



An
Bord
Pleanála

Inspector's Report

ABP-316309-23

Development	Erection of 6 wind turbines.
Location	Tullaghmore, Tawnaghbeg, Tullaghboy, and Lurgan , Maam Cross , Co. Galway.
Planning Authority	Galway County Council
Planning Authority Reg. Ref.	2360051
Applicant(s)	Tullaghmore Windfarm Ltd.
Type of Application	Permission.
Planning Authority Decision	To refuse.
Type of Appeal	First Party
Appellant(s)	Tullaghmore Windfarm Ltd.
Observer(s)	None
Date of Site Inspection	31 st October and 1 st November 2023
Inspector	Deirdre MacGabhann

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1.0 Site Location and Description

- 1.1. The c.192ha appeal site is situated c.30km to the north west of Galway and c.9km to the west of Oughterard in County Galway. The site lies to north of the N59, within the townlands of Tullaghmore, Tawnaghbeg, Tullaghboy and Lurgan, in a rural landscape of largely open upland blanket bog. Lough Corrib lies c.1km to the north of the site and the boundary with County Mayo c.10.6km also to the north of the site.
- 1.2. The appeal site is split into two separate components. The larger eastern component (c.162ha) comprising the wind farm site, lies to the west of Derroura Forest (managed by Coillte), on the lower slopes of Capanalaurabaun. Elevation ranges from 93mAOD at the southern side of the wind farm site and to 250mAOD towards the upper part of the site. Access is via an existing track, serving agricultural land, off the N59 that runs alongside the Owenwee River. Sightlines to the east at the junction of the existing track and N59 are reduced due to a ridge in the national road. To the west of the site are one off rural houses situated alongside a minor road. These dwellings are the nearest to the wind farm site. There are a small number of dwellings lying to the north of the site, south of Lough Corrib.
- 1.3. The western component (c.30ha) of the site lies c.3.4km to the west of the wind farm site. It comprises the location of proposed peat storage and ecological enhancement areas. This part of the site lies immediately north of the N59 and is low lying. It is also split into two areas, with one to the north and one to the south of the former Galway to Clifden railway line. Loughanillaun lake lies to the north of the site. The Western Way, a long distance walking route, runs to the north of the wind farm site and Loughanillaun. Quiet Man Bridge lies c.4km to the south east of the site at the eastern end of Lough Adrehid.
- 1.4. Screebe substation, to which the development will be connected, lies c.10km to the south west of wind farm site (Figure 2.10, EIAR). Existing and consented wind turbines within 20km of the subject site are shown in Figure 2.1, EIAR. The nearest of these are Galway Wind Park, Phases 1 and 3 (in situ) situated c.7km to the south east of the subject site.

2.0 Proposed Development

2.1. A 10 year permission is sought for a wind farm with an operational life of 35 years comprising:

- Construction of 6 no. wind turbines with an overall ground to blade tip height of 185m, rotor diameter of 162m, hub height of 104m. Turbines are arranged around proposed internal access tracks situated on the lower and mid slopes of Capanalaurabaun (Figure 1.2, EIAR and Overall Site Location Map, Drawing no. 6276-TWF-XX-DR-C-0100). Each turbine will have a maximum generating capacity of 6.8MW and the development will have an overall capacity of 40.8MW. Layout has been designed to minimise potential environmental effects on constraints e.g. 50m from watercourses, 20m from land drains, blanket bog.
- The construction of associated turbine hardstand areas and turbine foundations. Construction of turbine foundations and hardstands will require 590m³ of concrete and 86 tonnes of steel and backfilling with granular material sourced locally (Table 2.4). As a worst case scenario, traditional gravity foundations are considered for turbines but rock anchor foundations may be used if there is competent rock at foundation level, which would reduce turbine footprint. Construction methods for the different foundation types is set out in section 2.5.3 and 2.5.11. Rock will typically be extracted by hydraulic excavator, with rock breaking required if stronger rock is encountered.
- Access to the site will be from the existing entrance on the N59 which will be upgraded to allow vehicles to turn in and out and to achieve the required sightlines. Drawing no. 6276-JOD-TWF-XX-DR-C-402 'Visibility at Entrance to N59' indicates 215m sightlines in each direction with realignment of the carriageway edge to the east of the site.
- Construction of a temporary construction compound to the south east of the internal access road (south of the Owenwee River), with the compound to comprise associated temporary site offices, parking areas and security fencing.

- Installation of a permanent meteorological mast, 104m overall height, to be situated to the west of the site (Figure 1.2).
- Construction of new internal site access tracks and upgrade of existing site track to include all associated drainage and new clear span bridge crossing of the Owenwee River.
 - The existing site access track will be upgraded over a distance of c.1.5km and increased to a width of 5m (5.5m at bends).
 - Approximately 5.5km of new site access tracks will be provided (with excavation to firm bearing strata), also to a width of 5m.
 - Rock will be sourced from turbine foundation excavations or imported to the site from local quarries (Table 2.4). Some sections of Site Access Tracks will need to be of a floated road design (where peat is >1.5m with a cross fall of less than 1 in 10). Locations are (a) from chainage 1200 on the access track from the N59 to T6 (Site Layout Plan Sheet 2 to 5), and (b) from the junction on the access track between T1 and T6 and the junction with the access track to T2 (Site Layout Plan Sheet 4, 5 and 8). Floating road details are shown in drawing TWF-JOD-XX-DR-C-0407.
 - There are four crossings of natural streams/flushes along the Site Access Tracks (Proposed Water Crossing nos. WC01-04, 6272-JOD-XX-DR-C-0403 to - 0406). NB there are some incorrect labels to drawings identifying crossings.
 - The existing crossing over the Owenwee River on the main access Track from the N59 will be upgraded for the increased Site Access Track widths and to allow heavier vehicles to traverse it. The upgrade will involve the construction of a clear span bridge to the north of the existing bridge location. Further to consultation with Inland Fisheries Ireland (IFI) the crossings have been designed in accordance with detail shown in shown in Figure 2.6 (a), (b), (c) and (d) (same as in Proposed Water Crossing drawings).
 - Permanent land take from site access tracks, foundations, hardstands and substation will be c.5.9ha and temporary land take on site will be

c.4.5km (grid connection will involve temporary works on 11,190m² of the public roads to be reinstated)

- Construction of the wind farm is predicted to generate c. 84,760m³ of peat spoil. Peat that cannot be used for reinstatement around the site (e.g. exposed areas around infrastructure), will be taken off site to the designated spoil storage area to the east of Maam Cross. The designated spoil area has an area of c.6.5ha and a capacity of approximately 97,000m³ (Figure 1.2b). The spoil material is classed as a by-product European Communities (Waste Directive) Regulations 2011 (Regulation 27) as the material will be used to restore areas of cutover bog at the Spoil Storage Areas without any further processing, will not lead to overall adverse environmental or human health impacts and the production of peat spoil from the wind farm is an integral part of the construction process as peat will need to be removed to allow construction of the wind farm.
- Provision of site drainage network to include natural and artificial drainage channels. Sustainable Urban Drainage System (SuDS) principles to apply and include source control, in-line controls and treatment systems for surface water (see Site Layout Plans, Drawing 6276-TWF-JOD-XX-DR-C-0200 series, Surface Water Management Plan in CEMP and Figures 2.11-2.13).
- Construction of one no. permanent 38kV substation to be situated to the west of the site and to the west of T5 and T6 (Figure 1.2). The substation will be constructed to ESB specifications and comprise a substation compound of c.837m², enclosed by a 2.65m high fence, with substation building (93.48m², Figure 2.8), ancillary equipment and car parking. It is proposed to install a rainwater harvesting system as the source of water for toilet and welfare facilities, a potable water being brought onsite in bottles. Wastewater from the staff welfare facilities in the control building will be collected in a sealed storage tank, fitted with a high-level alarm. All wastewater will be tankered off-site by a licensed waste collector to Oughterard wastewater treatment plant.
- All associated underground electrical and communications cabling connecting the wind turbines to the wind farm substation. The internal electrical cable network and fibre optic communication cables will be installed in trenches

c.0.6m wide by 1m deep over a total distance of c.5.5km. The cables running from the turbines to the substation compound will be run within the site access tracks and/or their verges. Where the cables are located in blanket bog habitat, they will be laid in the site access tracks to minimise land take in this habitat (i.e. for cables between T1 and T2 and from T6 to the site entrance at the N59).

- Peatland restoration and habitat enhancement will comprise cessation of turbary activity, cessation of drainage, drain blocking with control of water levels, cessation of inappropriate livestock grazing levels, no grazing between 1st November and 28th February and active seeding with peat vegetation such as Sphagnum moss or heather brashing.

- 2.2. Construction will be carried out in accordance with the Construction Environmental Management Plan (CEMP) (Appendix 2.1, Volume IV) and will take between 14 and 15 months (Table 2.7). An Ecological Clerk of Works (ECoW) with experience in overseeing wind farm construction projects will be appointed by the developer for the duration of the construction phase so that the CEMP is effectively implemented. The contractor will be required to appoint an Environmental Manager. Construction will be also monitored by a Geotechnical Engineer and a qualified archaeologist.
- 2.3. The Irish Aviation Authority (IAA) will be consulted and upon request, any specified turbine or obstacle 100m or greater will be installed with a warning light system under direct specification and in accordance with International Civil Aviation Organisation (ICAO) Annex 15 requirements. Notwithstanding this, it is proposed to fix warning lights to T3 and T4, the turbines at the highest elevation.
- 2.4. Connection to the electricity grid (not included in the planning application but for the purposes of assessment) will be via the existing 110kV substation at Screebe, situated to the south west of the site. The grid connection will extend to c.18.65km and will be located within the development site (c.3.3km) and the remainder within the N59 and R336. A summary of the main activities for the installation of cable ducts is set out in section 2.5.9 of the EIAR. There are 22 watercourse crossings along the grid connection route. It is proposed to install most of the crossings within the roadway or bridge, with five of the crossings constructed by directional drilling. Excess spoil from the grid connection works will be disposed of at licenced recycling facility.

- 2.5. The development will provide a community benefit fund of c.€202,293 per annum over the lifetime of the development, with the fund split between householders in proximity to the development, not for profit community enterprises and local clubs, societies etc.
- 2.6. Turbine delivery route will be from Galway Port to the proposed development, with transport to the site via the R336 to Maam Cross and then from the R336, east along the N59 to the upgraded site entrance (Figure 2.4). This will require works at 4 no. locations along the route in 3rd party lands at Derravonniff, Tullymore and Knockaphreaghaun (included for EIA purposes). Details of these are set out in Table 2.5 and include for example provision of load bearing surface at junctions and/or removal of vegetation or utility poles. Other temporary works along the grid connection route are shown in Appendix 14.2, Traffic Management Plan, and include trimming of vegetation, temporary removal of street furniture and laying of load bearing surfaces and in some instances, works on third party lands.
- 2.7. During the operation of the wind farm, regular maintenance of the turbines will be carried out by the wind farm operator. In addition, operation and monitoring activities will be carried out remotely with the aid of computers connected via a telephone broadband link.
- 2.8. During decommissioning, cranes of similar size to those used for construction will disassemble each turbine using the same crane hardstands. The towers, blades and all components will then be removed from site and reused, recycled, or disposed of in a suitably licenced facility. The turbine transformers will also be removed from site. Underground cables will be removed while the ducting will be left in-situ. The foundations will remain in-situ. Hardstand areas will be remediated to match the existing landscape as closely as possible. Access tracks will left for use by the future landowner if the land is sold on for other uses. Any structural materials suitable for recycling will be disposed of in an appropriate manner. Prior to the decommissioning work, a comprehensive plan will be drawn up that takes account of the findings of this EIAR and the contemporary best practice at that time, to manage and control the component removal and ground reinstatement.
- 2.9. The planning application was advertised in the Connacht Tribune on the 13th January 2023 and is accompanied by:

- Environmental Impact Assessment Report (EIAR). This comprises four volumes, Non-Technical Summary, EIAR, EIAR Figures and Drawings and Appendices.
- Natura Impact Statement (NIS).
- Landowner consent form.

2.10. Details of the proposed development have been uploaded to the EIA Portal under ID number 2023012. The planning application has been made through the planning authority's pilot digital programme.

4.0 Planning Authority Decision

4.1. Decision

4.1.1. On the 22nd March 2023 the planning authority decided to refuse permission for the development. In summary, the six grounds are:

- 1) Location of development in an area identified as 'Not Normally Permissible', Map 15, Local Authority Renewable Energy Strategy (LARES), and within an elevated and exposed landscape, contravenes policy objectives of Galway County Development Plan 2022-2028 and LARES. To grant permission would contravene, materially, policy objectives CC6, RE2, RE3, RE5 and DM Standard 69 of the CDP.
- 2) Impact on designated sensitive Class 3 landscape, with special sensitivity and high sensitivity to change, and designated scenic routes, as set out in the Galway CDP, Appendix 4 Landscape Character Assessment. To grant permission would contravene, materially, policy objectives LCM1, LCM2 and LCM3 and DM Standard 69 of the CDP.
- 3) a. Intensification of use of an existing access on a National Road, N59, at variance with Policy Objectives NR1, NR2 and NNR2 of the CDP and official policy in relation to control of development on/affecting national roads (DoECLG 2012, Spatial Planning and National Road Guidelines for Planning Authorities).
b. Absence of satisfactory information on traffic volumes associated with the development, adequacy of sightlines at site entrance, details of access road alignment and surface finish and third party consent in respect of grid connection works and consequently conflict with National Roads policy (above) and conflict with Objectives NR1, NR3, NR4 and Development Management Standards 28 and 33 of the CDP.
- 4) Elevation and height of structures, and location of development within Air Corps Low flying Training Area (LFTA) West, used for low flying by the Irish Air Corps, of major concern to the Department of Defence on aviation safety and public health grounds. PA not satisfied, therefore, that the development would not be prejudicial to public health.

- 5) Insufficient information to enable the PA to determine beyond reasonable scientific doubt that the development would not have an adverse effect on Hen Harrier a species of conservation interest of the '*Lough Corrib Special Area of Conservation (SPA)*' (*sic*) or on the qualifying interest species and integrity of the Maumturk Mountains SAC, Lough Corrib SAC and Connemara Complex SAC. If permitted the development would materially contravene Policy Objectives NHB1, NHB2 and NHB3 of the CDP and the requirements of the Habitats Directive. NB It is assumed that this reason relates to Lough Corrib Special Protection Area as Hen Harrier is listed as a species of conservation interest in the SPA not the SAC.
- 6) Insufficient level of information and assessment in the EIAR in relation to impacts on Biodiversity (with particular attention to Habitats and Birds Directives), Transport, Material assets and the landscape, and interactions between these, for the competent authority to make a determination in respect of EIA and the absence of significant effects.

4.2. Planning Authority Reports

Planning

- 4.2.1. The Planning Report in respect of the proposed development, dated 22nd March 2023, describes the appeal site, the proposed development, the planning history of the site and wider area, consultations and submissions/observations made. It identifies European, national, regional and local planning policy that is relevant to the subject development and considers the merits of the development under the following headings:

- Strategic assessment – The broader policy context for the development supports the development of renewable energy to facilitate the transition to a low carbon economy. The EIAR refers to the location of the development in an area identified in the Local Authority Renewable Energy Strategy as 'Acceptable in Principle'. The Planning Report states this is incorrect. The development is located in an area where wind development is 'Not Normally Permissible' due to likely conflict with policies to protect landscape, water, ecological resources and residential amenity. It is considered therefore that the principle of the proposed land use at this location is not acceptable in

terms of strategic land use policy context. The Report refers to LARES Policy Objective 18, in respect of wind energy development proposals in areas that are identified as Not Normally Permissible which states that wind energy development will be considered in accordance with the LARES and the proper planning and sustainable development of the area. The Report states that the subject development will be determined by a number of environmental sensitivity factors, including the ability of the landscape to visually absorb the development, residential and general amenity impacts.

- Landscape Sensitivity - The Report refers to the location of the proposed development within the 'Uplands and Bogs' Landscape Character Type (LCT) close to the interface with the 'Lake Environs' LCT, which is centred on Lough Corrib, both of which are within the West Galway Region of the Landscape Character Assessment. Landscape sensitivity is 'Class 3 Sensitivity' described as '**Special: High Sensitivity to Change**'. The development is also immediately south of the Upper Lough Corrib Landscape Unit and east of the Maumturk Mountains Landscape Unit, both of which are Class 4 Sensitivity '**Iconic: Unique landscape with high sensitivity to change**', within the Wild Atlantic Way Region and in the vicinity of 3 designated scenic routes (Galway Clifden Scenic Route, Maam Valley Scenic Route and Lough Corrib Scenic Route) and to the south and west of a number of designated scenic viewpoints (20, 21, 22, 23, 24, 27, 28 and 31). The report considers that having regard to the character and sensitivity of the receiving environment, as illustrated in the visual impact assessment and photomontages and from the site inspection, the proposed development will directly impact both significantly and negatively on the sensitive class 3 receiving landscape and on designated scenic routes as set out on the County Galway Landscape Character Assessment.
- Appropriate assessment – The report identifies European sites within 15km of the proposed development, including Connemara Bog Complex SAC and Maumturk Mountains SAC which adjoin the application site boundary (wind farm and peat storage area respectively). It refers to the applicant's AA Screening Report and the potential for adverse effects on 19 features of interest that are associated with 8 no. European sites that occur within the

zone of interest of the proposed development. The Report screens the proposed development and concludes that there is potential for adverse effects on 8 no. sites (as per the applicant's Screening Report). The Planning Report provides an appropriate assessment of the development. It refers to the comments received from the DHLG&H and concerns raised in respect of collision risk, Hen Harrier, White-tailed Sea Eagle, in combination/cumulative effects, mitigation measure in respect of proximity of peat storage areas to Maumturk Mountains SAC and the post consent role of the NPWS. The report considers that, in view of these comments, there is significant lacunae in terms of the documentation submitted and the PA cannot be satisfied that the development would not result in adverse impacts on Natura 2000 sites.

