four locations in the site. Another Annex I species known to be present in the site is Merlin. Lough Naskanniva is an important inland breeding site for Common Terns and Choughs, both of which are also Annex I species under the E.U. Birds Directive. The main damaging operations and threats in the Connemara Bog Complex are peat cutting, over-grazing and afforestation.

Conservation Objectives

- To maintain the favourable conservation condition of Coastal lagoons; Reefs; Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*); Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*; Natural dystrophic lakes and ponds; Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation; Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); Old sessile oak woods with *Ilex* and *Blechnum* in Connemara Bog Complex SAC.
- To restore the favourable conservation condition of Northern Atlantic wet heaths with *Erica tetralix*; European dry heaths; Blanket bogs; Transition mires and quaking bogs; Depressions on peat substrates of the Rhynchosporion; Alkaline fens; in Connemara Bog Complex SAC.
- To maintain the favourable conservation condition of Marsh Fritillary in Connemara Bog Complex SAC.
- To restore the favourable conservation condition of Atlantic Salmon in Connemara Bog Complex SAC.
- To maintain the favourable conservation condition of Otter in Connemara Bog Complex SAC.
- To maintain the favourable conservation condition of Slender Naiad in Connemara Bog Complex SAC.

12.4.5 For further information regarding attributes and targets refer to NPWS Conservation Objectives October 2015.

Potential Direct Effects

12.4.6 There are considered no likely direct effects on the SAC.

Potential Indirect Effects

12.4.7 There is potential for indirect effects on the SAC in the form of disturbance to Otter and by habitat fragmentation. Furthermore, the Otter and Salmon species could be indirectly negatively affected by water pollution associated with the construction, operation and decommissioning of the development to the Owenboliska River and its tributaries which provide a habitat for these species.

- 12.4.8 In addition, there may be potential for indirect effects on habitats and for water pollution and hydrological change on the downstream Owenboliska catchment. In relation to the habitats of Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*), Natural dystrophic lakes and ponds, Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation, transition mires and quaking bogs and alkaline fens, these habitats can be negatively affected by water pollution. There is a pathway for effects from the run off of pollutants to the Owenboliska River and its tributaries, in which these habitats are located.
- 12.4.9 The revised NIS sets out that certain qualifying conservation interests of the SAC will not be indirectly impacted by the proposal. The site is located c. 11km from coastal habitat QI's including Coastal Lagoons and reefs. The nature and scale of the development is such that there is no potential for a large-scale pollution event that could potentially affect these coastal habitats. The buffering and dilution effect of the intervening watercourse, lakes and sea will ensure no adverse impacts on these QI.
- 12.4.10 In terms of Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles, Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) and European dry heaths, the detailed habitat surveys undertaken to inform the Biodiversity chapter of the EIA did not record these terrestrial habitats within or adjacent to the proposed site. These habitats will not be affected by sedimentation or pollution of surface waters.
- 12.4.11 The habitats of Northern Atlantic wet heaths with *Erica tetralix*, Blanket bogs (*if active bog) and depressions of peat substrates of the Rhynchosporion were recorded both within and adjacent to the site. It is detailed in the revised NIS that given the nature of the proposed works, the intervening land use (forestry) and substrate between the footprint of the development and the SAC boundary, hydrological or any other changes to peatland are unlikely, Furthermore, the proposed development is separated from the SAC by the Owenboliska River which acts as a further barrier to any potential for effects. These habitats will not be impacted by sedimentation or pollution of surface waters.

- 12.4.12 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* habitats do not occur within the Owenboliska catchment.
- 12.4.13 The revised NIS states that the *Najas flexilis* (Slender Naiad) does not occur within the zone of influence of the development and as highlighted in the NPWS mapping and Conservation Objectives, there are no known populations of this species occurring within the Owenboliska catchment.
- 12.4.14 Surveys were previously carried out in 2013 regarding the Marsh Fritillary (*Euphydryas aurinia*) to inform the previous application relating to the site. These surveys indicated no suitable habitat or evidence of larval webs recorded within the development footprint of the study area. No suitable habitat was recorded during any of the walkover ecological surveys that were undertaken throughout 2013, 2014, 2017 and 2018. There is no identified pathway for effect on this species either within or outside the site of the development. As the species is highly unlikely to be present on site due to the lack of suitable habitat, no impacts arise.

Mitigation Measures

- 12.4.15 A range of mitigation measures are set out to ensure that there is no deterioration of surface water quality on the Owenboliska River and catchment that may affect the Otter and Salmon and other species and habitats noted above. The revised NIS sets out a suite of measures as well as a detailed Construction and Environmental Management Plan to avoid, reduce and remedy potential adverse impacts on surface water quality. A summary of these measures is set out in section 5 of the revised NIS. A site drainage plan will be implemented including interceptor drains, collector drains, swales, silt traps and settlement ponds which will ensure that any surface water run off from the development will be of high quality and will minimise potential for sedimentation and pollution impacts. An invasive species management plan will also be implemented.
- 12.4.16 It is acknowledged in the revised NIS that some of the tributaries of the Owenboliska River are a suitable habitat for the Otter species, although baseline surveys undertaken by the applicant did not identify the presence of this species. Mitigation measures proposed to prevent any adverse impact to this species include the avoidance any major infrastructure within 50 metres of any watercourse to minimise

potential for disturbance. It is identified that potential fragmentation impacts could occur from the construction of a new watercourse crossing of the Owenboliska River. Pre-construction surveys will be undertaken to identify any Otter holts within the works area associated with the development. The river watercrossing will comprise a clear span structure and part of the riverbank will be retained to provide a dry passage for the Otter under the structure.