- EIA – The Planning Report refers to the EIAR submitted by the applicant and considers that it acceptable in terms of being prepared by competent experts, reasonable alternatives considered, public consultation and community benefit. It considers the topic chapters of the EIAR and identifies concerns in respect of:
 - Biodiversity and ornithology - EIAR significantly understates the likely real impact of the proposed development on the local and wider biodiversity (the report refers back to the issues raised by DHLG&H).
 - Soil – Refers to the concerns raised by DHLG&H in respect of the proximity of the peat storage areas immediately adjacent to the Maumturk Mountains SAC, the potential for the contractors to make a mistake in their adherence to lines that are only drawn on a map, the need for fencing off this area and the specification of such measures in the NIS and to come under the role of the Ecological Clerk of Works (ECoW).
 - Landscape impacts – The Report refers to the issues raised under Strategic Assessment and considers that the assessment on the landscape and visual amenity presented in Chapter 11 of the EIAR significantly understates the likely real impact of the proposed development on the local and wider landscape and visual setting.

- Material assets – The Report refers to the concerns raised by the Department of Defence in respect of the elevation of the development, height of turbines and location within Air corps low flying Training area (LFTA) West which is used for low flying by the Irish air corps, and major concern raised in respect of aviation safety and public safety.
- Telecommunications – The Report refers to submissions which raise concerns in relation to potential negative impact of the development on broadband infrastructure and to comments from Environment Section which recommend an assessment or comment from an appropriate specialist on the possible impacts.
- Traffic/roads impacts – The Report refers to the submission from TII and the comments made by the Roads and Transportation Department (both summarised below) and considers that the assessment on the traffic impacts as presented in Chapter 14 of the EIAR significantly understates the likely real impact of the proposed development on the national and local road network.

4.2.2. Under Reasoned Conclusion, the Report concludes:

'the Planning Authority is generally supportive of the renewable energy developments in principle however with regard to this proposed development taking all matters into consideration at this point in time based on the information available it is considered that taking a balanced assessment the significant adverse impacts of this development outweigh the benefits of the proposed development.

Based on the information submitted in the Environmental Impact Assessment Report and as identified in the Environmental Impact Assessment carried out by the Planning Authority, it is considered that the EIAR submitted has not presented a sufficient level of information and assessment in relation to impacts on Biodiversity (with particular attention to Habitats and Birds Directives), Transport, Material assets and the landscape, and the interaction between the above, for the competent authority to make an EIA determination that there is an acceptably low likelihood of environmental effects of a magnitude which would have a significant effect on sensitive environmental

receptors as a result of the proposed development and mitigation proposed as part of the submitted EIAR. Therefore if permitted as proposed the development would be contrary to the proper planning and sustainable development of the area’.

4.2.3. The Report recommends refusing permission for the reasons stated above.

Other Technical Reports

4.2.4. Other reports submitted in respect of the proposed development are:

- Environment (20th March 2023) – Assumes that any permission would be conditional on the application of all mitigation measures outlined in the application documentation. Within this context the report recommends further attention/further consideration of the following issues:
 - Location of site in Air Corps Low Flying Training Area (LFTA) West - Further engagement with the Department of Defence in view of the comments made.
 - Impact on broadband services – No evidence of an assessment in EIAR and therefore recommends, as helpful, an assessment/comment from an appropriate specialist on the possible impacts of the proposed development on broadband infrastructure.
 - Recommends inclusion of conditions recommended by DHLGH in respect of archaeology and specific conditions in respect of construction waste, shadow flicker, water quality monitoring and employment of geotechnical Clerk of Works, Ecological Clerk of Works and Project Ecologist/CoW. Also recommends, in the event of any incident which poses a significant risk to surface water quality, or any other parameter of interest, the developer shall immediately notify the relevant stakeholder and Environment Section of GCC.
- Roads and Transportation (22nd March 2023) – State that they are not satisfied that the development would not be at variance with national roads policy in relation to the control of development on/affecting national roads, would not result in a traffic hazard or obstruct road users for the following reasons:

- (i) The site is situated onto a National Road, N59, a key arterial route and 'lifeline road' where the 100kph speed limit applies. The development would result in an intensification of use of an existing agricultural access at variance with Policy Objectives NR1, NR2 (Protection of Strategic Roads), and NNR2 (Safeguard Regional and Local Road) of the Galway CDP and national official policy in relation to control of development on/affecting national roads (Spatial Planning and National Roads Guidelines for Planning Authorities, DoECLG, 2012).
- (ii) The absence of satisfactory information in respect of traffic volumes associated with the development (in relation to the threshold increase in traffic to trigger the need for a Traffic and Transport Assessment), adequacy of sightlines at site entrance, proposed access road alignment (horizontal and vertical), line marking and proposed pavement surface finishes and absence of third party consents of proposed grid connection works adjacent to Regional and National roads.

4.3. Prescribed Bodies

4.3.1. Submissions on the proposed development are made by the following prescribed bodies:

- TII (3rd March 2023) – Development at variance with official policy in relation to the control of development on/affecting national roads (Spatial Planning and National Roads Guidelines for Planning Authorities, DoECLG 2012) as the development would adversely affect the operation and safety of the national road network for three reasons:
 - (a) Intensification of existing direct access to a national road where speed limit >60km applies.
 - (b) Recent significant investment in upgrading sections of the N59. Proposed cable route, to be laid in the national road, has potential to impact on future maintenance and to undermine recent improvement works and have cost implications for future maintenance/improvement works. In particular, on sections of national road such as the N59, the potential for differential settlement between the reinstatement and the existing surrounding road is a critical road safety concern. Absence of

consideration of these issues in alternative cable routing proposals. The N59 is a 'lifeline' road. Because of the high social and economic cost of the failure of lifeline roads on local communities, maintaining their operability must be a high priority.

- (c) The proposed development would be at variance with national policy in relation to control of frontage development on national roads (DoECLG, 2012). Recommend a Road Safety Audit (RSA) with any recommendations arising to be incorporated in the development proposal and funded by the developer (to include the proposed alterations to the national road network along the haul route).
- DHLG&H (Nature conservation, 13th March 2023) – Concerns raised in respect of:
 - (i) Collision risk impacts – Concerns regarding the way in which the results of the collision risk model are interpreted as the assessment of effects provides no reference to baseline populations for avian receptors, no explanation for why potential loss of Hen Harrier per annum will have no adverse effect on the targets set for the species, or the conservation objectives for the species within Lough Corrib SPA.
 - (ii) In-combination effects – No detailed analysis of whether potential collision mortalities from other consented and operational wind farms would act together to adversely affect a specific population of any species identified as at risk e.g. Hen Harrier.
 - (iii) Effect of the development on White-tailed Sea Eagle – Recorded by the applicant during survey work but not considered to be within the zone of influence of the project and not included in Collision Risk Model. NPWS surveys have indicated occurrence of species frequently within the vicinity of the site and likely within path of turbines, and have determined that within 10km of the proposed development there is a known White-tailed Sea Eagle breeding location and within 4km of the proposed development there is a favoured roost site. Additional survey work required to determine potential impacts on this species. Two year survey work carried out is the minimum required by Scottish Natural Heritage, not a target.

- (iv) Mitigation – The proposed peat storage areas occur immediately adjacent to Maumturk Mountains Special Area of Conservation (SAC), with an area mapped for storage occurring immediately adjacent to the Annex I habitat Blanket bogs (*if active bog) for which the site is designated. This area should be fenced off using a sufficiently accurate GPS, with such works specified in the NIS and to come under the role of the Ecological Clerk of Works.
- (v) Role of NPWS post-consent – NPWS has no role and primary contact for developer and Ecological Clerk of Works would be GCC.
- Failte Ireland (1st March 2023) – Identify the Irish landscape as one of the primary tourism assets in the country, recognise the importance of developing the State’s renewable energy sector and support the plan led approach to development. Refer to research in respect of tourists awareness of and attitudes to wind farms, policies of the Galway CDP in respect of Tourism and Landscape and to the economic benefits of the Wild Atlantic Way Region in which the subject site is situated. Refer to the location of the development in two landscape areas (Uplands and Bog Landscape and Lake Environs Landscape) both of which have a landscape which has Class 3 Sensitivity, ‘**Special**: High Sensitivity to Change’ and to the location of the development to the south and east of two landscape areas (Upper Lough Corrib Landscape Unit and Maumturk Mountains Landscape Unit) which have a Class 4 Sensitivity, ‘**Iconic**: Unique landscape with high sensitivity to change’. Considers that, as illustrated in the Photomontages submitted with the application, and in taking account of the character and sensitivity of the receiving environment, the proposed development will directly impact both significantly and negatively on 3 designated scenic routes and on the visual context of 8 designated views points as set out on the County Galway Landscape Character Assessment. Proposed development is situated in an area where wind farm development is ‘Not Normally Permissible’ (Map 15, LARES). Refer to a precedent case, where permission for a proposed wind farm development in a similar landscape, c.1km south of Maam Cross (PA ref. 14/963) which was refused on the grounds of adverse effects on an open and exposed location within an area which was designated as being of high

landscape sensitivity (Class 3) and high landscape value rating and significant adverse effects on European sites. State that the effect of the development on the Wild Atlantic Way (within 13km of the development) and tourism assets have not been included in the assessment of landscape and visual effects. Consider that the assessment on the landscape and visual amenity presented in Chapter 11 of the EIAR significantly understates the likely real impact of the proposed development on the local and wider landscape and visual setting. Similarly, having regard to the potential that exists for significant direct impacts on the landscape and on visual amenity, consider that assessment of impacts on tourism, described as being 'slight, negative' in Chapter 5 of the EIAR (Section 5.4.5) is not appropriate or correct and significantly understates the likely real impact of the development. The report also raises concerns regarding the likely impact of the construction phase, and possibly operation, on the nature and stability of peatland soils and on watercourses in the area of the site that feed into local lakes and Lough Corrib and which are critical to maintaining the character and quality of the local landscape and tourism resource and to the proximity of the peat storage area to Maumturk Mountains Special Area of Conservation (SAC) and the Connemara Bog Complex Special Area of Conservation (SAC), and the risk of significant impacts on these designated habitats which together with the wider high-quality landscape, supports the local and wider tourism economy.

- Department of Defence (1st March 2023) – Recognises the importance of Renewable Energy Projects in the context of Ireland's Climate Action obligations and the Climate Action Plan 2023. Has serious concerns regarding the development given the location of the wind farm in Air Corps Low Flying Training Area (LFTA) West. Wind farms and other tall structures are incompatible with low level flying training and obstacle lighting will not mitigate the impact of wind turbines to low level flight. Development would therefore be a major concern at this location on aviation safety and public health and safety grounds. Also raises concerns that the development is not located in an area where wind farms are normally not permissible, development will have a negative impact on the visual amenities of the area (including sensitive landscapes, scenic routes and protected views), tourism

routes (proximity to Western Way, planned Galway-Clifden Greenway route) and has potential for impacts on European sites, the general ecology of the area, the hydrology/ ecology of the Owenwee River, the local road network during construction (N59, R336) and on upland blanket bog and peat stability.

- DHLG&H (Archaeology) (1st March 2023) – Broadly concurs with findings of EIAR and recommends conditions in any grant of permission, including that all mitigation measures set out in the EIAR be implemented and that appropriate archaeological monitoring be carried out of ground works with preservation and recording as necessary.

4.4. Third Party Observations

4.4.1. Submissions on the proposed development are made by George Lyons, Kevin Finn, Peter Sweetman, Shona Joyce, Martin Joyce, Suzanne Ní Mhurchú, Kevin Joyce, Dwain Lydon and Derek Hambelton. Issues raised are:

- Alternative sources of fuel to wind (nuclear). Wind turbines not worth the tax payers money for the energy they produce, carbon footprint they create during construction and working life span.
- Impact on residential amenity, visibility from dwellings, view to turbines across open land from dwellings. Impact on human health (noise, vibration, flicker). Antisocial working hours (concrete pours at 5am). Devaluation of property.
- Visual impact on scenic amenity of the area and untouched landscape, including on Maam Cross and on approach to the Conamara national park, travelling west on the N59, looking towards the Maam Valley, the proximity and scale of the proposed development significantly impacts and disrupts the vista and visitor experience. Turbine colour should be reconsidered (brown/dark green better fit with landscape). Height restrictions imposed on meteorological mast under PA ref. 21/693 (<80m).
- Impact on tourism, including proposed greenway. Impact on from hillwalkers and views from walking routes.
- Impact on flora and fauna (including freshwater habitats, collision risk, habitat loss, bats, freshwater pearl mussel, Atlantic salmon, Hen harrier, White tailed eagle, grouse and red deer). Precedent, wind farm at Maam Cross was refused in order to protect the hen harrier. Impact on nearby SACs. Concerns

that there may be curlew nesting in this area. Impact on Connemara Ponies (flicker, noise). Impact on ancient, wooded area adjacent to the N59, close to the proposed entrance of the new windfarm site.

- Downstream flooding, with flash flooding associated with mountainous areas causing significant deluges of water within a very short period. Necessary infrastructure needs to be designed to take this into account (risk and impact of increased discharge and sediment volumes on Inis Bofin lake).
- Peat slides and risk of contamination of water courses and streams and lakes In the area, with impacts on fish life.
- PA has four distinct sets of legal tasks when dealing with the application, (i) assess the merits of the development in accordance with the P&D Act 2000 as amended to ensure that it is in accordance with the proper planning and sustainable development of the area, (ii) form and record a view as to the environmental impacts of the development or to screen for EIA, (iii) carry out responsibilities under the Habitats Directive in respect of screening for Appropriate Assessment and, where necessary, for Appropriate Assessment and (iv) assess compliance with the requirements of the Water Framework Directive.
- Impact on internet (no fixed line broadband).
- Traffic effects, including the ongoing phasing of works on the N59 Clifden to Oughterard roadworks and phasing to cause least amount impact on daily commuter and the influx of tourists in the peak periods.
- Lack of consultation with locals.

4.5. **Planning History**

4.6. There is no planning history in respect of the site. Planning applications in the vicinity of the site are set out in the Planning Report. These are not directly relevant to the proposed development but include:

- Under PA ref. 14/963 – Planning permission was refused for a wind farm of 5 no. turbines on land to the south west of the subject site in the townland of Ardderrynagleragh, south of Maam Cross. It was refused on two grounds adverse effect on a landscape of high value, as viewed from tourist routes,

impact on European sites and consequential conflict with policies of the County Development Plan.

- Other wind farm developments granted to the southeast of the site in the area of Seecon and Finnaun, c.7km to the south east of the appeal site (Figure 2.1, EIAR). These include appeals determined by the Board in respect of Galway Wind Park.

5.0 Policy Context

5.1. EU Directives and Policies

5.2. EU Directives and policies essentially promote the use of renewable energy as part of a wider policy framework of transitioning to a low carbon, and more recently, energy independent European economy. Relevant Directives and policies include:

European Directives and Policies

- EU Renewable Energy Directive 2009/28/EC and revised directive EU/2023/2413.
- 2030 Climate and Energy Framework (2014, updated 2018).
- European Green Deal (2019)
- REPower EU Energy Plan 2022.

5.3. National Policy

5.3.1. National policy reflects European directives and policies and includes:

- *Project Ireland 2040: The National Planning Framework*, including National Strategic Outcome no. 8 - Transition to a Low Carbon and Climate Resilient Society and National Policy Objective (NPO) 55 which promotes 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.
- *Project Ireland 2040: National Development Plan 2018-2027*. Sets out the investment priorities that will underpin the implementation of the NPF, including NSO 8, to transition to a low carbon and climate resilient society, and investment in renewable energy via Renewable Electricity Support Scheme (RESS) auctions to deliver competitive levels of onshore wind electricity generation (amongst other renewable sources).
- *Ireland's Transition to a Low Carbon Energy Future 2015-2030*. This White Paper is a framework to guide policy up to 2030. It sets out a vision for transforming Ireland's fossil fuel-based energy sector into a clean, low carbon system.

- *Climate Action and Low Carbon Development (Amendment) Act 2021*. This supports the State's transition to Net Zero and achieve a climate neutral society by 2050. It includes sectoral targets to achieve national, EU and international climate objectives.
- *Climate Action Plan 2023*. Prepared under the above Act. The plan seeks to identify how Ireland will achieve its 2030 targets for carbon emissions by sector and through a series of actions. The overarching requirement for electricity requires transformational policies, measures and actions, and societal change to increase the deployment of renewable energy generation, strengthen the grid, and meet the demand for flexibility in response to the challenge. The plan seeks to reduce the State's greenhouse gas emissions by 51% by 2030. One of the plan's measures seeks to increase the proportion of renewable electricity to up to 80% by 2030, including a target of 9 GW from onshore wind, 8 GW from solar and at least 5 Gigawatts of offshore wind energy by 2030.
- *Energy Security in Ireland to 2030*. Outlines a national strategy to ensure energy security, while delivering on the commitment to carbon neutrality by 2050. The document highlights the importance of renewable energy policy.
- *Department of Environment Heritage and Local Government Planning Guidelines for Wind Energy (June 2006)*. Provides guidelines for wind energy in respect of noise, shadow flicker, design and siting. Including that:
 - In general noise is unlikely to be a significant problem where the distance from the nearest noise sensitive property is more than 500m,
 - Shadow flicker at neighbouring offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day, and
 - The potential for shadow flicker is very low at distances greater than 10 rotor diameters from a turbine.
- *Draft Revised Wind Energy Guidelines* (Published for Consultation on 12th December 2019). Provides revised guidelines , including:
 - *Section 5.7.4 – Noise*. Proposes noise restriction limits consistent with World Health Organisation Guidelines i.e. a relative rated noise limit of 5dB(A) above existing background noise within the range of 35 to 43dB(A), with 43dB(A) being the maximum noise limit permitted, day or

night. The noise limits will apply to outdoor locations at any residential or noise sensitive properties.