Assessment

- 12.4.17 It is stated in the submission by the Department of Culture, Heritage and the Gaeltacht (28.01.2019) that potential effects of the development on Annex 1 lake habitats in the Connemara Bog Complex SAC as well as the Otter and Salmon should in particular consider the attributes and targets for water quality in the conservation objectives; existing water quality; in combination affects and the ability to prevent any further effects on water quality at the site, even with the mitigation measures listed.
- 12.4.18 I have considered the existing water quality parameters detailed in the revised NIS, noting in particular that these now include more recent aquatic sampling carried out in March 2019 (refer to Appendix 4 of revised NIS). I note the detailed measures set out to manage potential pathways for pollution during the construction and operational stages of the wind farm development. These are outlined in detail in revised NIS particularly in Section 5, Appendix 3 and 6. I am satisfied, with the implementation of the proposed hydrology and hydrogeology mitigation measures as set out, that the development would not result in material adverse pollution of waters that flow into the Owenboliska Catchment and lakes within it that support suitable habitat for the Salmon and Otter species. I also note the specific measures set out to avoid fragmentation of habitat associated with the Otter species, which I consider appropriate.
- 12.4.19 The revised NIS considers the potential impacts to the targets and attributes associated with the site specific conservation objectives for the potentially affected habitats. In terms of the various Annex 1 habitats present within the SAC that could be impacted upon as detailed above, the development has been designed to avoid impacts and appropriate mitigation measures are proposed to avoid, reduce and remedy potential adverse impacts on surface water quality. Potential impacts to

these habitats primarily arises from water pollution and peat removal. As the development has been designed to avoid these impacts and mitigation measures are proposed (refer in particular to Appendix 3 and Section 5 of revised NIS), significant material impacts on these qualifying interests is, therefore, considered unlikely.

- 12.4.20 Potential impacts of the development on the targets and attributes associated with the site specific conservation objectives for Salmon are set out in Table 4.5 of the revised NIS. No instream works are proposed. Emissions to surface water quality has the potential to indirectly impact on the Salmon species. However, as noted above, a wide range of measures are in place to minimise adverse impacts on surface water quality, and in this context, I am satisfied that the development will not adversely affect Atlantic Salmon associated with the Connemara Bog Complex SAC.
- 12.4.21 I note the comment from the Department of Culture, Heritage and the Gaeltacht in their submission of the 28th of January 2019 that no details of Otter surveys were included in the original NIS as submitted. The revised NIS contains an updated Otter survey carried out in March 2019. 10 Otter survey locations were selected for the survey and no evidenced of Otter was recorded. Notwithstanding the fact that no presence of this species was recorded, I note that the applicant has taken a precautionary approach regarding protection of this species. As detailed above a range of measures are in place to avoid adverse impacts on surface water quality and the proposed development has been designed to avoid all in stream works and all major infrastructure is located over 50 metres from any watercourse. Measures are also in place to reduce potential of habitat fragmentation and all watercourses will be crossed by clear span structures and part of the riverbank will be retained to provide dry passage for Otter under the structure. I am satisfied that with the implementation of the various mitigation measures detailed, that there will be no material adverse impacts to this qualifying interest.
- 12.4.22 I note that no concerns were raised by the Inspector or the Board in their assessment of the previous application pertaining to the site under 07.PA0036 regarding potential impacts to the qualifying interests of the Connemara Bog Complex SAC, including Marsh Fritillary, Salmon, Otter, Slender Naid and the various habitats. The report did raise a concern that the previous NIS submitted with that application did not consider the impact on the habitat Dystrophic Lakes within the SAC. Impacts to this habitat are addressed in Table 4.1 of the revised NIS.

12.4.23 In conclusion, I am satisfied that the development would not cause changes to the key indicators of conservation value, including water quality, the Otter and Salmon species and protected habitats, hence there is no potential for any adverse impacts to occur on either species or the habitats associated with the Connemara Bog Complex SAC (Site Code: 002034). I, therefore, consider it reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 002034, in view of the site's Conservation Objectives.

Ross Lake and Woods SAC (001312)

Brief Description of the Site

12.4.24 As noted in the NPWS Site Synopsis, this SAC is located over 2.9km from the proposed windfarm development and is an entirely separate surface water catchment from it. It is however, located c. 100 metres from the proposed temporary construction access track. This track crosses a small stream that flows into Ross Lake and thus, there is a potential pathway. Ross Lake is a good example of a hard water lake. Most of the shoreline is fringed by wetland vegetation of reedswamp, freshwater marsh, fen, wet woodland and wet grassland. Also found around the lake edge is well-developed wet woodland, with Alder (*Alnus glutinosa*) and willows (*Salix spp.*) occurring. The site contains a large block of coniferous plantation at Annagh Wood. There are also areas of broadleaved woodland and scrub.

12.4.25 A breeding colony of Lesser Horseshoe Bat occurs in an out-building beside Ross House. This species is threatened within the EU and the population at this site is rated of international importance. The proposed temporary construction access road is located only 100 metres from the edge of the site and it is considered to be within the core foraging range for this species. The majority of the habitats associated with the temporary access track are not suitable for this species, being open peatlands. There are however, small areas of scrub at either end that provide suitable cover for foraging and commuting habitat for the species.

12.4.26 The presence on the site of Otter, a species also listed on Annex II of the E.U. Habitats Directive is notable.

Conservation Objectives

- To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Ross Lake and Woods SAC.
- To restore the favourable conservation condition of Lesser Horseshoe Bat in Ross Lake and Woods SAC.

12.4.27 For further information regarding attributes and targets refer to NPWS Conservation Objectives October 2018.

Potential Direct Effects

12.4.28 There are considered no likely direct effects on the SAC.

Potential Indirect Effects

12.4.29 There is potential for disturbance to the Lesser Horseshoe Bat. The proposed development site is located outside the core foraging range of this species as it is associated with the SAC. Notwithstanding this, the species has been identified on the subject windfarm site and effects on the species must be considered on a precautionary basis. The temporary construction access road is located within the foraging range of the SAC population, but these works will not include lighting, any significant loss of woodland, scrub, linear features or buildings which will minimise any potential impacts.

12.4.30 Potential impacts in terms of the targets and attributes associated with the site specific conservation objectives for the Lesser Horseshoe Bat are set out in table 4.8 of the revised NIS. A detailed bat survey was carried out to inform the revised NIS. As noted in this, the development will not have any direct impact on any roost sites. A night roost was identified at Letter Lodge outhouse. This is however, outside the foraging range of the Lesser Horseshoe Bats that are associated with the Ross Lake Woods SAC. This roost will be retained along with vegetative connectivity to the wider area. The development will not result in any reduction on the potential of foraging habitat within 2.5km of the SAC. The alternative wind farm access road will pass through a small area of scrub/woodland alongside the N59 but this will not result in any loss of vegetative connectivity or foraging habitat given the location of the temporary construction access road and its narrow width. The development has been designed to retain habitat connectivity. There will be no light pollution

associated with the development. In this regard, impacts on the Lesser Horseshoe bat species will be negligible.