- *Section 5.8.1 – Shadow Flicker.* Recommends provision of evidence as part of the planning application that shadow flicker control mechanisms will be in place for the duration of the wind energy development project.
- *Section 6.18.1 – Set back.* Recommends a setback distance for visual amenity purposes of 4 times the tip height to apply between a wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres (exceptions provided where owners/occupiers agreeable).
- *Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement* issued by the Department of Communications, Climate Action and Environment (December 2016).

5.4. Regional Policy

- 5.4.1. The Northern and Western Regional Assembly's Regional Spatial and Economic Strategy 2020-2032 supports the development of renewable energy in the region, subject to appropriate environmental controls (RPO 4.16, RPO 4.17 and RPO 4.18).

5.5. Development Plan

- 5.5.1. The appeal site lies within the administrative area of the Galway County Development Plan 2022-2028 (Galway CDP). It contains policies in respect of rural living, transport, infrastructure, climate and renewable energy, tourism, landscape and natural and built heritage. Of note, are the following strategic objectives and policies:
 - Chapter 4: Rural Living and Development: Overarching aim, to support the role of rural areas in maintaining a stable population base through a strong network of villages and small towns and strengthening rural communities by supporting a resilient rural economy and the sustainable management of land and resources.
 - Chapter 8: Tourism and Landscape. This chapter of the plan recognises the significant role that tourism plays in the economy of the county and states that

'the protection of the landscapes is of significant importance... as it is recognised as one of the key attributes within the county'. Within the vicinity of the site, tourism infrastructure includes the Wild Atlantic Way. The appeal site lies within a Landscape Character Area described as 'Uplands and Bog Landscape' and south of the 'Lake Environs Landscape' of Lough Corrib (Map 8.1, CDP) with Special Landscape Sensitivity and Iconic Landscape Sensitivity respectively (Map 8.2). The LCAs are sub divided into landscape character units (section 3, Appendix 4, CDP), with Maumturk Mountains Landscape Unit, within the Uplands and Bog LCA, also identified as having Iconic Landscape Sensitivity (Map 8.2). Landscape policies aim to:

- Preserve and enhance character of the landscape, preserve views and prospects and the amenities and places and features of natural beauty and interest (LCM 1), and
- have regard to landscape sensitivity classification and sensitivity ratings in consideration of significant development proposals, to be balanced against the need to develop key infrastructure to meet strategic aims of the plan (LCM 2, LCM 3).

The N59 to the south of the site is designated as a scenic route (Galway Clifden Scenic Route and Lough Corrib Scenic Route). Maum Valley Scenic Route is designated to the west of the site, south and north of Maam Cross (Map 8.3). Protected views in the vicinity of the site are shown in Map 8.4 (with nearest views directed away from the development site). Policy PVSR 1 preserves the Protected Views and Scenic Routes identified on Maps 8.3 and 8.4.

- Chapter 14: Climate Change, Energy and Renewable Resource. Includes the following policy objectives:
 - CC 6 and RE 2 – To support the implementation of the Local Authority Renewable Energy Strategy (LARES) contained in Appendix 1 of the Galway County Development Plan, to facilitate the transition to a low carbon county.
 - RE 1 and RE 5 – To support appropriate levels of renewable energy generation in the county, with environmental safeguards.

- RE 3 – To promote and facilitate wind energy developments in suitable locations, having regard to the areas of the County designated for this purpose in the LARES. Planning applications for wind energy production to be assessed in accordance with the LARES, 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 policy objectives and Development Standards set out in the LARES.
- Chapter 15: Development Management Standards.
 - DM69 – States that the PA will have regard to the Wind Energy Development Guidelines for Planning Authorities, DoEHLG (2006) and any amendments to these and the LARES. In addition it sets out certain local considerations to be taken into account by the PA in relation to any planning application. These include for example, impact on the visual amenities, residential amenities, cumulative impacts, environmental effects, impacts on the road network and human health.

5.5.2. Appendix 1 of the Plan comprises the Local Authority Renewable Energy Strategy (LARES). It sets out areas of the county within which wind energy development is acceptable in principle, open to consideration, generally to be discouraged and not open to consideration (Map 15). The appeal site lies in an area that is designated as 'Not normally permissible'. Section 12 of the Strategy document describes these as Areas where Wind Energy Projects, would be likely to conflict with policies of the council to protect landscape, water, ecological resources and residential amenity. Such areas may also include areas and species protected by the Habitats Directive. For these areas Policy Objective 18 applies: *'Wind energy development proposals in areas that are identified as 'Not Normally Permissible' for wind energy development will be considered in accordance with the LARES and the proper planning and sustainable development of the area'*.

5.5.3. Further, for developments in these areas (not normally permissible), the Strategy document on page 84 states *'Wind energy development proposals should consider the constraints and challenges detailed in Sections 5 and 9 of this LARES, and should indicate how these constraints can be addressed where they are not located in an area identified as 'Strategic Areas' or 'Acceptable in Principle'*. Constraints and

challenges in sections 5 and 9 include landscape sensitivity, ecological and natural heritage designations, Water Framework Directive, landslide susceptibility, architectural and archaeological heritage and tourism, settlement patterns and population density, network and grid connection, supporting infrastructure and cumulative impacts.

- 5.5.4. In Chapter 6, Transport and Movement, policy objectives protect the strategic transport function of national roads, avoid the creation of new or generation of increased traffic from existing access points, require a Traffic and Transport Assessment and Road Safety Audit for significant development proposals affecting national roads and safeguard the carrying capacity and safety of regional and local roads (NR 1, NR 4, NR 3 and NNR 2 respectively).
- 5.5.5. In Chapter 10, Natural Heritage, Biodiversity and Green/blue Infrastructure, policy objectives NHB 1, NHB 2 and NHB 3 afford protection to sites of natural heritage interest, including European sites, and require appropriate assessment of any development likely to impact on European sites.

5.6. Natural Heritage Designations

- 5.6.1. The following national and European sites lie within the immediate vicinity of the appeal site. Other sites lie in the wider area of the subject site (see EIA and AA sections of this report below):

- Lough Corrib SAC/proposed Natural Heritage Area (shared site code 000297).
- Lough Corrib SPA (site code 004042).
- Maumturk Mountains pNHA/SAC (shared site code 002008).
- Connemara Bog Complex pNHA/SAC (shared site code 002034).

5.7. EIA Screening

- 5.7.1. Schedule 5 of the Planning and Development Regulations, 2001 (as amended) sets out prescribed classes of development, for which an environmental impact assessment is required. These include in Part 2 (3)(i) *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*. An EIAR accompanies the application.

6.0 The Appeal

6.1. Grounds of Appeal

6.1.1. First party grounds of appeal against the decision to refuse permission are:

Reason for Refusal No. 1

- There is no material contravention of the LARES. Development is situated in an area 'Not Normally Permissible' for wind energy. LARES requires that in such areas relevant constraints should be addressed:
 - Landscape sensitivity – This is not considered to be a material contravention (see Reason 2 below).
 - Ecological and natural heritage designations – Development site is not situated within a designated area. Risks of adverse effects on 4 SPAs and 4 SACs, identified in NIS, will be removed with application of mitigation measures.
 - WFD – Surface water runoff can be managed to reduce suspended solids to acceptable levels, with minimal effects on surface water features.
 - Landslide – Peat Stability Risk Assessment Report identifies a low to negligible risk of peat slide (shallow peat layer).
 - Architectural and archaeological heritage and tourism – There are no known archaeological or cultural remains within the footprint of the development and no direct effects are predicted.
 - Settlement patterns and population – Site is located in a sparsely populated area, 30 dwellings within 2km of turbines, closest dwelling is 740m. Oughterard is c.9km to the east.
 - Network and grid connection – Studies in respect of grid connection potential have been undertaken. These have established that the likely grid connection will be the ESB 110KV Screebe Substation located at Glencoh, Co. Galway.
- The development does not give rise to significant adverse effects on these constraints that gave rise to the Not Normally Permissible designation or on the environment. The development will have a positive effect on the local

economy (construction jobs/spend and development contribution and community benefit package) and on climate change (CO₂ emissions).

- Development is in accordance with LARES policy objective 18, or therefore related policy objectives CC6, RE2, RE3, RE5 and DM69.
- If the Board consider there to be a material contravention of LARES, they may grant permission for the development as it meets more than one objective of section 37(2)(b) of the Planning and Development Act 2000, as amended. In this respect the development (i) is of strategic importance, (ii) would help Galway CC achieve many of the objectives/policies set out in the CDP in respect of climate change, (iii) is consistent with the RSES for the western and northern region, (iv) is consistent with other development's granted in similar landscapes (Galway Wind Park, c.7km to the south east of the site and Bracklyn Wind Park, Co. Westmeath in an area classified as having a 'Low Capacity' for wind farm development in the CDP). The development is also consistent with the matters the Board is required to have regard to under section 143 of the Planning and Development Act 2000, as amended (national policies and objectives/national interest).
- Council's Planning Report – The Planning Report appears to focus on the landscape and visual sensitivity and assume that this is the main reason for the designation of the site as a 'Not normally permissible' (addressed by the applicant below).

Reason for Refusal No. 2

- Siting of development in an elevated and exposed landscape. Development is located in such a landscape (necessary for wind energy). The landscape in which the development is located is of the same typology of Galway Wind park, c.10km to the south east of the site (contains one of the highest concentrations of wind turbines in the country). Site lies at fulcrum of four main landscape typologies found within the LVIA study area (Figure 11.4, appeal). Upland and Bogs landscapes are pulled together in the Galway Landscape Character Types and unfairly pulls the site, as a modest scale transitional upland area, into the same policy context as the discrete Connemara Mountains and Coastal Bog landscape contexts (Figure 11.4). The finer grained Landscape Character Units, reinforce the transitional

context of the site, but it is still inappropriately classified as being part of the West Connemara Unit, comprising undulating bogs and lakes between the Connemara Mountains and the sea (Figure 11.5).

- Siting of the development in a Class 3 Special landscape. The landscape sensitivity classification is more aligned with a 'Medium' sensitivity than a 'High' sensitivity in a more universal system. The Connemara Mountains to the northwest and Coastal Bog to the southwest are acknowledged as of Very High/High sensitivity.
- The overall height and siting/visual dominance of the development. The scale of the turbines is consistent with the landscape context. Strongly refute GCC opinion that the development will display '*visual dominance on the landscape from all viewpoints*'. The 6 no. turbines will be visible in the majority of the 29 viewpoints in the visual impact assessment, the development will not be visually dominant from them all and will be a distant background feature in many beyond 5km. The development will not militate against the preservation of the rural environment. Transitional upland rural landscapes, such as the subject site, have become synonymous with wind energy development.
- Impact on scenic routes – The wind farm will be seen from designated routes to the south, west and north. However, there will be mitigating circumstances. From the north there is a relatively restricted views of the turbines rising above the skyline ridge of the site but in a direction where they will be seen against a backdrop of working rural uplands that already contain turbines. From the west there are clear views of the turbines from a saddle within the Maumturk Mountains (VP10). This results in one of the highest visual impacts but the vast majority of the route affords no/very restricted visibility of the turbines. Closest views from the south, turbines are seen within a slightly enclosed upland context of forestry and scrubby moorland that does not exemplify the character of the landscape for which it has been designated. There are numerous instances of wind farms granted in close proximity to scenic routes (e.g. Derragh and Cleanrath wind farms near Ballingeary, County Cork).
- Material contravention of LCM 1, 2, 3 and DM standards 69 – LCM 1 (preservation of landscape character): For the reasons stated above, the

development will not significantly impact on the receiving landscape character. LCM 2 (regard to landscape sensitivity classification): the landscape sensitivity of the site and wider study area has been considered in the LVIA, with sound reason for departing from the classification. A comprehensive landscape and visual assessment has been carried out. The assessment of non-significant landscape and visual impacts represents the balance between respecting sensitive characteristics and providing key infrastructure to meet the aims of the CDP. LCM 3 (consideration of landscape sensitivity ratings): The policy is not prescriptive. Landscape sensitivity has been considered. Absence of significant landscapes and visual impacts implies that the site is appropriate for wind energy development. DM 69 (development management standards for wind farms): Does not set out particular standards to be met, just issues that the PA will have regard to. There is no material contravention of this 'list'.

Reason for Refusal No. 3

- Access to the site is via a simple priority junction located at the site of an existing forestry track. Access will be upgraded to TII specification DN-GEO-03060, with visibility lines to 215m at 3.0m setback and appropriate Traffic Signs (Appendix C and Chapter 8, EIAR). The location of the junction will be signposted. Layout is shown on drawing 6267-TWF-JOD-XX-DR-C-0201 and sightlines on 6267-TWF-JOD-XX-DR-C-0402.
- The appeal refers to section 14.5 of the EIAR and section 7 of the Traffic Management Plan which detail traffic effects of the development (all phases) and states that traffic movements associated with the construction will generate a maximum of 152HGV trips/304HGV movements and 30LVt trips/60 movements, per day, for 6 days within 10 months when turbine foundations will be constructed. Outside of this, typical construction traffic will comprise 77HGV trips/158HGV movements and 30LVt trips/60 movements per day, at the site entrance. During operation there will be 1-2 visits/week. Decommissioning traffic during 4 months of decommissioning will be relatively small compared to construction. Traffic volumes on the N59 near Maam Cross will increase by c.8.75% during construction (peak periods, from 3,892 vehicles/day to 4,457/day).

- 38kV grid connection works on the N59, R336 and R340 public roads will be carried out between the wind farm site entrance and the existing 110kV Screebe sub-station. Grid connection works will be carried out in the road verge and road carriageway and will be to a specification agreed with TII and GCC. Analysis of the temporary traffic lights on the N59 between the N59 wind farm site and Maam Cross during the 38kV grid connection works show that significant delays will not arise for through traffic on the N59 (section 8 Traffic Management Plan, section 14.5.8 EIAR).

Reason for Refusal No. 4

- Applicant commissioned a study into the Low Flying Training Area issue raised (Appendix D of appeal). It concludes that the development should not pose a risk to aviation safety on the condition that the wind farm is made known in the Irish AIP and has acceptable aviation lighting. The LFTA West is not a designated military use airspace as consented through the IAA Act 1993. As such the airspace is not in compliance with the Act and poses a safety risk to all airspace users, including Air Corps. Notwithstanding a low-level flying area, wind farms are notified and lit thereby known to airspace users where required flight planning will mitigate any obstacles. This is an internationally accepted process where other European countries have accepted wind farms in low level flying military training areas.

Reason for Refusal No. 5

- Collision risk impacts – Addendum to Chapter 7 of EIAR submitted in respect of collision risk assessment and updated Collision Risk Model. The addendum report and modelling exercise corrects an error in the original model, reducing the predicted collision rates and uses a 40 year operational period which is sought for the development (N.B. This is inconsistent with the applicant’s description of development and the statutory notices which refer to a 35 year operational life). Annual predicted collision rate is 0.001 collisions per year, not 0.08. This is equivalent to 0.03 collisions every 40 years or one every 1,292.59 years. The proposed development does not on its own or cumulatively have a perceptible impact on the population of Hen Harriers in nearby Lough Corrib SPA, even assuming a local population of one bird.

- In combination effects – Refers to the revised collision risk model which indicates that all predicted collision risks are <1 and a minute fraction for all species. It cites as an example, prediction collisions from Ardderroo Wind Farm (in the vicinity of Galway Wind Park) as 0.001. Adding the predicted collision risk for the subject development (0.001) to this, cumulative collision risk is 0.002 birds per year, 0.2% of a worst case scenario of one bird local population. This is well below the Percival Negligible rating of <1%, with no decline in long term population trend of hen harrier attendance at winter roost sites within the SPA.
- White-tailed eagle – Not an SCI of any of the 4 SPAs occurring within the zone of influence of the development and not listed as an SCI of any SPA occurring in Ireland. It is not necessary therefore to consider the species in the AA of the development. A response to this issue has been made in the EIAR Ornithology assessment. White-tailed eagle has not been seen flying at rotor heights within the collision risk area during 2.5 years of survey, which is more than the requirements set out by SNH. Note that survey periods can extend beyond 2.5 years and that GCC can request an extension.
- Mitigation – Revisions made to NIS to include mitigation measures in respect of peat placement area and eliminate risks to adjoining wet heath and/or blanket bog habitat of the Maumturk Mountains SAC.
- Post consent role of NPWS – Amendments made to NIS, with the ECoW first point of contact being the PA on all matters relating to ecology and biodiversity.

6.2. Planning Authority Response

6.2.1. No response.

6.3. Observations/Further Responses

6.3.1. None.

7.0 Assessment

7.1. Having examined the application details and all other documentation on file, including all of the submissions received in relation to the appeal, and inspected the site, and having regard to relevant policies and guidance, I consider that the main issues in this appeal are related to the reasons for refusal, namely:

- Location of development (LARES/policies of CDP).
- Landscape and visual effects.
- Roads and traffic issues.
- Impact on Air Corp Low Flying Training Area.
- Impact on European sites.
- Adequacy of EIAR, in particular in respect of biodiversity, transport, material assets, landscape and interactions.