- 12.4.31 There is also potential for indirect effects with regard to surface water pollution associated with the water crossing on the temporary construction access road. A deterioration of surface water quality may impact negatively on the habitat of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.

Mitigation Measures

- 12.4.32 As noted above, a suite of measures are proposed in the revised NIS to avoid, reduce and remedy any potential impacts on surface water quality during the construction, operational and decommissioning phases of the development. An invasive species management plan will also be implemented.
- 12.4.33 Detail mitigation measures regarding bats are set out in section 7 of the Bat Survey report included as Appendix 4 of the revised NIS and includes measures including buffer distances, noise and lighting restrictions, habitat management and post construction monitoring.

Assessment

- 12.4.34 I note concerns were raised in the previous assessment regarding the adequacy of the bat surveys and potential impacts on the Lesser Horseshoe Bat species. The submission by the Department of Culture, Heritage and the Gaeltacht (28.01.2019) also raised concerns that no details of any surveys are included in the NIS. The revised NIS includes all details of the bat survey undertaken in Appendix 4. A comprehensive bat survey of the site has been undertaken and impacts to this species specifically assessed. I am satisfied that the surveys are robust and that there is sufficient information to determine potential impacts to this qualifying interest. I consider the development is unlikely to impact upon the Lesser Horseshoe Bats that are associated with the Ross Lake Woods SAC.
- 12.4.35 In conclusion, I am satisfied that the development would not cause changes to the key indicators of conservation value, including water quality, the Lesser Horseshoe Bat species and protected habitat of Hard oligo-mesotrophic waters with benthic vegetation. There will be no direct loss or disturbance of any bat roosts and no material reduction in potential foraging habitat within 2.5km of the SAC. Measures to preserve surface water quality will ensure no adverse impacts to the qualifying

interest habitat. I, therefore, consider it reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 001312, in view of the site's Conservation Objectives.

Lough Corrib SAC (000297)

Brief Description of Site

- 12.4.36 As detailed in the NPWS Site Synopsis, this SAC is located 2.9km from the wind farm site and it is also in an entirely separate surface water catchment with the exception of the proposed temporary construction access road. This is located within the Lough Corrib catchment but the only potential pathway for effect is via a single small watercourse that the proposed temporary road crosses. This stream flows into Ross Lake and from there into the Lough Corrib SAC.
- 12.4.37 Lough Corrib is situated to the north of Galway City and is the second largest lake in Ireland. The lake is rated as an internationally important site for waterfowl. Lough Corrib is considered one of the best sites in the country for Otter, due to the sheer size of the lake and associated rivers and streams, and also the generally high quality of the habitats. Atlantic Salmon (*Salmo salar*) use the lake and rivers as spawning grounds. A population of Freshwater Pearl Mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. Lough Corrib is one the best examples of a large lacustrine catchment system in Ireland, with a range of habitats and species still well represented. These include 15 habitats which are listed on Annex I of the E.U. Habitats Directive, six of which are priority habitats, and nine species which are listed on Annex II. The lake is also internationally important for birds.
- 12.4.38 The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning.

Conservation Objectives

- To restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*), Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoëto-Nanojuncetea*; Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp; Active raised bogs*; Freshwater Pearl Mussel; Sea Lamprey; Lesser Horseshoe Bat; Slender Naiad in Lough Corrib SAC.
- To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation; Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites); Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*; Petrifying springs with tufa formation (*Cratoneurion*)*; Alkaline fens; Limestone pavements*; Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles; Bog woodland*; White-clawed Crayfish; Brook Lamprey; Atlantic Salmon; Otter; Slender Green Feather-moss in Lough Corrib SAC.
- Degraded raised bogs still capable of natural regeneration: The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Lough Corrib SAC.
- Depressions on peat substrates of the Rhynchosporion: is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Lough Corrib SAC.

For further information regarding attributes and targets refer to NPWS Conservation Objectives April 2017.

Direct Impacts

12.4.39 There are considered no likely direct effects on the SAC.

Indirect Effects

12.4.40 Potential impacts to a number of habitats within the SAC are screened out in the revised NIS (Table 4.10) on the basis that there is no pathway for indirect effects to the various terrestrial habitat QI's or that there was no surface water connection to the location of certain habitats and species. This is considered reasonable. With respect to the Lesser Horseshoe Bat, the revised NIS details that the proposed development is located well outside the zone of influence (2.5km) of the population of Lesser Horseshoe Bats (for the protection of which the SAC is designated) and the population and its associated foraging area is located on the northern shore of Lough Corrib, over 16km from the site of the proposed development.

12.4.41 The revised NIS however, identifies that there is potential for indirect effects to a number of habitats including Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.; Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation; Otter *Lutra lutra*; White-clawed Crayfish *Austropotamobius pallipes*; Sea Lamprey *Petromyzon marinus*; Brook Lamprey *Lampetra planeri*; Salmon *Salmo salar* with regard to potential surface water pollution.

Mitigation Measures

12.4.42 As noted above, a suite of measures are proposed both in the revised NIS and the Construction and Environmental Management Plan (Appendix 3 of the revised NIS) to avoid, reduce and remedy any potential impacts on surface water quality during the construction, operational and decommissioning phases of the development. An invasive species management plan will also be implemented.

Assessment

12.4.43 I note concerns were raised in the previous Inspectors Report (07.PA0036) that the Lough Corrib SAC was excluded from the Stage 2 Appropriate Assessment and it was considered that the potential impacts on the qualifying interest of the Lesser Horseshoe Bat should have been considered. This issue has been considered in the revised NIS submitted in support of the current application, and having regard to the significant distance of the population of this species from the subject site, I am satisfied that no adverse impacts to this QI of the Lough Corrib SAC are likely to

arise. The revised NIS considers the potential impacts on the targets and attributes for the various habitats and species as per the conservation objectives of the SAC.

12.4.44 There will be no instream works arising from the development. The only likely potential indirect impact that may arise is a deterioration in water quality from water pollution which may impact on the relevant habitats and species. I note that polluted water would have to travel through Ross Lake before flowing for a distance of over 4km to reach the SAC. Notwithstanding this, a suite of appropriate mitigation measures are set out in the documentation to manage potential water pollution impacts, and in this regard, no significant degradation of water quality is likely to occur.

12.4.45 In conclusion, I am satisfied that the development would not cause changes to the key indicators of conservation value, including water quality, the Lesser Horseshoe Bat species, and other species including the Otter, Salmon, Sea Lamprey, White-clawed Crayfish, Brook Lamprey and protected habitats, hence there is no potential for any adverse impacts to occur on either species or the habitats associated with the Lough Corrib SAC (000297). I, therefore, consider it reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 000297, in view of the site's Conservation Objectives.

Connemara Bog Complex SPA (004181)

Brief Description of Site

12.4.46 As detailed in the NPWS Site Synopsis, the Connemara Bog Complex SPA is a large site encompassing much of the south Connemara lowlands of Co. Galway. It is characterised by areas of deep peat surrounded by heath-covered rocky outcrops. Connemara Bog Complex SPA is of high ornithological importance. Lough Scannive, located within Roundstone Bog, supports a nationally important breeding population of Cormorant. Other breeding birds using the site include Merlin and Golden Plover. The numerous lakes scattered throughout the site provide suitable breeding locations for Common Gull. The site is also utilised by a wintering population of Greenland White-fronted Goose.

Conservation Objectives

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

12.4.47 It is noted that there are no detailed conservation objectives available for the Connemara Bog Complex SPA. In this regard, the applicant in the revised NIS has used targets and attributes for the conservation of the same species (Cormorant, Golden Plover and Common Gull) that are available for other SPA's in Ireland. These are set out in the revised NIS. This approach is considered satisfactory in the absence of specific detailed targets and attributes for the subject site.

Direct Impacts

12.4.48 Direct impacts with regard to collision risk is identified for certain species.

Cormorant and Common Gull: These species were recorded flying over the site within the potential collision risk zone. A detailed collision risk assessment of impacts to the Cormorant and Common Gull are set out in Appendix 5 of the revised NIS. This is calculated at 2.74 Cormorants over the 30 year period of the operational phase. This is considered small in the context of local, county, national and international populations. The collision risk for the Common Gull is estimated to be 0.344 gulls over the 30 year operational period (1 collision every 91 years) which is considered insignificant.

12.4.49 The potential for direct habitat loss is identified for the Merlin species. However, the development footprint is dominated by conifer plantation and consequently direct loss of potential foraging habitat will be insignificant. Substantial areas of undisturbed suitable foraging habitat will remain.

Indirect Impacts

12.4.50 Indirect impacts primarily relate to displacement.

12.4.51 **Cormorant:** The Connemara Bog SPA has a nationally important breeding colony located at Lough Scannive. This breeding site is however, more than 40km from the subject site and, therefore, Cormorant recorded on the subject site are unlikely to be associated with this breeding colony. No evidence of breeding was recorded in the application site. This species utilises waterbodies within the site for foraging, and, therefore, there may be displacement impacts. However, given the few transits of commuting birds recorded during the bird surveys, displacement effects are likely to

be imperceptible. The revised NIS concludes that proposed development will not prevent or obstruct Cormorant within the SPA population from reaching/maintaining favourable conservation status as per Article 1 of the EU Habitats Directive.

- 12.4.52 **Merlin:** This species was not recorded utilising habitat within the site boundary for roosting or breeding. The development footprint is dominated by conifer plantation and consequently, direct loss of potential foraging habitat will be insignificant. Substantial areas of undisturbed suitable habitat will remain. Disturbance during construction is unlikely to discourage flight activity or foraging in the vicinity of the proposed development. Displacement effects are considered imperceptible. The revised NIS concludes that development will have no or imperceptible negative effects on the population of Merlin associated with the SPA.
- 12.4.53 **Golden Plover:** Suitable breeding habitat was recorded 500m from proposed wind farm infrastructure. Areas of suitable habitat are buffered by extensive conifer plantations, therefore, displacement during the breeding season is not anticipated. No transits of birds were recorded and there is no evidence to suggest the site is on a migratory route for the species. Significant displacement effects are not anticipated. The revised NIS concludes that the development will not prevent or obstruct Golden Plover within the SPA population from reaching/maintaining favourable conservation status as per Article 1 of the EU Habitats Directive.
- 12.4.54 **Common Gull:** Suitable breeding/wintering habitat is buffered from the development footprint by existing conifer plantation and scrub and, therefore, displacement during the breeding season is not anticipated. Few transits of commuting birds were recorded and there is no evidence to suggest the development is on a migratory route for the species. Significant displacement effects are not anticipated. The revised NIS concludes that the proposed development will not prevent or obstruct Common Gull within the SPA population from reaching/maintaining favourable conservation status as per Article 1 of the EU Habitats Directive.

Mitigation Measures

- 12.4.55 Although not specifically detailed in the revised NIS, the Board should be aware that Section 7.6 of the EIAR sets out various mitigation measures to protect bird species. These include noise limitations during the construction phase, restrictions on vegetation removal, and the appointment of an Ecological Clerk of Works (ECoW). A post-construction Bird Monitoring Programme will also be implemented.