7.2. A number of matters have also been raised in observations on the planning application by third parties. These have been largely dealt with by the PA but I comment on them briefly in this assessment:

- Precedent.
- Lack of consultation.
- Principle of wind energy development.
- Impact on residential amenity, health and property values.
- Impact on tourism.
- Impacts on flora and fauna, water quality and protected sites species.
- Risk of downstream flooding and pollution of downstream waterbodies (flash flooding).
- Risk of peat slides.
- Impact on ancient wooded.
- Impact on internet (no fixed line broadband).
- Statutory responsibilities in respect of proper planning and sustainable development, EIA, AA and WFD.

7.3. The assessment is structured into three sections, planning assessment, environmental impact assessment and appropriate assessment. Issues in respect of compliance with the WFD are addressed in the 'Water' section of the EIA.

7.4. Planning Assessment

Precedent

- 7.4.1. Submissions on the planning application refer to the PAs decision to refuse permission in 2015 for a wind farm (5 no. turbines) on land to the south west of the appeal site, east of the R336 and south of Maam Cross (PA ref. 14/963). It was refused on the grounds of visual impact and likelihood of significant effects on European sites. The proposed development is removed from the site of this development and has a different context on the slopes of Cappanalaun. Whilst similar issues arise, I consider that the subject development should be adjudicated upon on its own merits, its site specific context and the current policy context, which has changed since PA ref. 14/963 was determined.

Consultation

- 7.4.2. Submissions on the application refer to an absence of public consultation. The planning application for the subject development includes copies of statutory public notices and the planning application has been validated by the PA. In addition, in Chapter 1 of the EIAR the applicant outlines the public consultation exercise that has been carried out. I note that this has included a dedicated project website, three no. public consultation webinars held in 2021 and 2022 (advertised in the Connaught Tribune), a public event in March 2022, letters distributed to houses in the local area in advance of events, project newsletters, the provision information in Irish and English and an appointed Community Liaison Officer (see Community Report - Appendix 1.5). The approach taken by the applicant is consistent with statutory requirements in respect of public notices and with industry guidelines which recommend early and active engagement with the community (Code of Practice for Wind Energy Development in Ireland for Community Engagement, Draft Revised Wind Energy Development Guidelines, 2016).

Principle of Wind Energy Development

- 7.4.3. Submissions on the planning application refer to alternatives to wind energy and to cost/benefit arguments against wind energy. As summarised in section 5 of this report, European, national, regional and local planning policies support the development of renewable energy, including wind, in order to transition to a low

carbon economy and provide energy security. The proposed development is acceptable in principle, therefore, in this context.

7.4.4. In addition, the applicant acknowledges that the 'payback' time for the wind farm to compensate for the CO₂ used in the manufacture and construction of the wind turbine will be c.24 months. It refers to an operational life of c.40 years (not the 35 years referred to in statutory notices) and therefore to a net beneficial effect on carbon emissions savings over this period (c.38 years/c.33 years).

7.4.5. Economic viability is a largely a matter for the applicant, with the development unlikely to be pursued in the absence of valid economic basis.

Reason 1: Location of Development and Reason 2: Impact on Designated Sensitive Landscape

7.4.6. The PAs first reason for refusal centres of the Location of development in an area identified as 'Not Normally Permissible', Map 15, Local Authority Renewable Energy Strategy (LARES), Galway County Development Plan 2022-2028 and their considered view that the development comprises a material contravention of policies CC6, RE2, RE3, RE5 and DM Standard 69 contained in the Development Plan. These policies are summarised in section 4.5 of this report and essentially support the implementation of the Renewable Energy Strategy set out in LARES, promote and facilitate wind energy development having regard to areas of the County designated for this purpose and the DoEHLG Guidelines for Planning Authorities on Wind Energy Development, 2006 (or any updated/superseded documents), with due regard to the Habitats Directive and Development Standards set out in the LARES.

7.4.7. The applicant acknowledges that the development is in an area where wind farms are 'Not Normally Permissible', but argues that there is scope for the development in the specific landscape context of the site having regard to the absence of adverse effects on the constraints set out in the LARES i.e. no material contravention with landscape sensitivity and absence of effect on ecological and natural heritage designations, surface or groundwater, peat stability, archaeology or cultural heritage, settlement patterns/population, other environmental parameters and availability of grid connection. It is also argued that if the Board determine that there is a material contravention of the CDP the Board can still grant permission for the development

under section 37(2)(b) of the Act (development is of strategic or national importance, conflicting objectives in the CDP, regional/national policy, pattern of development).

- 7.4.8. I have examined the likely effects of the development on different environmental parameters in the environmental impact assessment and appropriate assessment sections of this report. For the reasons stated, I have raised concerns regarding landscape and visual effects of the development and effects on population and human health, biodiversity, ornithology, peat stability, traffic and transport and potential effects on European sites.
- 7.4.9. With regard to landscape effects, and to address points raised by the appellant under the first reason for refusal, whilst I would accept that wind farms are becoming a familiar site in upland and exposed landscapes, I do not accept that the landscape context for the development is akin to that of Galway wind park, which comprises a largely forested environment in an area of High landscape sensitivity (subject site is Special), with little visual or landscape effects on areas of higher sensitivity. Further, I do not accept that it is appropriate to 'moderate' the landscape sensitivity of the site given the important relationship between landscape and tourism and the acknowledgment in Chapter 8 of the CDP, Tourism and Landscape, that '*landscapes and seascapes ...are one of the county's most important assets*'.
- 7.4.10. In addition, based on the photomontages and inspection of the site, as stated in the Landscape section of this report, I consider that the proposed turbines will be a significant intrusion on an open, upland landscape, designated Class 3 of Special Sensitivity, with high sensitivity to change and inappropriately intrude on lands to the north and west designated Class 4, Iconic Sensitivity, having a unique landscape with high sensitivity to change. The turbines will be inappropriately visible and dominant in views from scenic roads and viewpoints in the wider landscape, as indicated in the Landscape section of this report with significant, adverse, indirect and detrimental effects on tourism.
- 7.4.11. Having regard to the foregoing, and to the issues raised in my report in respect of population and human health, biodiversity, ornithology, peat stability, traffic and transport and potential effects on European sites, I am not satisfied therefore that the proposed development is acceptable in the 'Not Normally Permissible' zone as significant effects are likely to arise in respect of the particular matters considered in

the development of the Renewable Energy Strategy document and the designation of areas that are and are not appropriate for wind energy development. Further, I do not consider that the subject development is therefore consistent with the Local Authority Renewable Energy Strategy, or policy objectives LCM1, LCM2 and LCM 3 and DM Standard 69 of the CDP.

Reason 3: Traffic and Transport

- 7.4.12. The PA, in their decision to refuse permission, and TII in their submission on the planning application, refer to a number of issues in respect of traffic and transport, which I deal with in turn.

Policy Context (Protection of National Roads, regional roads and local roads)

- 7.4.13. The government's guidelines on Spatial Planning for National Roads, Guidelines for Planning Authorities (DoECLG, 2012) provides that in development planning (section 2.5), PAs avoid the creation of any additional access point from new development or the generation of increased traffic from existing accesses to national roads, to which speed limits greater than 60kph apply. Exceptional circumstances are set out in section 2.6 and these include for developments of national and regional strategic importance, which by their nature are most appropriately located outside of urban areas and where the locations concerned have specific characteristics that make them particularly suitable for the development proposed. In section 2.12, the Guidelines (Development Management), state that for significant development proposals should be accompanied by a traffic and transport assessment and/or road safety audit.
- 7.4.14. The proposed development will result in the increased use of existing accesses onto the N59, at the entrance to the wind farm and to the peat storage and restoration area. The development is not provided for in the Galway County Development Plan, as a location of exceptional circumstance. However, it is a substantial wind farm and is, therefore, a development of national and strategic importance, having regard to the policies of the NPF and the Regional Spatial and Economic Strategy for the Northern and Western Region, both of which advocate a shift towards renewable energy production. Further, the proposed development is also sited in principle, in an appropriate location, outside of an urban area, where the characteristics of the rural area make it particularly suitable for wind farm development. I consider

therefore that there are grounds for exceptions to the generally preclusive policy of intensification of use of existing accesses onto the national road network.

- 7.4.15. In addition, whilst the proposed development will generate a substantial increase in traffic during construction, traffic during operation is very modest with one or two visits per week by car/light vehicle and will not pose a risk to the carrying capacity or strategic function of the national road, or the regional or local roads in the area of the site for the 35 year period of operation.
- 7.4.16. The Traffic and Transport section of this report (EIA) considers the likely effects of the construction and operational phases of the development. For the reasons stated in the assessment, I consider that the increase in traffic is acceptable for the short duration of construction and decommissioning phases of the project and can be accommodated within the capacity of the National Road, subject to appropriate mitigation (e.g. management of turning movements of traffic at junctions) and is not unreasonable. However, in order to comply with national and local policies and in the interest of traffic safety, if the Board were minded to grant permission for the development, this should be subject to the provision of a Road Safety Audit for the construction phase of the development.
- 7.4.17. In addition, the applicant proposes that the grid connection be laid in the public road corridor along national and regional roads. TII indicate that alternative routes should be explored to minimise effects on the public road. The Board should note that in Chapter 3 of the EIAR alternative options for grid connection are explored, and routing through private lands is discounted due to the potential for effects on blanket bog. Having regard to the foregoing, location of the grid connection in the public road, is not unusual or unreasonable. Further, laying of the cable in the road corridor can be managed by appropriate design/construction methodologies to minimise future impacts on maintenance of the public road and the potential for differential settlement and final surface finish can be addressed by detailed design, in accordance with the strict requirements the roads authority and TII.
- 7.4.18. Having regard to the foregoing, and subject to provision of RSA for the construction phase of the development, I am satisfied that the development is not at variance, in principle, with national roads policy or policies of the County Development Plan

which seeks to safeguard the carrying capacity and safety of the national road network.

Development Management and Third Party Consents

- 7.4.19. Development Management policies DM 28 and DM33 set out sight distances required for accesses onto national roads (215m for a design speed of 100km) and, for significant development proposals, require a road safety audit, road safety impact assessment and transport and traffic assessment. As indicated in the Traffic and Transport section of this report, I am not satisfied that the applicant has demonstrated how the proposed sightline to the east at the entrance to the wind farm site will be achieved, given the ridge in the public road, and the limited details provided in respect of the horizontal and vertical realignment of the N59 to the east of the site entrance (Drawing 6267-JOD-TWF-XX-DR-C-0401 'Access Track Construction Details'). Further, as discussed above, a Road Safety Audit should be required for the construction phase of the development, to comply with the above policies.

Third party consent (grid connection works)

- 7.4.20. In the appeal, the applicant states that grid connection works will take place within the road verge and road carriageway to a specification to be agreed with TII and Galway County Council (i.e. no works on third party lands). This is not unusual and the details submitted on file refer to works only in the road corridor. The Abnormal Indivisible Load Route Survey (Appendix 14.1) indicates a number of locations where third party lands are required. These include, but are not limited, to the locations shown in Figure 2.4, Proposed Haul Route. The reasons for inclusion/exclusion are unclear. However, the haul route does not form part of the planning application but is included for the purpose of enabling a full assessment of the development as a whole under EIA and AA. Further, I draw the Board's attention to the Route Survey drawings, which incorrectly show the entrance to the proposed wind farm (Abnormal Load Route Survey, Appendix 14.1, Part 3, Proposed Site Access). If the Board are minded to grant permission, these matters should be clarified.

Reason 4: Air Corps Low Flying Area

7.4.21. This matter is addressed in the Material Assets section of the EIA. For the reasons stated I consider that should the Board decide to grant permission for the development, a response to the matters raised in the appeal should be sought from the Department of Defence. In the absence of this, I do not consider that the issue can be adequately addressed and I would recommend that this reason for refusal be omitted.

Reason 5: Effect on European Sites

7.4.22. This matter is addressed in the Appropriate Assessment section of this report. For the reasons stated, I consider that the applicant has not demonstrated the development will not adversely affect the integrity of European sites in the area of the site. In such circumstances, the Board is precluded from granting permission.

Reason 6: Adequacy of EIAR

7.5. This matter is addressed in the Environmental Impact Assessment section of this report. For the reasons stated, I consider that the EIA has inadequately identified the likely significant effect of the development on the environment, specifically with regard to population and human health, biodiversity, ornithology, peat stability, landscape and visual effects and traffic and transport.

Other Matters

7.6. In their submission on the planning application the DHLG&H (nature conservation) refer to the absence of role for the NPWS post consent. This is recognised by the applicant and in the appeal submission it is stated that the NIS has been amended to this effect, with the ECoW first point of contact being the PA on all matters relating to ecology and biodiversity.

7.7. Submissions on the planning application raise concerns regarding the effect of the development on property values. In the EIA section of this report under Population and Human Health, I conclude for the reasons stated that the development will not give rise to any significant effects on population and human health. I am satisfied, for the same reasons, that the development will have no significant effect on property values (e.g. distance and orientation of dwellings relative to wind turbines, absence of effects by way of noise, flicker or telecommunications, potential for local economic benefits).

7.8. Environmental Impact Assessment

7.9. The proposed development is of a type and scale that requires environmental impact assessment under the Planning and Development Act 2000, as amended, with the development comprising one which falls within Schedule 5, Part 2, (3)(i) of the Regulations.

7.10. This section of the report therefore comprises the environmental impact assessment of the proposed development in accordance with Planning and Development Act 2000 (as amended) and the associated Regulations, which incorporate the European directives on environmental impact assessment (Directive 2011/92/EU as amended by 2014/52/EU). Section 172 of the Planning and Development Act, 2000 (as amended) defines EIA as:

- a. consisting of the preparation of an EIAR by the applicant, the carrying out of consultations, the examination of the EIAR and relevant supplementary information by the Board, the reasoned conclusions of the Board and the integration of the reasoned conclusion into the decision of the Board, and
- b. includes an examination, analysis and evaluation, by the Board, that identifies, describes and assesses the likely direct and indirect significant effects of the proposed development on defined environmental parameters, and which includes significant effects arising from the vulnerability of the project to risks of major accidents and/or disasters.

7.11. Article 94 of the Planning and Development Regulations, 2001 and associated Schedule 6 set out requirements on the contents of an EIAR.

7.12. This EIA section of the report is therefore divided into two section. The first section provides an examination of the EIAR and assesses compliance with the requirements of Article 94 and Schedule 6 of the Regulations. The second section provides an examination, analysis and evaluation of the development and an assessment of the likely direct and indirect significant effects of it on defined environmental parameters, having regard to the EIAR and relevant supplementary information. It also provides a reasoned conclusion and allows for integration of the reasoned conclusions into the Boards decision, should they agree with the recommendation made.

7.12.1. Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations, 2001

Section 94 (a) Information to be contained in an EIAR (Schedule 6, paragraph 1)	
A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development (including the additional information referred to under section 94(b).	A description of the proposed development is contained in Chapter 2 of the EIAR including details on the location, site, design and size of the development, arrangements for access and construction methodology, spoil and waste to be generated. In each technical chapter the EIAR details are provided on use of natural resources and the production of emissions and/or waste (where relevant). It is noted that the proposal does not involve demolition works.
A description of the likely significant effects on the environment of the proposed development (including the additional information referred to under section 94(b).	A description of the likely significant effects of the development on the environment is provided in the technical chapters, and associated documentation, of the EIAR. Technical chapters reflect the environmental parameters set out in Article 94. As indicated in the environmental impact assessment below, I am not satisfied that the EIAR has adequately identified the significance of environmental effects with regard to population and human health, biodiversity, ornithology, peat stability, landscape and visual effects and traffic and transport.
A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development (including the additional information referred to under section 94(b).	The proposed development includes designed in mitigation measures and measures to address potential adverse effects identified in technical studies. These, and arrangements for monitoring, are summarised in Appendix 16.1 (Summary of Mitigation Measures), Appendix 2.1 (CEMP) and Appendix 6.5 (Habitat Management Plan). Mitigation measures are largely capable of offsetting significant adverse effects identified in the EIAR, except in respect of the matters raised above.
A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment (including the additional information referred to under section 94(b).	A description of the alternatives considered is contained in Chapter 3 of the EIAR. The alternatives considered include, do nothing', strategic site selection, alternative turbine numbers and specifications, alternative layout and design, alternative grid connection and alternative mitigation measures. The main reasons for opting for the current proposal were based on minimising environmental effects. I am satisfied that the applicant has undertaken a study of reasonable alternatives in assessing the proposed development and has outlined the main reasons for opting for the current proposal before the Board and in doing so the applicant has taken into account the potential impacts on the environment.
Section 94(b) Additional information, relevant to the specific characteristics of the development and to the environmental features likely to be affected (Schedule 6, Paragraph 2).	