Assessment

- 12.4.56 The submission by the Department of Culture, Heritage and the Gaeltacht (28.01.2019) noted that with regard the Connemara Bog Complex SPA, that no details of any surveys carried out or results of these were included in the NIS as originally submitted as the scientific or objective basis for excluding any potential effects on bird populations. The revised NIS submitted by the applicant on the 19th of March 2019 includes a summary of the bird surveys undertaken (Appendix 5). I, therefore, consider that there is sufficient information on file to enable the Board as Competent Authority to carry out the Appropriate Assessment and consider potential impacts on the qualifying interests of the SPA.
- 12.4.57 I note concerns were raised in the previous Inspector's Report regarding the assessment of potential impact on the Connemara Bog Complex SPA. No collision risk analysis was carried out for the Cormorant species. There were also significant concerns regarding the methodology utilised in carrying out the bird surveys. I note that these issues have been largely resolved in the current application, and I am satisfied that the methodology underpinning the revised NIS in terms of bird survey data is robust. This is addressed further in section 10.3 above.
- 12.4.58 In conclusion, I am satisfied that the development would not cause changes to the key indicators of conservation value, including the Cormorant, Golden Plover, Merlin and Common Gull, hence there is no potential for any adverse impacts to occur on species associated with the Connemara Bog Complex SPA (004181). I, therefore, consider it reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 004181, in view of the site's Conservation Objectives.

Lough Corrib SPA (004042)

Brief description of Site

- 12.4.59 This SPA is located c. 4.4km to the west of the development site and is located downstream and connected via the same surface water pathway as for the Lough Corrib SAC and Ross Lake and Woos SPA.
- 12.4.60 As noted in the NPWS Site Synopsis, Lough Corrib is the largest lake in the country and is located, for the most part, in County Galway, with a small section in the north

extending into County Mayo. Lough Corrib is an internationally important site that regularly supports in excess of 20,000 wintering waterbirds including an internationally important population of wintering Pochard. The site also supports nationally important populations of wintering Greenland White-fronted Goose as well as a number of other species. In winter, nationally important numbers of Hen Harrier also utilise the site as a communal roost. Lough Corrib is the most important site in the country for breeding Common Scoter. Its populations of breeding gulls and terns are also notable, with nationally important numbers of Black-headed Gull, Common Gull, Common Tern and Arctic Tern occurring. The potential assessment of pathways for potential adverse effects on the individual Special Conservation Interests of the Lough Corrib SPA are set out in Table 4.18. Potential direct and indirect impacts on certain species are ruled out as many were not recorded during the ornithological surveys. This approach is considered reasonable.

Conservation Objectives

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.
- To maintain or restore the favourable conservation condition of the wetland habitat at Lough Corrib SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

It is noted that there are no detailed conservation objectives available for the Lough Corrib SPA. In this regard, the applicant in the revised NIS has used targets and attributes for the conservation of the same species (Hen Harrier and Common Gull) that are available for other SPA's in Ireland. These are set out in the revised NIS. This approach is considered satisfactory in the absence of specific detailed targets and attributes for the subject site.

Direct Impacts

- 12.4.61 There is potential for direct habitat loss for the Hen Harrier species, although this is considered insignificant and substantial areas of undisturbed suitable foraging habitat will remain. This species was also recorded during the bird surveys and, therefore, there is a collision risk. The potential collision risk is calculated at 0.001 per year – one bird every 1,000 years, and in this context, no significant effects on the species are anticipated.

12.4.62 The Common Gull was also recorded flying over the development site and, therefore, at risk of collision. The collision risk was calculated at 0.33 (1 bird every 91 years) and, therefore, no significant effects are anticipated.

Indirect Impacts

12.4.63 The Hen Harrier species was not recorded utilising habitat within the site boundary for roosting or breeding. Disturbance during construction is unlikely to discourage flight activity or foraging in the vicinity of the proposed development. Potential displacement impacts of the Hen Harrier species are not anticipated.

12.4.64 The revised NIS concludes that the proposed development will not prevent or obstruct Hen Harrier within the SPA population from reaching/maintaining favourable conservation value as per Article 1 of the EU Habitats Directive.

12.4.65 It is outlined in the revised NIS that the proposed development will not result in any impacts which could adversely affect the population trend and distribution of the species within the European Site.

Mitigation Measures

12.4.66 As noted above, Section 7.6 of the EIAR sets out various mitigation measures to protect bird species. These include noise limitations during the construction phase, restrictions on vegetation removal, and the appointment of an Ecological Clerk of Works (ECoW). A post-construction Bird Monitoring Programme will also be implemented.

Assessment

12.4.67 The previous Inspector's Report (07.PA0036) raised concern that potential impacts on the qualifying interests of the Lough Corrib SPA were not adequately assessed. I am satisfied that the revised NIS as submitted with the current application provides an appropriate consideration of potential impacts to this European site.

12.4.68 In conclusion, I am satisfied that the development would not cause changes to the key indicators of conservation value, including the Hen Harrier and the Common Gull, hence there is no potential for any adverse impacts to occur on species associated with the Lough Corrib SPA (004042). I, therefore, consider it reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed

development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 004042, in view of the site's Conservation Objectives.

12.5 **In Combination Effects**

12.5.1 The revised NIS (section 6) includes an assessment of the potential in combination effects of other significant developments in the vicinity of the site including other wind farm developments and non wind farm projects. It concludes that there will be no cumulative adverse effects on the integrity of any of the Natura 2000 sites. Having regard to the information set out in therein, I am satisfied that no cumulative impacts arise.

12.5.2 I note that the submission from the Department of Culture, Heritage and the Gaeltacht (28.01.2019) states that there is a concern that the cumulative assessment set out in the NIS is unsupported by mapping to show the location of other wind energy developments and conifer plantations. Whilst I would concur that this is a deficit in the information presented in the revised NIS, I note that detailed mapping of other windfarms in the vicinity is provided in section 2 of the EIAR, including Fig. 2.5. I consider the information adequate in this regard and is sufficient to enable the Bord as Competent Authority to carry out an assessment of potential in combination effects for the purposes of Appropriate Assessment.

12.6 **Overall Conclusion**

12.6.1 Having regard to the works proposed and the implementation of best practice methodologies and the proposed mitigation measures, I consider it reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 002034, European Site No. 000297, European Site No. 001312, European Site No. 004181 and European Site No. 004042, or any other European site, in view of the site's Conservation Objectives.

13.0 Recommendation

13.1 Having regard to the documentation on file, the submissions and observations, the site inspections and the assessment above, I recommend that permission for the above described development be **GRANTED** for the following reasons and considerations, subject to conditions.

14.0 Reasons and Considerations

14.1 In coming to its decision, the Board had regard to the following:

- (a) national policy with regard to the development of alternative and indigenous energy sources and the minimisation of emissions from greenhouses gases,
- (b) the provisions of the Wind Energy Development Guidelines – Guidelines for Planning Authorities issued by the Department of the Environment, Heritage and Local Government in June, 2006,
- (c) the policies set out in the Regional Planning Guidelines for the West Region 2010-2022 and the Draft Regional Spatial and Economic Strategy – Northern and Western Regional Assembly,
- (d) the policies of the Planning Authority as set out in the Galway County Development Plan 2015-2021 including the Wind Energy Strategy for County Galway,
- (e) the location of the wind farm site in an area which is identified as the “Galway Wind Park” which is designated as the most suitable part of the County to accommodate wind energy and the fact that approximately 75% of the site is located in a ‘Strategic Area’ i.e. identified as the most suitable location for wind energy development,
- (f) the character of the landscape in the area and of the general vicinity,
- (g) the pattern of existing and permitted development in the area, including other windfarms,
- (h) the distance to dwellings and other sensitive receptors from the proposed development,
- (i) the Environmental Impact Assessment Report submitted,

- (j) the revised Natura Impact Statement submitted,
- (k) the report of the Inspector.

Environmental Impact Assessment

14.2 The Board completed, in compliance with s.172 of the Planning and Development Act 2000, an Environmental Impact Assessment of the proposed development, taking into account:

- The nature, scale and extent of the proposed development;
- The Environmental Impact Assessment Report and associated documentation submitted in support of the application;
- The submissions from the applicant, Planning Authority, the observers and the prescribed bodies in the course of the application; and
- The Planning Inspector's report.

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment. The Board is satisfied that the information contained in the EIAR complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU.

The Board agreed with the summary and examination, set out in the Inspector's report, of the information contained in the Environmental Impact Assessment Report and associated documentation submitted by the applicant and submissions made in the course of the application. The Board is satisfied that the Inspector's report sets out how these were addressed in the assessment and recommendation (including environmental conditions) and are incorporated into the Board's decision.

The Board completed an Environmental Impact Assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures proposed as set out in the EIAR, and, subject to compliance with the conditions set out herein, the effects on the environment of the proposed development by itself and cumulatively with other development in the vicinity would

be acceptable. In doing so, the Board adopted the report and conclusions of the reporting inspector.

The Board considered that the main significant direct and indirect effects of the proposed development on the environment are, and will be mitigated as follows:

Population and Human Health: Shadow flicker during the operational phase has the potential to impact on one dwelling. The EIAR sets out a mitigation strategy to control the level of daily shadow flicker experienced at the affected dwelling.

Biodiversity: There will be habitat loss at a localised level due to the construction of access roads, hard standing, borrow pits etc. There will be general disturbance particularly to birds and bats during the construction and operation phases and collision risk to certain bird species. There is potential for indirect impacts to aquatic species including Atlantic Salmon and Otter from polluted run-off entering watercourse during the construction phase. These impacts will be mitigated by a wide range of measures including implementation of a Construction and Environmental Management Plan, watercourse protection measures, bog restoration programme, habitat management measures, pre-construction mammal surveys, bat protection measures, appointment of an Ecological Clerk of Works and a post construction bird monitoring programme.

Land, Soil and Geology: Potential impacts of the development include permanent removal of peat, subsoil and bedrock at excavation locations, potential contamination of soil by leakages and spillages, potential erosion of exposed subsoil and peat during tree felling, access road and turbine construction work and potential peat instability and failure. Mitigation measures are detailed including prevention of undercutting of slopes and unsupported excavation, management of the drainage system, prevention of placement of loads/overburden on marginal ground and monitoring systems. Other measures include use of floating roads, management and storage of fuels, bunding of the substation, regular inspection of plant and an emergency plan to deal with accidental spillages. Excess peat is to be stored appropriately and silt fences installed. To minimise erosion, stripping of peat will not take place during extremely wet period and brash mats will be used during tree felling.

Water: Potential indirect effects could be caused by the increase in run off, such as soil erosion and sediment release into the receiving watercourses. To mitigate impacts, a buffer zone of 50m will be put in place for on-site streams and lakes. A site drainage management plan will be implemented. There will be no direct discharged to surface waters. All run off from works areas will be attenuated and treated to a high quality prior to being released. Section 9.4.3 onwards of the EIAR sets out detailed mitigation including use of filtration treatment including silt traps, silt fences, silt bags; management of hydrocarbons; management of run off; avoidance of wet cement batching at the site and measures to prevent concrete and fuel spillages. The Construction and Environmental Management Plan also includes a suite of detailed mitigation measures related to surface water management.

Landscape and Visual: There will be some localised significant visual impact from intermittent sections of the local road network within the development site. Affected locations are generally at isolated places on roads with limited through traffic and few visual receptors.

Noise and Vibration: During the construction phase, noise impacts may arise from construction activities such as site preparation and construction of the turbine foundations, roads and substation. Predicted operational noise levels will be within the relevant best practice noise criteria curves for wind farms. A suite of mitigation measures to manage noise and vibration during the construction phase are set out in the EIAR. Post commissioning monitoring will be necessary to ensure the operational noise levels comply with the relevant day and night time criteria.

The Board is satisfied that this reasoned conclusion is up to date at the time of taking the decision.

Appropriate Assessment

The Board agreed with the Screening Assessment and conclusion carried out in the Inspector's report that the Connemara Bog Complex SAC (002034), Lough Corrib SAC (00297), Ross Lake and Woods SAC (001312), Connemara Bog Complex SPA (00418) and Lough Corrib SPA (004042) are the only European Sites in respect of which the proposed development has the potential to have a significant effect.

The Board considered the revised Natura Impact Statement and all other relevant submissions and carried out an Appropriate Assessment of the implications of the

proposed development for European Sites, Connemara Bog Complex SAC (002034), Lough Corrib SAC (00297), Ross Lake and Woods SAC (001312), Connemara Bog Complex SPA (00418) and Lough Corrib SPA (004042) in view of the site's conservation objectives. The Board considered that the information before it was adequate to allow the carrying out of an Appropriate Assessment. In completing the Appropriate Assessment, the Board considered, in particular, the following:

- i. the likely direct and indirect impacts arising from the proposed development both individually or in combination with other plans or projects,
- ii. the mitigation measures which are included as part of the current proposal, and
- iii. the conservation objectives for the European Sites.