A description of the baseline environment and likely evolution in the absence of the development.	In each technical chapter the EIAR details are provided on the existing baseline environment. However, a description of how the baseline environment is likely to evolve is not typically included. I therefore comment on the likely evolution of the baseline environment, where necessary, in the technical assessment below.
A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved	The methodology employed in carrying out the EIA, including the forecasting methods is set out, in each of the individual chapters assessing the environmental effects. The applicant has indicated in the different chapters of the where difficulties have been encountered (technical or otherwise) in compiling the information to carry out EIA. I comment on these, where necessary in the technical assessment below.
A description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it.	This issue is specifically dealt with in the in section 1.6.2.3 of the EIAR. Specific risks have been identified in relation to the project's vulnerability of the project to peat slide, flooding and fire. These risks are reasonable and are assessed in my report.
A summary of the information in non-technical language.	This information has been submitted as a separate standalone document (Vol I). I have read this document and I am satisfied that the document is concise and comprehensive and is written in a language that is easily understood by a lay member of the public.
Sources used for the description and the assessments used in the report	The sources used to inform the description, and the assessment of the potential environmental impact are set out at the end of each chapter. I consider the sources relied upon are generally appropriate and sufficient except in relation to concerns raised in respect of population and human health, biodiversity, ornithology, peat stability, landscape and visual effects and traffic and transport.
A list of the experts who contributed to the preparation of the report	A list of the various experts who contributed to the report are set out in Table 1.3 in Chapter 1 of the Report (and in Appendix 1.1). Where relevant the introductory section of each of the chapters also details of the individuals expertise, qualifications which demonstrates the competence of the person in preparation of the individual chapters within the EIAR.

Consultations

- 7.13. The application has been submitted in accordance with the requirements of the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) in respect of public notices. In

addition, the applicant has carried out public consultation consistent with industry guidelines and includes a dedicated project website, information newsletter/letter (including in Irish), on line webinars/virtual exhibition, in person public information event and via an appointed Community Liaison Officer (Appendix 1.5, Community Report). A scoping exercise was also carried out in September 2021. Appendix 1.3 of the EIAR (and Table 1.7) identifies individuals/organisations consulted, the response received and the implications for EIA/design. I am satisfied that appropriate consultations have been carried out and that third parties have had the opportunity to comment on the proposed development advance of decision making.

Compliance

- 7.14. Having regard to the foregoing, whilst the applicant provides much of the information required to comply with 94 of the Planning and Development Regulations, 2001, for the reasons stated in the technical assessment below, I consider that the likely effects of the development on population and human health, biodiversity, ornithology, peat stability, landscape and visual effects and traffic and transport are either understated or unclear.

7.14.1. **Assessment of Likely Significant Effects**

7.14.2. This section of the report sets out an assessment of the likely environmental effects of the proposed development under the following headings, as set out Section 171A of the Planning and Development Act 2000, as amended:

- Population and human health.
- Biodiversity, with particular attention to the species and habitats protected under the Habitats and Birds Directives (Directive 92/43/EEC and Directive 2009/147/EC respectively).
- Land, soil, water, air and climate.
- Material assets, cultural heritage and the landscape.
- The interaction between these factors.

7.15. In accordance with section 171A of the Act, which defines EIA, this assessment includes an examination, analysis and evaluation of the application documents, including the EIAR and submissions received and identifies, describes and assesses the likely direct and indirect significant effects (including cumulative effects) of the development on these environmental parameters and the interaction of these. Each topic section is therefore structured around the following headings:

- Issues raised in submissions/appeal.
- Examination, analysis and evaluation.
- Direct and indirect significant effects.

7.15.1. **Population and human health**

Issues Raised.

7.15.2. Issues raised in the course of the planning application by third parties are in respect of visual impact, noise, shadow flicker, traffic hazard, devaluation of properties and impacts on broadband services.

Examination, analysis and evaluation.

7.15.3. Chapter 5 of the EIAR deals with population and human health. It assesses the likely effects of the development on population and human health having regard to population trends and economic activity in the area of the site and the wider region, land use and topography and the results of the assessments of likely effects of the development on other environmental parameters (soils and geology, hydrology and hydrogeology, air and climate, noise, traffic and transport).

Baseline

7.15.4. The EIAR describes the existing rural environment in which the development is situated in terms of population, settlement patterns, landscape, tourism assets and health status. The nearest settlements are at Oughterard 9.4km to the south east of the site and Derryglinna 4.6km to the south. There are 30 dwellings within 2km of the wind farm site (Figure 1.3). The nearest sensitive receptor is c.740m from the nearest turbine (and complies with government guidelines on separation i.e. 4 x tip height). These are situated largely on the minor roads to the north and west of the site, with a smaller number along the N59 national road. Along the route of the proposed grid connection are one off houses. The haul route passes through Galway City, Bearna, Na Forbacha and An Spidéal. However, associated works (surface level earthworks) are outside of defined settlement areas. The EIAR refers to the location of the landscape context for the wind farm site, grid route and haul route (see section on Landscape below) and to tourist attractions within 10km of the wind farm site and the wider area (see Material Assets section below). It refers to research in respect of tourist attitudes to windfarms, which largely concludes that the development of onshore wind energy does not have a detrimental impact on the tourism sector. The EIAR also refers to research carried out by SEAI in 2003 and 2017 and Wind Energy Ireland in 2017, 2018, 2019 and 2020 regarding the public

perception of wind energy which found a generally positive attitude to wind farms, including by those living in close proximity to them.

7.15.5. The EIAR refers to 2016 Census data which indicates very good health for the majority in vicinity of the wind farm site and wider area (Table 5.4). In section 5.3.7.2 the EIAR refers to the levels of electromagnetic fields associated with underground and overground cables in the context of the International Commission on Non-Ionising Radiation Protection (ICNIRP) Guideline limit for magnetic fields to protect human health, with levels significantly below the ICNIRP limit value. Similarly, research on EMFs arising from wind farms indicate magnetic field levels in the vicinity of wind turbines to be very low. In section 5.3.7.8 the EIAR refers to health impact studies, with the limited but available evidence indicating that wind turbines are not related to adverse health effects (arising from noise, shadow flicker and electromagnetic radiation). The EIAR refers to the Department's Guidelines for Planning Authorities in respect of Wind Energy Development (2006) which identifies no specific safety considerations in the operation of wind farms. Wind farms are not regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations and are not a source of pollution. In section 5.3.8 research on the impact of wind farms on property values is reviewed with some mixed findings in respect of effects within 2km of large wind farm sites. In terms of natural disasters, the EIAR states that there is limited potential for significant natural disasters to occur at the site. Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited to peat-slide, flooding and fire. Risk of peat-slide and flooding are addressed in individual topic sections of the EIAR (and below). No risks from fire are identified due to the absence of sources of pollution (to cause health effects with fire) and the spacing of turbines from properties. The potential for major accidents is limited by manufacture to industry standards, separation distance to properties and inbuilt turbine mechanisms to prevent adverse effects from lightning strikes, ice throws etc.

Potential Effects

7.15.6. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table PHH1 below.

Table PHH1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> Not examined. However, under do nothing scenario existing patterns and trends in population and human health in the area of the site are likely to continue.
Construction	<ul style="list-style-type: none"> Population and settlement patterns. Potential direct increase local population in construction workers locating to area during construction. Slight positive short term impact. Economic. Increase in expenditure on materials locally, use of local shops etc. and some recruitment of labour locally (rest regional/national). Slight/moderate positive short term. Residential amenity. Short term slight negative direct imperceptible impacts due to construction traffic (noise, dust, increase in vehicles). Land use: No potential for significant impacts on soils or geology (with indirect effects on population and human health) with mitigation. Tourism: Overall slight negative. Noise: Addressed in Chapter 12 of the EIAR and it concludes that construction noise will be a temporary activity and not exceed NRA guidelines. Air: Assessed in Chapter 15 of the EIAR and it is concluded that the development will have slight, negative, temporary/short-term effects during construction. Water quality: Considered in Chapter 9 of the EIAR which concludes, with the implementation of mitigation measures, effects on water quality during construction and operation will be neutral to negative, imperceptible to slight significance. Traffic and transport: Considered in Chapter 14 of the EIAR . Concludes that the development has potential to result in negative, slight/moderate, direct, short-term, high probability effect or lower during the construction and decommissioning, prior to mitigation.
Operation	<ul style="list-style-type: none"> Population and settlement patterns. Benefit to region, ability to provide electricity to industry and businesses, more attractive, potential for indirect job creation. Slight positive impact. Economic. Local benefits with development contribution scheme and community benefit, regional and national benefits from expenditure on project. Moderate positive long term effect. Land use: No potential for significant impacts on soils or geology (with indirect effects on population and human health) with mitigation. Tourism: Based on current research (wind farms and effects on tourism) no expected direct relationship between tourism sector growth and development. Landscape impacts on Quiet Man Bridge predicted to be moderate, and tourism impacts on bridge moderate, negative (direct – impact on view/setting). Overall effects, slight negative. Electromagnetic fields: Very localised, imperceptible, long term. Shadow flicker: Effects are considered in Chapter 12 of the EIAR and potential effects are identified on a number of properties. Consequently, all turbines will be fitted with an automatic shadow detection system and shut down in periods when shadow flicker arise.

	<ul style="list-style-type: none"> • Noise: Considered in Chapter 10 of the EIAR and based on the conclusions of the assessment (no predicted operational noise at properties above 40dB), no significant effects predicted. • Water quality: Neutral to negative, imperceptible to slight significance. • Traffic and transport: Considered in Chapter 14, EIAR. Slight positive residual effect from road strengthening, widening and surfacing works along the Haul Route. Stated to be temporary or permanent depending on the preference of Galway County Council. • Risk of accidents: Turbines will be designed and installed by an experienced turbine contractor and are located well away from public roads and dwellings. In the unlikely event of an accident of this type, no significant impacts to population or human health are likely. Overall risk of accidents are considered to be slight, negative, long-term effect. • Property values - Based on the available published studies, it is considered that the development will have a long term imperceptible impact on property values.
Decommissioning	<ul style="list-style-type: none"> • As per construction but generally smaller in magnitude. • Water quality: Neutral to negative, imperceptible to slight significance.
Cumulative	<ul style="list-style-type: none"> • Population and human health: No other substantial developments permitted or proposed in the area of the site and the potential for cumulative effects on population and human health is highly unlikely. • Air, energy supply: With the nearest operational wind farms c.12.6km and 13.4km to the south east of the site (Galway Wind Farm Phase 1 and 2, 24 no. turbines and 36 no. turbines respectively), and other Irish renewables generation, the development will have a fundamental effect on the State's energy supply and offset the burning of fossil fuels with potential to positively impact on human health. • Landscape and visual: It refers the assessments carried out in the Landscape and Visual Amenity Chapter of the report, Chapter 11. It concludes that the cumulative impact of the development is not significant. • Tourism and amenity: A small, short term negative impact on tourism and amenity during construction (NB impact is not substantiated). • Employment: A short term, moderate positive impact (NB impact is not substantiated).

Mitigation

7.15.7. The EIAR refers to the suite of mitigation measures, embedded within the design and layout of the development (as considered in the EIAR under alternatives) including:

- Traffic Management Plan (see Material Assets section of this report).
- Construction Environmental Management Plan, with Emergency Response Plan, Surface Water Management Plan and Decommissioning and Restoration Plan (Appendix 2.1).

- Appropriate signage and safety measures at the site, to be closed to the public during construction and decommissioning.
- Adherence to health and safety regulations and relevant Codes of Practice.
- Operation to be monitored by Supervisory Control and Data Acquisition (SCADA) system. If fault occurs automatic message to operations personnel preventing emergency situations. Warning signs and security infrastructure around on site switchgear and control building.

Residual Effects

7.15.8. With the implementation of mitigation measures, the residual risk on population and human health is considered to be imperceptible, long term effect.

Direct and Indirect Significant Effects

7.15.9. I have examined Chapter 5 of the EIAR and the associated documentation. I am satisfied that the information presented and methodology for the assessment of likely effects is adequate, and along with the submissions from third parties and my inspection of the site, allows for an assessment of the likely significant effects of the proposed development on population and human health.

7.15.10. The appeal site lies in a rural area, removed from centres of population. The proposed development as a major infrastructure and renewable energy project will bring short term, positive effects on the local population by way of direct and indirect effects on employment and increased expenditure locally in goods and services.

7.15.11. During construction and to a lesser extent, decommissioning, there are likely to be adverse effects from construction dust, noise and increase in traffic on the local roads. However, these will be short term and can be managed to minimise effects to acceptable levels via the Traffic Management Plan and CEMP.

7.15.12. Having regard to my conclusions in other sections of this report, I am satisfied that subject to the implementation of mitigation measures, no adverse effects will arise on human health by virtue of operational noise or shadow flicker. With regard to landscape and visual effects, properties in the vicinity of the site and the small number looking towards the development, there will be a significant change to landscape character and turbines will be very visible. Whilst research would indicate that the effect of these changes in landscape character and visual effects are

subjective, it is possible that people living in proximity to the development will experience it as having a significant adverse effect and their residential amenity. Given the findings of research into the likely effects of wind farm development on property values, I do not consider that it is possible to definitively conclude that the development will or will not have a negative effect on property values locally.

7.15.13. Effects on tourism are considered in the EIAR and research indicates that wind farms are not having a detrimental effect on tourism. However, as discussed under landscape, I consider that the proposed development will be visible and detract from landscape character of designated Special and Iconic sensitivity. It is my view that this would significantly and adversely affect the tourism product/resource of the county which is inextricably linked to the exceptional quality of the rural environment.

7.15.14. Subject to the operation of the proposed development in line with relevant health and safety legislation (outside of the planning system) and in accordance with proposed mitigation measures, the risk of major accidents or disasters is low. However, I have concerns regarding peat stability which are discussed in the Soils section of this report.

7.15.15. The impact of the proposed development on broadband services is addressed in Chapter 12 of the EIAR. Essentially, the layout of the development has avoided interference with existing transmission links across the site. However, it is also stated that if necessary where effects to telecommunications and electromagnetics occur during the operational phase of the Development, additional mitigation options, such as technical solutions including re-alignment or replacement of TV antenna, re-tuning to alternative TV transmitters or provision of subscription free satellite television services can be implemented. This matter can be addressed by condition, should the Board decide to grant permission for the development. Subject to this, I am satisfied that the proposed development will not significantly impact on broadband services.

Conclusion: Population and Human Health

7.15.16. I have considered all of the written submissions made in relation to population and human health and the relevant contents of the file including the EIAR. I consider that the proposed development will have a modest positive impacts on the

local/regional socioeconomic environment during construction and operation and modest negative impacts on amenity during construction. Cumulative positive effects will arise in respect of emissions to air and for climate change. However, having regard to the conclusions drawn in respect of landscape, tourism, peat stability and traffic and transport in this report, I consider that the development will have adverse and significant indirect and in-combination effects on population and human health.

7.15.17. **Biodiversity**

Issues Raised.

7.15.18. Issues were raised in the course of the planning application and in the decisions by the PA in respect of the adequacy of biodiversity the section of the EIAR, impacts on flora, fauna (including the effects of noise and flicker on Connemara ponies and the loss of ancient woodland) and freshwater habitats. Impacts on birds are addressed in the ornithology section of this report and impacts on European sites in the appropriate assessment section of the report.

Examination, analysis and evaluation

7.15.19. Chapter 6 of the EIAR deals with biodiversity (with the exception of ornithology which is addressed in Chapter 7). Associated Figures and Appendices are:

- Appendix 2.1 – Construction Environmental Management Plan (CEMP).
- Figures 6.1 to 6.14 – Area of search for rare, threatened and protected species, target notes, biological sampling locations, fisheries survey locations, camera trap locations, designated sites, Article 17 mapping and habitat maps.
- Appendix 6.1 – Statement of Authority.
- Appendix 6.2 – Bat Survey Report.
- Appendix 6.3 – Target Note Survey Results 2020-2022 (Parts 1 and 2).
- Appendix 6.4 – Tullaghmore Wind Farm Fish Population Assessment.
- Appendix 6.5 – Draft Habitat Management Plan.
- Appendix 16.1 – Summary of Mitigation Measures.

7.15.20. The assessment is undertaken having regard to the requirements for the protection of habitats, species and biodiversity, as set out in international, European, national legislation and national and local policy, and government and industry guidelines for environmental impact assessment and ecological impact assessment.

7.15.21. Assessment methodology includes site surveys, desk top survey on the ecological baseline of the proposed landholding and surrounding area (Figure 6.1), consultation with landowners and statutory and non-statutory agencies (Table 6.1).

Data sources included the National Biodiversity Database Centre (NBDC). Site surveys include:

- Habitat surveys. Carried out between August 2020 and September 2022.
- Vegetation. Mapping and classification of plant communities and sub-communities.
- Aquatic surveys. These included biological macro-invertebrate surveys at four locations along three separate watercourses that flow through and adjacent to the wind farm, the Owenwee River, the Tawnaghbeg Stream and Tullaghmore Stream (Figure 6.3), survey of biological water quality (Biotic Index/Q-value) and assessment of fisheries habitat, including salmonid and lamprey habitat.
- Fisheries survey. This consisted of a fish habitat survey and electrofishing survey at 13 sites in September 2022 (Table 6.2, Figure 6.4 and Appendix 6.4). Juvenile lamprey surveys were carried out at three 1sqm habitat patches where habitat was available. No lamprey habitats were recorded at any of the sites.
- Freshwater pearl mussel (FPM). An assessment of habitat conditions for FPM was completed along the section of the Owenwee River that flows along the eastern boundary of the site and downstream of its stretch to the north of the N59, and along the minor first order Tawnaghbeg Stream and Tullaghmore Stream.
- Rare or protected flora. No FPO species identified on the site in survey work (2020 and 2022).
- Terrestrial mammal surveys. A survey for field signs indicating the presence of terrestrial mammals, particularly otters, were undertaken during field surveys. Camera traps were erected at two locations along the Owenwee River that forms the eastern boundary of the site (between August and November 2021 and September and October 2022), to provide coverage of potential otter habitat along the river (Figure 6.5). Cameras were triggered by heat detection and were set to record photo images at one minute intervals through each night of recording.

- Bats. Bat activity survey (during 2020 bat activity season) in accordance with SNH guidelines, to comprise roost assessments, manual bat activity surveys and static detector surveys at 13 no. locations (Appendix 2).
- Herpetofauna. Incidental records of herpetofauna (amphibians and reptiles) were noted during all field surveys undertaken between 2020 and 2022.
- Other species. The site was not considered suitable for supporting colonies of marsh fritillary, given the rare presence of the foodplant devil's bit scabious.
- Grid connections route and haul route surveys. Survey of bridges along the grid connection route to identify their potential to support bats (during 2022 bat activity season). Habitat survey of the four locations along the haul route where temporary road widening is required (January 2022).

7.15.22. Limitations of survey work are considered in section 6.3.2.2 of the EIAR, with no limitations noted except for following in respect of bat surveys:

- Difficulties inherent in assigning all bat calls to species level.
- The sensitivity of bat detector equipment to the calls of different bat species, with calls of some species more easily detected (e.g. Leisler's bat) than others (e.g. brown long-eared bat).
- One bat detector malfunctioned during surveys.
- Static detectors were originally deployed as close as possible to the proposed turbine locations. However, the proposed turbine locations were updated in 2021 after the survey period and as such the results of the static bat detector surveys are representative of the site and surrounding area.

7.15.23. Whilst these limitations are noted, I would accept that they are unlikely to have been a significant impediment to the assessment of likely effects of the development on biodiversity.

Baseline

7.15.24. The baseline environment is described in section 6.4 of the EIAR. The development site is described as located across land which is predominantly Atlantic blanket bog and upland heath, to the west of Derroura Forest. To the south of the wind farm site and N59 is Lough Bofin. To the north of the site are additional areas of blanket bog, forestry, the Western Way long distance walking route and Lough Corrib. The Owenwee River flows along the eastern side of the wind farm site, turns

north and flows via Tawnaghbeg Lough and Owenree River into Lough Corrib. The site contains a number of streams, all of which are the headwaters of the Owenwee and Owenree Rivers. The peat storage area is located east of Maam Cross and comprises intensively cutover blanket bog. The EIAR refers to evidence of industrial scale peat harvesting at this location. The proposed peat storage area and habitat restoration area is in close proximity of two lakes, Loughanillaun to the north and Lough Ardderry to the south. The EIAR states that both lakes have been classed as high-status waterbodies under the Water Framework Directive. Peat cutting, overgrazing and erosion have been identified as the land use pressures that are likely contributing to the at-risk status of Loughanillaun. Channelisation of inputting streams and drains has also been identified as a significant pressure impacting this lake.

7.15.25. Important ecological features include (Table 6.4):

- National and European sites within the vicinity of the development site. Many of the national sites share boundaries and conservation interests with European sites. The effect of the development on these sites is considered in the applicant's NIS and the AA section of this report. National sites that are not European sites, and which occur in the area of the site are as follows. However, effects can be ruled on the basis of lack of connectivity and distance:
 - Oughterard District Bog NHA (site code 002431), featuring blanket bog and wet heath, occurs c.7.5km to the south east of the site, south of Oughterard.
 - Maumtrasna Mountain Complex pNHA (site code 0735), featuring upland species rich grassland, Irish St. John's Wort, Alpine Hair grass, Alpine Meadow Rue, Mountain Sorrel and Artic Char, occurs c.3.7km to the north of the subject site and Lough Corrib.
 - Oughterard NS (site code 2082), featuring Leisler's bat, occurs c.9km to the east of the site.
- Watercourses within and in proximity to the site, including the Owenwee River an important salmonid spawning and nursery area for Brown Trout, with the lower sections of the river supporting spawning and nursery habitat for Atlantic salmon.

- Active lowland blanket bog, wet heath, dry heath and transition mire, all EU Annex I habitat types occurring within the site.
- Cutover blanket bog (examples of Annex 1 habitat blanket but degraded), poor flush, wet heath/exposed siliceous rock mosaic of county importance, occurring within the site.
- Dry heath/acidic grassland mosaic, wet grassland and acidic grassland, occurring within the site and of local importance.
- Scrub occurring within the site and providing a vegetation riparian corridor along Owenwee River (shelter and foraging habitat for range of fauna).
- Otter (known to forage along the Owenwee River, use the lakes adjacent to the spoil storage and restoration area), of international importance.
- Up to seven bat species recorded as being present at the wind farm site, all protected under national and European legislation and deemed to be of local importance (higher value).
- Herpetofauna, with Common Frog, encountered in the wind farm site and peat storage area. The site also provides suitable habitat for common lizard and smooth newt, of local importance (higher value).
- Proximity of the wind farm site to FPM catchment (Corrib-Owenriff FPM sensitive catchment). Nearest record of FPM is in Lough Adrehid, c.3km to the south east of the site and in a separate surface water catchment (Ballycuirke Lough Stream).
- Invasive alien species (*Rhododendron ponticum*) along the southern section of the site and surrounding the proposed spoil storage and restoration areas.

Potential Effects

7.15.26. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table B1 below.

Table B1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • Wind farm: Grazing regime likely to continue in current pattern with those in east of site maintaining favourable bog conditions, and those to west retarding the recovery of wet heath. • Peat storage: Artificial drainage likely to remain in place and contribute to loss of sediments to Loughanillaun and Lough Arderry and undermine natural regeneration.
Construction	<ul style="list-style-type: none"> • Habitat loss: <ul style="list-style-type: none"> ○ Wind farm: Direct effects of Loss of Annex I habitat on the site (foot print of development). This includes Active Blanket Bog* (described as representative of best examples of undesignated Annex I blanket bog habitat), Wet heath, Dry heath, Transition mire with significant, negative, permanent and irreversible impacts. However, blanket bog on site is not form part of the national surface are for the habitat (under Article 17 reporting), with no effects on conservation status of habitat at national/international level. Also loss of habitats of county importance with significant impacts to the integrity of the habitat within the site at the local scale (irreversible and permanent) for wet hath/exposed siliceous rock mosaic, poor flush, degraded lowland blanket bog/wet heath mosaic. Indirect effects on peatland habitats (changes to hydrology, changes in pH). ○ Peat storage area: Loss of cutover bog and denuded and degraded blanket bog (permanent direct habitat loss). ○ Haul route: Loss of low conservation habitats with no identified ecological receptors (no direct impacts). ○ Grid connection route: No potential for direct effects (installed in road corridor). • Designated sites: No direct effects on designated sites, potential for indirect effects but none after mitigation (see Appropriate Assessment). • Watercourses, fisheries and aquatic fauna (wind farm site, peat storage area, haul route and grid connection route): No instream works and no direct effects. Indirect effects on water bodies from wind farm site works, peat storage area, haul route widening areas near water courses and grid connection works. Watercourses include Owenwee River sub-catchment, Lough Tawnaghbeg, Lough Corrib, Loughanillaun and Ardderry Lough and receiving waterbodies for surface water from haul route/grid connection works (increase in sedimentation, peat slide, increase in nutrients, hydrocarbons, cementitious material etc.), with degradation of habitats and effects on water quality dependent species. • Bats: No loss of roost sites and no potential for direct effects. Indirect effects from loss of habitat (however habitat is low value for bats, no loss of structured vegetation or scrub habitat). • Otter: No holts, couches or field signs of otter breeding/nesting in development site. No potential for direct effects. Indirect effects from changes to water quality (changes to prey abundance), noise (no breeding sites in proximity to works). • FPM: Development not located in FPM catchment or in Ballycuirke Lough Stream sub-catchment (no hydrological connection to catchment).

	<p>Owenwee River does not support FPM. No direct effects or indirect effects.</p> <ul style="list-style-type: none"> • Herpetofauna: Occur within development site, with potential for significant direct temporary effects during construction. Indirect effects during construction from disturbance, disturbance does not carry over significant distance, and substantial habitat in wider area. No significant effects. • Terrestrial invertebrates: Direct loss of habitat, with potential to reduce abundance and diversity of group. Part temporary and part permanent moderate negative impact. Indirect effects during construction from disturbance, disturbance does not carry over significant distance, and substantial habitat in wider area. No significant effects. • Invasive species: Potential for direct effects associated with the spread of <i>Rhododendron ponticum</i>, with significant effect at a local level.
Operation	<ul style="list-style-type: none"> • Designated sites – No direct effects or indirect effects predicted, with mitigation (see AA). • Habitats – No direct effects on quality or functionality. Indirect effects from changes to volume and nature of site runoff (c.1,117m³/month or a net increase of 0.38% relative to the area of the site during wettest month). Changes to mineralogy of soils (e.g. dependent on mineralogy of imported materials). Potential for positive effects with habitat enhancement and rehabilitation measures. • Watercourses – Limited potential for direct effects e.g. maintenance at watercourse crossings with potential for instream works. Potential for indirect effects from water pollution during operation (increase in siltation and pollutants in surface water). • Bats – No loss or fragmentation of habitats for roosting, foraging or commuting. Moderate, long term collision risk for Soprano pipistrelle and Common pipistrelle (absence of roost sites, low value of foraging habitats, low recorded bat activity, likely changes in activity levels in vicinity of turbines). • Otter – No direct effects.
Decommissioning	<ul style="list-style-type: none"> • Similar to construction.
Cumulative	<ul style="list-style-type: none"> • Construction/decommissioning – Existing activities (turbary, grazing, extensive forestry, intensive peat harvesting) have resulted in drainage of peatland habitats and loss of areas of blanket bog and heath habitat and increase the risk of sediment loss to waterbodies. Development has potential to combine with these to result in further loss of these habitats and result in cumulative sediment loss to waterbodies. Habitat enhancement measures (grazing regimes in development site) and rehabilitation of blanket bog (peat restoration area) have potential to reduce historical impacts with positive impacts for the status of the blanket bog and heath habitat. No other significant projects permitted in the vicinity of the site where construction phases may overlap. • Operation – Potential for cumulative effects arising from the drainage of the site, with other land use operations e.g. conifer plantations, road corridors (greater surface water run-off from region with erosion and/or increase in sedimentation to local watercourses).

Mitigation

7.15.27. Mitigation measures are set out in section 6.7 of the EIAR. Measures are quite extensive and, in particular, include those proposed under hydrology and hydrogeology, with the associated Surface Water Management Plan and Construction Environmental Management Plan to prevent pollution of watercourses (see Water section of this report). Other notable measures are:

- Embedded mitigation measures, where the layout of the development has been arranged to minimise potential environmental effects e.g. use of existing tracks, positioning in infrastructure in areas of shallower peat, siting of all temporary and permanent infrastructure outside of the Ballycurke Lough Stream (and associated FPM catchment).
- Provision of a 50m buffer zone from watercourses and a layout which minimises watercourse crossings.
- Control of construction to minimise loss of Annex I habitat (fencing/markings of works corridor).
- Pre-construction survey for invasive species, mammals and herpetofauna with species appropriate response and confirmatory surveys for the presence of plant species of conservation interest, with appropriate translocation if identified within the footprint of the wind farm.
- Floating roads across blanket bog (to prevent rapid peat failure, sinking roads and to minimise potential effects on peat hydrology e.g. by allow diffuse cross drainage).
- Habitat restoration and enhancement, as provided in the Habitat Management Plan (Appendix 6.5). This Plan covers landholding within the development site, extending to c.189ha in total i.e. c.162ha (wind farm) and c.27ha (peat storage and restoration, habitat enhancement area). The Plan notes that the development lands are not currently managed under any nature conservation schemes. It sets out detailed arrangements for the reinstatement and future management of peatland habitats around infrastructure elements of the wind farm site and for the reinstatement and enhancement of the degraded blanket bog in the peat storage and restoration area. Measures include (Table 4.1) ditch blocking, removing cattle, sheep grazing at appropriate rates, re-seeding, maintaining hydrological pathways and connectivity and riparian

buffers. The Plan also includes arrangements for construction practices e.g. stripping and storage of turf, for re use around the construction footprint, arrangements for the rehabilitation of cells filled with surplus peat material from the wind farm site and for monitoring post construction with defined attributes, measurements and targets.

- Feathering of blades during low wind speeds for all turbines and increasing the cut-in speed to turbines T1 and T2, closest to the woodland edge during times of increased bat activity and in particular weather conditions (to reduce bat collision risk – Appendix 6.2, Bat Report). Post construction monitoring for a period of at least 3 years is proposed to provide sufficient data to detect any significant change in bat activity relative to pre-construction levels. It will assess changes in bat activity patterns and the efficacy of mitigation to inform any changes to curtailment.
- An ECoW will be appointed prior to commencement of construction and will be responsible for pre-construction surveys, supervising construction, advising on biodiversity enhancement measures and monitoring reports. ECoW will liaise with the PA during construction and will be empowered to stop works where activities are not in accordance with mitigation measures.

Residual Effects

7.15.28. With the implementation of mitigation measures (including monitoring), residual effects are set out in section 6.9, Tables 6.17 and 6.18. These provide that no significant residual effects on biodiversity will arise except for the loss of Annex I habitats comprising:

- 3.95 ha of lowland blanket bog (Active Blanket Bog* 7130).
- 0.64 ha of cutover blanket bog (Blanket Bog 7010).
- 0.35 ha of degraded blanket bog and wet heath mosaic.
- 2.99 ha of wet heath (North Atlantic Wet Heath 4010).
- 0.05 ha of dry heath (European Dry Heath .
- 5.68 ha of wet heath/ siliceous rock mosaic (North Atlantic Wet Heat 4010)

7.15.29. N.B. Table 6.15 also indicates a loss of Transition Mire habitat (7150) in the vicinity of Turbine 1.

7.15.30. The Habitat Management and Peatland Rehabilitation Plan will be implemented to mitigate for the loss of this habitat (and habitat within the footprint of the development). It provides:

- The restoration of approximately 22.5 ha of degraded and cutover blanket bog in the proposed Peat Storage and Restoration (Habitat Enhancement) Area (Appendix 6.5),
- The ongoing management of a further area of c. 4.5 ha of lowland blanket bog in this area,
- The management of the habitats occurring within the proposed wind farm site i.e. c. 150ha of peatland habitat comprised of lowland blanket bog, cutover and degraded blanket bog and heath habitats.

Direct and Indirect Significant Effects

7.15.31. I have examined, analysed and evaluated Chapter 6 of the EIAR, all of the associated documentation and submissions on file in respect of biodiversity. I am satisfied that the applicant's understanding of the baseline environment, by way of desk and site surveys, is comprehensive and that the key impacts in respect of likely effects on biodiversity, as a consequence of the development have been identified.

7.15.32. The key residual effect of the development will be loss of Annex I habitats. I note that in Table 6.15, the examples of Lowland Blanket Bog habitat likely to be affected by the development, are '*representative of best examples of undesignated Annex I blanket bog habitat and have been evaluated as an ecological receptor of international importance*', with loss of the habitat resulting in significant, negative, permanent and irreversible impacts. Similar significant losses of North Atlantic Wet Heath, European Dry Heath and Transition Mire, all Annex I habitats and evaluated of national importance, are predicted to result in significant, negative, permanent and irreversible impacts.

7.15.33. The Planning and Development Act, 2000, as amended, in section 171A(b), requires the Board to consider the likely direct and indirect effects of developments on biodiversity, with particular attention to the species and habitats protected under the Habitats and Birds Directive. Further, the under Article 27(4)(b) of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2021 (transposing the

Habitats and Birds Directives into national legislation), requires public authorities to take steps to avoid pollution or deterioration of habitats that occur outside of protected areas.

- 7.15.34. In this instance, the loss of Annex I habitats directly contradicts this requirement. The applicant states that the loss of Annex I will not result in a reduction in the national area of this habitat as reported under Article 17 of the Directive, as the habitats to be lost are not included in the reference area for the habitats (see Table 6.15). Further, loss will be mitigated by the proposed rehabilitation of habitats as proposed in the Habitat Management Plan.
- 7.15.35. Whilst I am mindful of these factors, and in particular the detailed arrangements for the rehabilitation and future management of lands within the wind farm site, upon which absence of effects is predicated, I am not satisfied that the loss of c.13ha of Annex I habitat is justified in the context of other issues raised in this assessment notably under landscape effects.
- 7.15.36. Parties to the appeal raise concerns regarding the effect of the development on Connemara ponies (noise and shadow), deer and loss of ancient woodland.
- 7.15.37. Table 6.5 of the EIAR indicates that Red Deer have been recorded within 2km of the application site. However, I note there is no evidence of deer or Connemara ponies grazing on/using the wind farm site. Further, the wind turbines are substantially removed from site boundaries and the applicant's assessment of flicker (which I accept) has identified little potential for significant effects in the area of the site.
- 7.15.38. Concerns are also raised regarding loss of ancient woodland at the entrance to the site. To the west of the site entrance is a wooded area. I note that in historic OS maps this indicates a school house on the site. I do not consider therefore that ancient woodland is in place at the site entrance. Further, the development site lies to the south of this area of woodland and will have no direct effects on it.

Conclusion

- 7.15.39. Having regard to the foregoing, and for the reasons stated, I am not satisfied that the loss of c.13ha of Annex I habitat is justified in the context of other significant issues raised in this assessment notably under landscape effects.

7.15.40. **Ornithology**

Issues Raised.

7.15.41. Issues that were raised in the course of the planning application and in the decisions by the PA in respect of ornithology are adequacy of information and assessment in relation to impacts on birds, including grouse, White Tailed Sea Eagle and Curlew, adequacy of collision risk assessment and assessment of in-combination effects. Impacts on Hen Harrier are considered in the AA section of this report.