In completing the Appropriate Assessment, the Board accepted and adopted the Screening and the Appropriate Assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European Sites, having regard to the site's conservation objectives.

In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the site's conservation objectives.

Proper Planning and Sustainable Development

It is considered that, subject to compliance with the conditions set out below, the proposed development would be in accordance with the National Planning Framework, the Regional Planning Guidelines for the West Region 2010-2022 and the Draft Regional Spatial and Economic Strategy – Northern and Western Regional Assembly and the provisions of the Galway County Development Plan 2015 – 2021 and would not have an unacceptable impact on the landscape, the biodiversity of the area, the residential amenities of the area, and would not adversely affect the archaeological or natural heritage of the area and would be in accordance with the proper planning and sustainable development of the area.

15.0 Conditions

1. The development shall be carried out and completed in accordance with the plans and particulars lodged with the application, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the Planning Authority, the developer shall agree such details in writing with the Planning Authority prior to commencement of development and the development shall be carried out and completed in accordance with the agreed particulars.

Reason: In the interest of clarity.

2. The mitigation measures and monitoring commitments identified in the Environmental Impact Assessment Report, and other plans and particulars submitted with the planning application shall be implemented in full by the developer, except as may otherwise be required in order to comply with the following conditions. The developer shall appoint a person with an appropriate ecological and construction expertise as an environmental manager to ensure that the mitigation measures identified are implemented in full.

Reason: In the interest of clarity and protection of the environment during the construction and operational phases of the proposed development.

3. Prior to commencement of development, a detailed Environmental Management Plan for the construction stage shall be submitted to and agreed in writing with the Planning Authority, generally in accordance with the proposals set out in the Environmental Impact Assessment Report. The Environmental Management Plan shall incorporate the following:
 - (a) a detailed plan for the construction phase incorporating, inter alia, construction programme, supervisory measures, noise management

measures, construction hours and the management of construction waste;

- (b) a comprehensive programme for the implementation of all monitoring commitments made in the application and supporting documentation during the construction period;
- (c) an emergency response plan, and
- (d) proposals in relation to public information and communication.

A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be kept for inspection by the Planning Authority.

Reason: In the interest of environmental protection and orderly development.

4. The mitigation measures contained in the revised Natura Impact Statement which was submitted to the Boards on the 19th of March 2019 shall be implemented in full.

Reason: In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of the European sites.

5. The developer shall retain the services of a suitably qualified and experienced bird specialist to undertake appropriate annual bird surveys of this site. Details of the surveys to be undertaken and associated reporting requirements shall be developed following consultation with, and agreed in writing with, the Planning Authority prior to commencement of development. These reports shall be submitted on an agreed date annually for five years, with the prior written agreement of the Planning Authority. Copies of the reports shall be sent to the Department of Arts, Heritage and the Gaeltacht.

Reason: To ensure appropriate monitoring of the impact of the development on the avifauna of the area.

6. The developer shall ensure that all plant and machinery used during the works should be thoroughly cleaned and washed before delivery to the site to prevent the spread of hazardous invasive species and pathogens.

Reason: In the interests of the proper planning and sustainable development of the area.

7. The period during which the development hereby permitted may be carried out shall be ten years from the date of this order.

Reason: Having regard to the nature and extent of the proposed development, the Board considered it appropriate to specify a period of validity of this permission in excess of five years.

8. This permission shall be for a period of 30 years from the date of the first commissioning of the wind farm.

Reason: To enable the relevant Planning Authority to review the operation of the wind farm in the light of the circumstances then prevailing.

9.
 - a) The wind turbines including masts and blades shall be finished externally in a colour to be agreed in writing with the Planning Authority prior to commencement of development.
 - b) Cables within the site shall be laid underground.
 - c) The wind turbines shall be geared to ensure that the blades rotate in the same direction.
 - d) No advertising material shall be placed on or otherwise be affixed to any structure on the site without a prior grant of planning permission.

e) The access tracks within the site shall be surfaced in suitable material acceptable to the Planning Authority, and shall not be hard topped with tarmacadam or concrete.

f) Roads, hardstanding areas and other hard surfaced areas shall be completed to the written satisfaction of the Planning Authority within three months of the date of commissioning of the wind farm.

g) Soil, rock and other materials excavated during construction shall not be left stockpiled on site following completion of works. Excavated areas including the borrow pits and areas of peat placement shall be appropriately restored within three months of the date of commissioning of the windfarm in accordance with details to be submitted to and agree in writing with the Planning Authority.

Reason: In the interest of visual amenity.

10. Details of the materials, colours and textures of all external finishes to the proposed substation and control buildings shall be submitted to and agreed in writing with the Planning Authority prior to commencement of development.

Reason: In the interest of the visual amenities of the area.

11. Within one year of the commissioning of the wind farm details of amenity and public access arrangements and the timescale for their realisation shall be submitted to the Planning Authority for its written agreement.

Reason: In the interest of advancing the recreational amenities of the area.

12. a) Noise levels emanating from the proposed development following commissioning, by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at third

party noise-sensitive locations, shall be in accordance with the levels specified in the Environmental Impact Assessment Report.

b) All sound measurements shall be made in accordance with ISO 1996: Acoustics – Description and Measurement of Environmental Noise.

c) Prior to commencement of development the developer shall arrange for a noise compliance monitoring programme for the operational wind farm.

d) Details of the nature and extent of the monitoring programme shall be submitted to, and agreed in writing with, the Planning Authority.

Reason: To protect the amenities of property in the vicinity of the site.

13. The following shadow flicker requirements shall be complied with:

(a) The proposed turbines shall be fitted with appropriate equipment and software to control shadow flicker at dwellings to limits specified in the Environmental Impact Assessment Report.

(b) Prior to commencement of development, the developer shall submit for the written agreement of the Planning Authority a shadow flicker compliance monitoring programme for the operational wind farm.

(c) A report shall be prepared by a suitably qualified person in accordance with the requirements of the Planning Authority, indicating compliance with the above shadow flicker requirements at dwellings. Within 12 months of commissioning of the proposed wind farm, this report shall be submitted to, and agreed in writing with, the Planning Authority. The developer shall outline proposed measures to address any recorded non compliances, controlling turbine rotation if necessary. A similar report may be requested at reasonable intervals thereafter by the Planning Authority.

Reason: In the interest of residential amenity.

14. In the event that the proposed development causes interference with telecommunications signals, effective measures shall be introduced to minimise interference with telecommunications signals in the area. Details

of these measures, which shall be at the developer's expense, shall be submitted to, and agreed in writing with, the Planning Authority prior to commissioning of the turbines and following consultation with the relevant authorities.

Reason: In the interest of protecting telecommunications signals and of residential amenity.

15. Details of aeronautical requirements shall be submitted to, and agreed in writing with, the Planning Authority prior to commencement of development. Prior to commissioning of the turbines, the developer shall inform the Planning Authority and the Irish Aviation Authority of the as constructed tip heights and co-ordinates of the turbines and wind monitoring masts.

Reason: In the interest of air traffic safety.

16. Prior to commencement of development, a Transport Management Plan for the construction stage shall be submitted to, and agreed in writing with, the Planning Authority. The traffic management plan shall incorporate details of the road network to be used by construction traffic, including over-sized loads, and detailed arrangements for the protection of bridges, culverts or other structures to be traversed, as may be required. The plan should also contain details of how the developer intends to engage with and notify the local community in advance of the delivery of oversized loads.

Reason: In the interest of traffic safety.

17. (a) Prior to commencement of development, details of the following shall be submitted to, and agreed in writing with the Planning Authority:
 - (i) The developer shall prepare design drawings for the L53453 from the junction of the N59 to the site boundary which shall detail and specify the road layout and finishes following the construction stage and include boundary walls, traffic calming details, temporary boundary details, drainage details, signage and road markings.

(ii) A condition survey of the roads and bridges along the haul routes shall be carried out at the developer's expense by a suitably qualified person both before and after construction of the proposed development. This survey shall include a schedule of required works to enable the haul routes to cater for construction-related traffic. The extent and scope of the survey and the schedule of works shall be agreed with the Planning Authority / Authorities prior to commencement of development.

(iii) Detailed arrangements whereby the rectification of any construction damage which arises shall be completed to the satisfaction of the Planning Authority.

(iv) Detailed arrangements for the protection of bridges to be crossed.

(v) Detailed arrangements for temporary traffic arrangements / controls on roads.

(vi) A phasing programme indicating the timescale within which it is intended to use each public route to facilitate construction of the proposed development.

(vii) Within three months of the cessation of the use of each public road and haul route to transport material to and from the site, a road survey and scheme of works detailing works to repair any damage to these routes shall be submitted to the Planning Authority.

(b) All works arising from the aforementioned arrangements shall be completed at the developer's expense within 12 months of the cessation of each road's use as a haul route for the proposed development.

Reason: To protect the public road network and to clarify the extent of the permission in the interest of traffic safety and orderly development.

18. Water supply and drainage arrangements, including the attenuation and disposal of surface water, shall comply with the requirements of the Planning Authority for such works and services.

Reason: In the interest of public health.

19. (a) The Applicant shall submit details of the collection and disposal of material from the Holding Tank associated with the Control Buildings

for the information and record of the Planning Authority on an annual basis.

- (b) Only waste collectors holding valid waste collection permits under the Waste Management (Collection permit) Regulations, 2007 (as amended), shall be employed to transport wastewater away from the site.

Reason: In the interest of public health.

20. The developer shall facilitate the archaeological appraisal of the site and shall provide for the preservation, recording and protection of archaeological materials or features which may exist within the site. In this regard, the developer shall:

- (i) notify the relevant Planning Authority in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development, and
- (ii) employ a suitably-qualified archaeologist prior to the commencement of development. The archaeologist shall assess the site and monitor all site development works. The assessment shall address the following issues:
- (i) the nature and location of archaeological material on the site, and
- (ii) the impact of the proposed development on such archaeological material.

A report, containing the results of the assessment, shall be submitted to the Planning Authority and, arising from this assessment, the developer shall agree in writing with the Planning Authority details regarding any further archaeological requirements (including, if necessary, archaeological excavation) prior to commencement of construction works. In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Reason: In order to conserve the archaeological heritage of the area and to secure the preservation (in-situ or by record) and protection of any archaeological remains that may exist within the site.

21. Prior to the commencement of development, the community gain proposals shall be submitted to and agreed in writing with the Planning Authority.

Reason: In the interest of the proper planning and sustainable development of the area.

22. On full or partial decommissioning of the windfarm, or if the windfarm ceases operation for a period of more than one year, the turbines concerned and all decommissioned structures shall be removed, and foundations covered with soil to facilitate re-vegetation. These reinstatement works shall be completed to the written satisfaction of the relevant Planning Authority within three months of decommissioning or cessation of operation.

Reason: To ensure satisfactory reinstatement of the site upon cessation of the project.

23. Prior to commencement of development, the developer shall lodge with the Planning Authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the relevant Planning Authority, to secure the reinstatement of public roads which may be damaged by the transport of materials to the site, coupled with an agreement empowering the relevant Planning Authority to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and amount of the security shall be as agreed between the relevant Planning Authority and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination.

Reason: To ensure the satisfactory reinstatement of the delivery route.

24. Prior to commencement of development, the developer shall lodge with the relevant Planning Authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the relevant Planning Authority, to secure the satisfactory reinstatement of the site upon cessation of the project, coupled with an agreement empowering the relevant Planning Authority to apply such security or part thereof to such

reinstatement. The form and amount of the security shall be as agreed between the relevant Planning Authority and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination.

Reason: To ensure the satisfactory reinstatement of the site.

25. The developer shall pay to Galway County Council a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the Planning Authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000. The contribution shall be paid prior to the commencement of development or in such phased payments as the Planning Authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the Planning Authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine the proper application of the terms of the Scheme.

Reason: It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to the permission.

Erika Casey

Senior Planning Inspector

31st May 2019