Examination, analysis and evaluation

7.15.42. Chapter 7 of the EIAR deals with ornithology (updated with the appeal documents with respect to collision risk). Associated Figures and Appendices are:

- Bird survey reports (Appendix 7.1).
- Collision risk model report (Appendix 7.2). (Updated in the appeal documents).
- Survey details, dates and weather conditions (Appendix 7.3).
- Survey results (Appendix 7.4).
- Red grouse licence (Appendix 7.5).

7.15.43. Associated figures are contained in Figure Booklets 1 to 9. The ornithological impact assessment has regard to desk top survey and bird surveys of the study area. Bird survey reports are summarised in Appendix 7.1 and are based on survey work carried out during the winters of 2019-2020, 2020-2021 and 2021-2022 and the summers of 2020 and 2021. Surveys comprised vantage point (VP) watches and targeted distribution and abundance surveys (transect, hinterland, merlin, red grouse and breeding wader transects). Survey locations are indicated in Figure nos. 7.1 to 7.10 in Figure Booklets 1 and 2. Three fixed VP locations overlooking the study area were initially used, with a fourth added in May 2020 (Figure 7.1). VP3 was subsequently omitted in April 2021, as the site area was reduced. SNH requirements in terms of survey hours are stated to have been completed for VP1, VP2 and VP4.

Baseline

7.15.44. The location of the site within an upland bogland landscape is described in the EIAR. European and nationally protected sites are indicated in Tables 7-12 and 7-13 of the EIAR, respectively. The likely effect of the development on European sites is addressed in the AA section of this report. This includes, therefore, the national sites which share the boundary and conservation interests of European sites.

Remaining national sites within 10k of the development site are:

- Maumtrasna Mountain Complex pNHA (site code 000735), c.3.7km to the north west of the development site (no bird species of conservation interest).
- Oughterard District Bog NHA (site code 002431), c.7.5km to the south east of the site (Red Grouse identified as conservation interest).
- Oughterard NS pNHA (site code 002082), c.9km to the south east of the site (no birds of conservation interest).

7.15.45. On the basis of the survey work carried out, Table 7-20 provides details on bird species observed in the rotor sweep zone of proposed turbines (flight activity survey area = 500m radius circle around wind turbine location) and Table 7-21 summarises the key avifauna receptors observed within the zone of influence of the proposed development and their likely sensitivity to effects of the development.

Potential Effects

7.16. Potential direct, indirect and cumulative effects of the development are identified in the EIAR (section 7.5, Table 7-23 to 7-26, EIAR) for the different phases of the development. These are summarised in Table O1 below.

Table O1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • Not addressed in Chapter 7, however, current pattern of use by birds likely to continue so long as pattern of land management remains as is.
Construction	
Direct Effects	<ul style="list-style-type: none"> • Grid connection: To take place in road corridor, no habitat loss or vegetation clearance, works to progress in sequential manner over short distances. Adjacent habitats widespread. Local temporary effect on avifauna. • Haul route (habitat loss, works at 4 locations): Trimming hedgerows, treelines and foliage only. If carried out in nesting season (31 March to 31 August), localised, temporary, significant reversible effect on avifauna. • Wind farm (habitat loss):

	<ul style="list-style-type: none"> ○ <u>Passerine/non target species.</u> Having regard to loss of habitat, use of habitat by species, recording of species on site and rarity of species, the following impacts are predicted. <ul style="list-style-type: none"> ▪ Goldcrest, greenfinch, linnet, willow warbler – Long term, not significant and reversible in a local context. ▪ Starling, redwing, barn swallow¹ – Temporary imperceptible effect, reversible in a local context. ▪ Meadow pipit, skylark – Short term slight effect in local context, reversible. ▪ Wheatear – Short term, slight effect in a local context, reversible ▪ Grey wagtail² – No direct effects. ○ Overall effect on passerines, (a) reduction in baseline populations – Imperceptible to slight (b) habitat loss - Permanent Imperceptible to Not significant effect in a local context, reversible. ○ <u>Birds of prey, red grouse and waders/waterfowl.</u> Having regard to loss of habitat, use of habitat by species, recording of species on site and rarity of species, impacts are predicted. <ul style="list-style-type: none"> ▪ Long term imperceptible effects on: <ul style="list-style-type: none"> • Common gull. • Common sandpiper. • Cormorant. • Black headed gull. • Great northern diver. • Greenshank. • Grey heron. • Greylag goose. • Herring gull. • Lesser black-backed gull • Little grebe. • Mallard. • Moorhen. • Mute swan. • Peregrine. • Red breasted merganser • Sparrowhawk. • White-fronted goose. • White-tailed eagle. • Whooper swan. ▪ Long term not significant effect on: <ul style="list-style-type: none"> • Golden plover. ▪ Long term slight effect on: <ul style="list-style-type: none"> • Buzzard • Hen harrier (worst case scenario). • Kestrel. • Merlin. • Red grouse. • Snipe. • Woodcock.
Indirect effects	<ul style="list-style-type: none"> • Disturbance/displacement. Having regard to disturbance effects (e.g. noise, personnel movements, vibration) use of habitat by species, recording of species on site and rarity of species, the following impacts are predicted: <ul style="list-style-type: none"> ○ Temporary to short term imperceptible:

¹ Barn swallow listed in Table 7-21 (Avifauna Key Receptor Evaluations).

² Not listed in Table 7-21.

	<ul style="list-style-type: none"> ▪ Common gull. ▪ Common sandpiper. ▪ Cormorant. ▪ Golden plover. ▪ Great Black-backed gull. ▪ Great Northern Diver. ▪ Greenshank. ▪ Grey heron. ▪ Greylag goose. ▪ Herring gull. ▪ Lesser black-backed gull. ▪ Little grebe. ▪ Mallard. ▪ Moorhen³. ▪ Mute swan. ▪ Peregrine. ▪ Red breasted merganser ▪ Sand martin. ▪ Sparrowhawk. ▪ Starling. ▪ Swallow. ▪ White-fronted goose. ▪ White-tailed eagle. ▪ Whooper swan. ▪ Willow warbler. <ul style="list-style-type: none"> ○ Short term not significant. <ul style="list-style-type: none"> ▪ Linnet. ▪ Wheatear. ○ Temporary to short term slight: <ul style="list-style-type: none"> ▪ Buzzard. ▪ Hen harrier. ▪ Kestrel. ▪ Meadow pipit. ▪ Merlin. ▪ Red grouse. ▪ Redwing. ▪ Skylark. ▪ Snipe. ▪ Woodcock. <p>(NB Goldcrest (amber-listed) and Greenfinch (amber-listed) are not included in the assessment, Table 7-24.</p>
Cumulative	<ul style="list-style-type: none"> • EIAR has regard to three consented wind farms within 20km of the site (Table 7-27) and to target species recorded at surveys for these sites. It is stated in the EIAR, based on the evidence available, significant distance to many of these wind farms, the lack of migration paths during survey, along with the results of hinterland surveys undertaken for the proposed development, any cumulative effects on birds during the construction phase would be a Long-Term Imperceptible Cumulative Effect.
Operation	
Direct effects	<ul style="list-style-type: none"> • Collision risk (wind turbines only, grid connection to be underground). Research indicates that operational impacts of wind farms is not as significant as previously thought (turbine avoidance with effects on breeding bird densities). Assessment of risk of bird mortality, from collision, is based on observed flight behaviour, susceptibility of particular species and rotor envelope of 23-185m and collision risk modelling (App. 7.2).

³ Not listed in Table 7-21.

	<ul style="list-style-type: none"> • Twelve species (shown below by *) selected for collision risk based on occurrence within the area of the turbines and at rotor sweep heights and conservation interest. <ul style="list-style-type: none"> ○ Passerines – Long term imperceptible reversible (flight activity generally well below height of rotor blades). ○ Non-passerines – Long term imperceptible effects for the following species (revised CRM collision risk/year): <ul style="list-style-type: none"> ▪ Buzzard* (0.03/yr.). ▪ Common gull* (0.01/yr.). ▪ Common sandpiper. ▪ Cormorant* (0.02/yr.). ▪ Golden plover. ▪ Great black-backed gull* (0.02/yr.). ▪ Great northern diver.. ▪ Greenshank. ▪ Grey heron* (0.004/yr.). ▪ Graylag goose* (0.001/yr.). ▪ Hen harrier* (0.001/yr.). ▪ Herring gull* (0.002/yr.). ▪ Kestrel* (0.03/yr.). ▪ Lesser black-backed gull* (0.02/yr.). ▪ Linnet. ▪ Little grebe. ▪ Mallard* (0.01/yr.). ▪ Meadow pipit. ▪ Merlin. ▪ Moorhen. ▪ Mute Swan. ▪ Peregrine. ▪ Red grouse. ▪ Red breasted merganser. ▪ Redwing. ▪ Sand martin. ▪ Skylark. ▪ Snipe* (0.0005/yr.). ▪ Sparrowhawk. ▪ Starling. ▪ Swallow. ▪ Wheatear. ▪ White-fronted goose. ▪ White-tailed eagle. ▪ Whooper swan. ▪ Willow warbler. ▪ Woodcock.
<p>Turbines - Disturbance</p>	<ul style="list-style-type: none"> • There is evidence that rotor blades can displace or exclude some species (with direct or indirect habitat loss). Some species habituate e.g. geese and swans. Research indicates no evidence of adverse effects on passerines or raptor species. <ul style="list-style-type: none"> ○ Long term imperceptible: <ul style="list-style-type: none"> ▪ Great northern diver. ▪ Greenshank. ▪ Grey heron.. ▪ Graylag goose. ▪ Linnet. ▪ Moorhen. ▪ Mute Swan. ▪ Red breasted merganser. ▪ Redwing. ▪ Sand martin.

	<ul style="list-style-type: none"> ▪ Starling. ▪ Swallow. ▪ Wheatear. ▪ White-fronted goose. ▪ White-tailed eagle. ▪ Whooper swan. ▪ Willow warbler ○ Long term not significant: <ul style="list-style-type: none"> ▪ Common gull. ▪ Common sandpiper. ▪ Cormorant. ▪ Golden plover. ▪ Great black-backed gull. ▪ Herring gull. ▪ Lesser black-backed gull. ▪ Little grebe. ▪ Mallard. ▪ Peregrine ▪ Sparrowhawk ○ Long term not significant to slight: <ul style="list-style-type: none"> ▪ Hen harrier. ▪ Kestrel. ○ Slight long term: <ul style="list-style-type: none"> ▪ Buzzard. ▪ Merlin. ○ Long term slight to moderate: <ul style="list-style-type: none"> ▪ Red grouse. ▪ Meadow pipit. ▪ Skylark. ▪ Snipe. ○ Long term, imperceptible to moderate: <ul style="list-style-type: none"> ▪ Woodcock
Turbines - displacement	<ul style="list-style-type: none"> • No adverse effect predicted on species assemblage given limited amount of habitat available on site and availability of habitat in wider area. No significant operational phase effects predicted.
Turbines – barrier effect	<ul style="list-style-type: none"> • Increased energy expenditure with avoidance of wind farm, research indicates effects highly variable, with effects on migratory birds largely trivial. <ul style="list-style-type: none"> ○ Imperceptible long term: <ul style="list-style-type: none"> ▪ Buzzard. ▪ Common gull. ▪ Common sandpiper. ▪ Cormorant. ▪ Golden plover. ▪ Great black-backed gull. ▪ Great northern diver. ▪ Greenshank. ▪ Grey heron. ▪ Graylag goose. ▪ Herring gull. ▪ Lesser black-backed gull. ▪ Little grebe. ▪ Mallard. ▪ Moorhen. ▪ Mute Swan. ▪ Peregrine. ▪ Red breasted merganser. ▪ Sand martin. ▪ Snipe. ▪ Sparrowhawk.

	<ul style="list-style-type: none"> ▪ White-fronted goose. ▪ White-tailed eagle. ▪ Whooper swan. ▪ Willow warbler. ○ Long term not significant: <ul style="list-style-type: none"> ▪ Hen harrier. ○ Imperceptible to slight long term effect: <ul style="list-style-type: none"> ▪ Kestrel. ▪ Linnet. ▪ Meadow pipit. ▪ Red grouse. ▪ Redwing. ▪ Starling. ▪ Swallow. ▪ Wheatear. ○ Slight long term: <ul style="list-style-type: none"> ▪ Merlin. ○ Imperceptible to moderate long term effect: <ul style="list-style-type: none"> ▪ Woodcock. • NB Under heading, barriers effects on skylark, text refers to barrier effects on meadow pipit.
Haul route & grid connection	<ul style="list-style-type: none"> • No further excavation works required along the haul route or the grid connection route. Only occasional maintenance works will be required. No significant operational phase effects predicted.
Cumulative	<ul style="list-style-type: none"> • Direct and indirect. EIA has regard to seven consented and operational wind farms within 20km of the site (Table 7-27) and to target species recorded at surveys for these sites. Potential effects include increased barrier effect, collision risk and disturbance. • EIA concludes that considering the distances of the seven previously listed wind farm sites in relation to the proposed study area, the lack of migration paths during surveys, along with the results of hinterland surveys undertaken for the proposed development, the cumulative collision risk on any avian receptors is considered negligible. Studies have found that local wintering birds will habituate to the presence of turbines and therefore avoid collision. Cumulative collision mortality combined with other wind farm developments is predicted to be a Long-Term Imperceptible Cumulative Effect.
Decommissioning	
Direct Effects and Indirect Effects.	<ul style="list-style-type: none"> • Similar risks to construction. No further habitat loss. However, magnitude of effects will be reduced as infrastructure is in situ. No works required along haul route, turbines to be broken up on site, grid cables to be left in the ground. • If carried out in breeding season, disturbance could have a temporary imperceptible reversible effect on passerines, birds of prey, waders and wildfowl, red grouse and kingfisher (NB kingfisher has not been recorded in the survey work carried out and is possibly referred to in error).

Mitigation

7.16.1. Mitigation measures are set out in section 7.6 of the EIA. Measures include:

- Construction:
 - Appointment of ECoW to ensure mitigation measures are implemented.

- Removal and vegetation, scrub and trimming of trees outside of the bird breeding season (March 1st to August 31st).
- Construction work to take place in daylight hours, except for concrete pours, turbine erection and installation of grid connection (may require night time work) and to be supervised by ECoW.
- Toolbox talks re disturbance.
- Reinstatement of hedgerows with locally sourced native species.
- Pre-confirmatory survey of proposed turbine locations (March/April) with works restricted outside of bird breeding season if new nests recorded.
- Operation:
 - Use of appropriate warning lights on turbines (red not white) with skyward orientation.
 - Post construction monitoring programme to confirm efficacy of mitigation measures (to include fatality monitoring, flight activity surveys, monthly wildfowl census, bird breeding survey and breeding wader survey during years 1, 2, 3, 5, 10 and 15 post construction). Surveys to be submitted to competent authority (PA).
- Decommissioning: No tree trimming to be carried out in the bird breeding season.

Residual Effects

7.16.2. With the implementation of mitigation measures, the EIAR considers that the EIAR concludes that proposed wind farm development will have a Slight-Imperceptible Reversible Residual Effect and in the local context on birds.

Direct and Indirect Significant Effects

7.16.3. I have examined, analysed and evaluated Chapter 7 of the EIAR, all of the associated documentation and submissions on file in respect potential effects on birds. I am largely satisfied that the applicant has demonstrated a good understanding of the use of the site by different avifauna and its context within, and connectivity to, the surrounding environment (e.g. by hinterland surveys). Further, I am largely satisfied that the main direct, indirect and cumulative impacts have been identified with the more significant effects arising for species who utilise the site in

greatest number/frequency by virtue of the habitats or prey species present. I have noted, in a number of places, where the EIAR is inconsistent, however, I do not consider that these detract from the overall conclusions.

7.16.4. In their decision to refuse permission the PA raise concerns in respect of the sufficiency of information and assessment in the EIAR in relation to impacts on biodiversity, with particular attention to the Birds Directive. This issue is therefore largely addressed in the AA section of this report. DHLG raise concerns in respect of the assessment of collision risk, in-combination effects and effects on White-tailed Sea Eagle and third parties in respect of grouse. I address these matters in turn.

Collision risk

7.16.5. DHLG raise concerns regarding the way in which the results of the collision risk model are interpreted as the assessment of effects provides no reference to baseline populations for avian receptors.

7.16.6. In response to the decision, the appellant provides an updated Collision Risk Assessment (CRM) and an addendum to Chapter 7 of the EIAR, based on the updated CRM. The revised CRM includes reference to national/local population size for the bird species considered and revisions on the grounds that the original assessment used a model with (a) a formula error resulting in higher and inaccurate predicted collision rates and (b) an incorrect operational life of 30 years, not the proposed 40 years. The Addendum to Chapter 7 reflects the changes made to the CRM (incorporated into the above Table O1) and states that the revised CRM does not change the outcomes of the ornithological impact assessment.

7.16.7. There is no explanation for the formula error or how the revised collision risk differs across species e.g. there is no overall downward or upward trend and therefore a lack of clarity regarding how the formula error influenced results. Further, the 40 year operational life assumed in the CRM is incorrect as the application documents refer to a 35 year operational life. The basis of the CRA is therefore incorrect/inconsistent with the nature of the permission sought.

7.16.8. Table 1 of the first party appeal, updates Tables 6-1 (Collisions/year), 6-2 (years between collisions), 6-3 (collisions per 40 years) of the original CRM (Appendix 7.2). The Appendix to the revised CRM (attached to the appeal), provides this data in the context of national or local population information.

7.16.9. Reductions in predicted collisions per year arise for grey heron, hen harrier, lesser black backed gull and snipe and increase for grey lag goose and herring gull. The number of predicted collisions in the 40 year lifespan change accordingly. For instance, the original CRM predicted 5.98 collisions in the 30 year lifespan of the wind farm for grey heron, and the revised model predicts 0.16 collisions in the 40 year lifespan. The CRM report concludes that the development will have a negligible effect on collision risk for the populations of 15 target species, as no collisions are predicted in the 40 year life span (i.e. <1 for each species). However, the analysis carried out is for 12 target species and for two of these, over the 40 year life span, collision risk exceeds 1 i.e. for buzzard and kestrel. Further, annual collision risk set out in revised Table 6.1 is inconsistent with the annual collision risk used in assessment of collision risk in the context of the national/local population (appended to revised CRM) for Grey heron, Lesser Black-backed gull and Snipe (and Hen Harrier). Having regard to the foregoing, I do not consider the CRM to be sufficiently accurate or demonstrably robust to draw clear conclusions in respect of collision risk. If the Board are minded to grant permission for the development I would recommend further information in this regard and circulation of this to the DHLG&H.

In-combination effects

- 7.16.10. Section 7.5.4.2 of the EIAR refers to cumulative impact assessment. It maintains that having regard to the distance of consented or permitted wind farms, the lack of migration paths during surveys, and hinterland surveys of the proposed development, cumulative collision risk is negligible. It is also stated that local wintering birds have been demonstrated in research to habituate to the presence of turbines and avoid collision.
- 7.16.11. In the first party appeal, the applicant argues that predicted collision rates are so small i.e. less than one for all species, that all species can effectively be considered as having no collision risk. It also provides as an example, the effect of adding the collision risk for hen harrier at the subject development to that predicted for collisions at Ardderroo Wind Farm, to give a cumulative predicted collision risk of 0.002 birds per year, well below the Percival Negligible rating of <1%.
- 7.16.12. Whilst the cited example, may be correct, I have identified above that the CRM predicts collision risk >1 for two species and incorrectly refers to a 40 year

timescale. Consequently any assessment of in-combination effects which relies on this data is insufficiently robust. Further, the applicant provides no evidence to substantiate the conclusions drawn in respect of in-combination effects.

Effect of the development on White-tailed Sea Eagle

7.16.13. In their observations on the proposed development, the DHLG&H raise concerns that the White-tailed Sea Eagle recorded on site is not considered to be within the zone of influence of the project or included in Collision Risk Model. Further, it is stated that NPWS surveys have indicated occurrence of species frequently within the vicinity of the site and likely within path of turbines, and have determined that within 10km of the proposed development there is a known White-tailed Sea Eagle breeding location and within 4km of the proposed development there is a favoured roost site. The DHLGH require additional survey work required to determine potential impacts on this species and state that the two year survey work carried out is the minimum required by Scottish Natural Heritage, not a target.

7.16.14. In response the applicant acknowledges that the species has not been included in the collision risk assessment as it was not observed flying at rotor swept heights within the collision risk area during 2.5 years of surveys (in excess of the SNH guidance) and that the survey period can be extended beyond 2.5 years if required.

7.16.15. Given the survey data provided by NPWS, the breeding of White-tailed Sea Eagle within 10km of the development and an active roost within 4km, I consider that there is insufficient information or survey work on this species to understand how it interacts with the site and to demonstrate absence of effect on this species. If the Board are minded to grant permission, I would recommend additional survey work in line with the requirements of DEHLG.

Grouse and Curlew

7.16.16. Appendix 7.1 of the EIAR, Bird Survey Reports, refers to the Red Grouse survey (section 3.2) carried out by the applicant under licence, with a small number of birds recorded on the site in transect and walkover survey work, in vantage point surveys and in hinterland surveys. The species was identified in the EIAR as a key avifauna receptor of high sensitivity, however effects on the species are considered to be Slight in terms of habitat loss, disturbance and displacement during

construction and/or during operation. The conclusions of the EIAR are not unreasonable given the relatively small footprint of the development, extent of directly adjoining similar habitat and relatively small number of occurrences within the site and context for assessment which is based on recognised impact assessment criteria (Percival, 2003 and EPA, 2022).

7.16.17. With regard to Curlew, I note that this species has not been identified in any of the survey work carried out on the subject site or hinterland sites and no issues have been raised in respect of likely effects by the PA or statutory bodies. I am satisfied therefore that there is no likelihood of adverse effects on this species.

7.16.18. Conclusion

7.16.19. Having regard to the foregoing, and for the reasons stated, I am not satisfied the applicant, through the EIAR and associated documents submitted, has satisfactorily demonstrated absence of significant effects arising from the development on collision risk, cumulative effects or on White-tailed Eagle.

7.16.20. **Conclusion: Biodiversity.**

7.16.21. I have considered all of the written submissions made in relation to biodiversity and ornithology and the contents of the EIAR and associated documentation. For the reasons stated in my assessment, above, I am not satisfied that:

- a. the loss of c.13ha of Annex I habitat is justified in the context of other significant issues raised in this assessment notably under landscape effects, or
- b. that the applicant has satisfactorily demonstrated absence of significant effects arising from the development on collision risk, cumulative effects or on White-tailed Eagle.

7.16.22. **Land, soil, water, air and climate**

Land and Soils

Issues Raised

7.16.23. The DHLG&H raise concerns regarding the proposed peat storage areas occurring immediately adjacent to the Maumturk Mountains SAC. This issue is addressed in the AA section of this report. Third parties raise concerns in respect of peat stability.

Examination, analysis and evaluation

7.16.24. Chapter 8 of the EIAR assesses the impacts of the development on soils and geology. It is supported by a Peat Stability Risk Assessment, PSRA (Appendix 8.1) and Figures 8.1 to 8.6. The assessment is carried out having regard to statutory and best practice guidelines and includes desk study, geotechnical investigations (peat gouge probes, gouge cores and shear vane tests – to establish depth and strength of peat), site walk over and observations (in winter and summer conditions). The evaluation of effects, in terms of significance, has regard to industry established criteria in terms of sensitivity of the existing environment and magnitude of effects (Table 8.1 to 8.3, Figure 8.1).

7.16.25. Bedrock geology is indicated in Figure 8.1 and comprises Ordovician age igneous and metamorphic rocks, outcropping in particular within the northern parts of the site. A northwest southeast trending fault runs close to T4 and T5 (c.82m from T4 and c.50m from T5), but is stated to be inactive with no potential for significant effect on design or structural stability. Soils are almost wholly blanket peat, with some glacial till (Figures 8.1 and 8.2). Peat depths are shown in Table 8.7 and range from 0 to >5m, with the majority of the peat within the range 0.5-2.0m depth (average depth 0.94m). Geological heritage sites are shown in Figure 8.5 and two are present in close proximity to the grid connection route, Lough Nahhasleam (large rock outcrops close to road) and Loch na gClocha (outcrop on edge of lake). See also Tables 8.8 and 8.9.

7.16.26. Landslide susceptibility, as predicted by GSI, across the site ranges from Low to High, with High occurring in the area of T4 (Figure 8.4) and no landslides have

been recorded on or adjacent to the site (Figure 8.3). Nearest recorded landslide is c.7km to the west of the site (Figure 8.3), north west of Maam Cross.

7.16.27. A qualitative slope stability assessment was carried out for the turbine and substation locations. It considers that the risk of a peat slide occurring at proposed turbine T2, T5 and the substation is ‘Low’, the risk of a peat slide occurring at the remaining four turbine locations ‘Negligible’ (peat depth < 0.5m) and along the proposed grid route, ‘Negligible’ due to a combination of low slopes and generally thin or absent peat/location of route within existing roads and pavements.

7.16.28. A quantitative slope stability assessment was undertaken for the proposed turbine and substation locations and along the line of the proposed site access tracks, with and without surcharge loadings (equivalent to stockpiling of peat/loading from a floating road). The assessment identifies :

- Without surcharge loadings, 3 locations of elevated risk of peat slide i.e. where the calculated ‘Safety Ratio’ of less than 1.0 (Figures 6 to 9 of PSRA). The location of the two areas of elevated risk are approximately 80m northwest of turbine T3 and about 400m south of turbine T1.
- With surcharge loadings (equivalent to 2m depth of peat or a typical floating road), 29 locations of elevated risk, located around turbines T2, T3 and T5, along the proposed access road to T2 and T3 (Figure 10), between turbines T1 and T6 (Figure 11), and along the access track to the south of turbine T1 (Figures 11 and 12).

Potential Effects

7.16.29. Potential effects on soils and geology are identified in section 8.4 as a consequence of wind farm development.

Table LS1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • Current land use to remain as is, low intensity grazing on wet bog. No substantial change in baseline conditions.
Construction	<ul style="list-style-type: none"> • Land take: Extent of impact not stated, however, considered to be slight, direct, temporary/permanent, negative (based on footprint of wind farm in wider area). • Subsoil and bedrock removal: Excavated volumes shown in Table 2.6. Overall significance, moderate, permanent and negative (direct):

	<ul style="list-style-type: none"> ○ Turbines and hardstand areas: Shallow peat and glacial till to be removed with insignificant, permanent, negative, direct effect. Granular fill to be imported from local quarries (indirect effect, considered under traffic and transport). ○ Site access tracks (founded roads and floating roads): Imperceptible, negative, permanent effect (use of permeable geotextile material, small footprint). Granular fill to be imported from local licensed quarries, with use of tested, inert and clean materials, with not significant, permanent, direct negative effects (indirect effect, considered under traffic and transport). ○ Site haul route: Not significant, temporary negative effects (e.g. modest direct land take for widening). ○ Site cable trenches/grid connection cable: Not significant, temporary, direct negative (trenches to be excavated to c.1.2m, use of excavated or imported material for backfilling). ○ Grid connection cable: Not significant, permanent, direct negative (trenches to be excavated to c.1.2m, use of excavated or imported material for backfilling). ○ Temporary construction compound: Not significant, temporary, direct, negative (excavation and removal of peat and shallow bedrock, importation of granular fill, located on cutaway bog). ● Storage and stockpiles: Majority of spoil generated to be peat or rock. Majority of rock to be reused for construction of site access tracks. Peat to be moved to peat storage/restoration area. Stockpiling of peat can give rise to increased pore pressure and risk of bog burst or peat slide. Due to level nature of ground, peat storage area at low risk of peat instability. Overall slight significant effect arising from compaction, erosion and degradation of peat from vehicular movement. ● Vehicular movement: <ul style="list-style-type: none"> ○ Compaction, erosion and degradation: Compaction of soils arising from vehicular movement, not significant, permanent, negative. Erosion and degradation of exposed soils, not significant, permanent and negative. ○ Peat stability and slope failure: Risk of peat slide is low however poorly managed construction activities (including traffic movement) can increase the risk. Any peat slide could affect nearby habitats and species, with slight, localised, potentially regional long term/permanent effects. ○ Haul route and site access tracks: Some compaction at temporary widening locations, with overall insignificant, permanent and negative effects. Slight compaction of soils underlying site access tracks, in particular where there are floating roads. Overall not significant, permanent and negative. ● Soil contamination: Arising from use of hydrocarbons, wastewater and sanitation, construction materials and general waste, potential for effects ranging from insignificant to moderate, long term direct and indirect negative effect on soil and geological environment.
Operation	<ul style="list-style-type: none"> ● No land take, soil/bedrock removal ● Storage and stockpiles: Potential for peatland habitat restoration. ● Vehicular movement:

	<ul style="list-style-type: none"> ○ Compaction, erosion and degradation of peat: Some ongoing compaction of soils, in particular in areas of floating road. Not significant, permanent and negative.
Decommissioning	<ul style="list-style-type: none"> ● Similar to construction but reduced in magnitude as extensive excavation and wet concrete handling not required. The potential environmental effects of soil storage and stockpiling and contamination will remain during decommissioning.
Cumulative	<ul style="list-style-type: none"> ● Cumulative effects arise from indirect effects due to use of public roads as haul routes and use of natural resources.

Mitigation

7.16.30. Mitigation measures include:

- Mitigation be design e.g. to minimise excavation required, avoid shallow rock and areas of deep peat in the location of turbines and use of floating roads (where these are required, areas of deeper peat and where crossfall is less than 1 in 10). Floated roads to be laid directly on existing peat using geogrid and crushed stone. Pipes to be installed at intervals to allow existing runoff regime to continue.
- Where possible soil and rock to be reused on site immediately.
- Remediation of areas not required for operation.
- Excess excavated peat to be taken off site and used in restoration of cutover bog.
- Loading of the peat during or after construction will be avoided at all times but particularly at the following locations where a Safety Ratio <1:
 - To the north and west of turbine T3.
 - Between turbines T2 and T5.
 - At the northern corner of the T6 hardstanding.
 - Access tracks south and southwest of T1.
- Additional mitigation measures to reduce the risk of peat instability will comprise the following:
 - Avoidance of stockpiling on the peat, particularly in areas of deep peat or areas with a low safety ratio.
 - Additional drainage in areas of construction where a low safety ratio has been calculated.

- Avoidance of drains discharging onto areas of weak or deep peat or areas of low safety ratios.
- Avoidance of blasting, particularly within 1km of areas of low safety ratios.
- Geotechnical CoW to continuously monitor peat during construction. Ongoing peat stability checks, monitoring, with further assessment and monitoring if required. CEMP includes emergency response plan.
- Vehicle movements to be restricted to footprint of development (access to deep peat restricted to low pressure vehicles). Vehicular traffic reduced on site by reuse of excavated material.
- Construction to be carried out in accordance with best practice guidelines and CEMP.
- Volume of cut and fill minimised by design and therefore movement of material.

Residual Effects

7.16.31. With the implementation of mitigation measured, the EIAR predicts the following residual effects:

- Construction - Slight to moderate significant effects on soils, with moderate significant effects in respect of stability issues and slope failure arising from vehicular movement.
- Operational effects - Not significant, permanent and negative.
- Decommissioning and restoration – Decommissioning, as per construction, but reduced in scale and negligible after restoration.

Direct and Indirect Significant Effects

7.16.32. I have examined, analysed and evaluated Chapter 8 of the EIAR, all of the associated documentation and submissions on file in respect potential effects on soils and geology. Notably I have examined the Peat Stability Risk Assessment. I am largely satisfied that the applicant identified the main direct and indirect effects of the development. I have some concerns with regard to cumulative effects and peat stability which I discuss below.

Peat Stability

7.16.33. As identified in the EIAR, a peat slide could result in significant effects on water bodies and in significant indirect effects downstream habitats and water quality dependent species. I have reviewed the applicant's PSRA and I note that the assessment is based on average rainfall data, with no assessment of potential changes in baseline data with climate change. Further, the qualitative assessment of peat stability only includes for T2, T5 and substation on the grounds that for all others peat depth are 0.5m or less. However, Figure 5, clearly shows depths in excess of 0.5m for other turbine locations (e.g. T1, T3). It is stated on page 13, that characteristic peat depth has been used rather than maximum recorded depth as outliers may represent localised deep pockets. Notwithstanding this, I do not consider that the details provided on peat depths vis a vis location of turbines and substation is sufficiently transparent. The PSRA also refers to the contradiction in assessment results and the GSI landslide susceptibility for the site, which shows T4 in an area of high susceptibility (and the location of some of the proposed access tracks through areas of high or moderately high susceptibility). I assume that the explanation for the difference lies in the detailed site assessment.

7.16.34. The PSRA quantitative analysis of slope stability identifies in Tables 4 (turbines and substation) and 5 (access tracks) locations where the slope has an inadequate factor of safety against failure and is therefore potentially unstable in the long term without the implementation of suitable mitigation measures. These locations are shown in Figures 6 to 9, and comprise 3 locations within two areas (indicated by red dots), located approximately 80m northwest of T03 and approximately 400m south of T01.

7.16.35. With an additional loading of 20kPa, equivalent to stockpiling of 2m of peat or a floating road with construction traffic, 29 locations are identified of elevated risk, located around turbines T2, T3, T5 and along the proposed access road to T2 and T3, between turbines T1 and T6 and along the access track to the south of T1 (Figures 10, 11 and 12).

7.16.36. The PSRA therefore recommends additional mitigation measures to reduce loading in these areas (summarised above). From the information available, it would appear that the location of floating roads overlaps with areas identified as susceptible to additional loading. For instance, floating roads are proposed from the junction on the access track between T1 and T6 and the junction with the access

track to T2 and from chainage 1200 on the access track from the N59 to T6. It is not clear in the PSRA and EIAR, how the additional mitigation measures outlined in the PSRA will deal with the additional risk of peat failure in the location of floated roads.

Conclusion

7.16.37. Having regard to the foregoing, and notwithstanding the conclusions of the PSRA, and the additional mitigation measures proposed, I am not satisfied that there is sufficient evidence presented in the report to demonstrate the efficacy of proposed mitigation measures to address the increased risk of peat failure in the location of proposed floating roads. Neither am I satisfied that there has been any assessment of the likely effects of climate change on rainfall patterns and the implications for peat stability/risk.

Water

Issues Raised

7.16.38. Parties to the appeal raise concerns in respect of risk of downstream flooding and pollution of downstream waterbodies (flash flooding).

Examination, analysis and evaluation

7.16.39. Chapter 9 of the EIAR assesses the impacts of the development on hydrology and hydrogeology. It is supported by Photographic plates and Laboratory Certificates (Appendix 9.1 and 9.2) and the CEMP (Appendix 2.1) which sets out all mitigation measures. The CEMP contains a Surface Water Management Plan in Appendix B of A2.1.

7.16.40. The assessment of effects has been carried out in accordance with industry standards and best practice guidelines. It is based on desk and field survey work with field investigations and hydrological surveys comprising walkover surveys, field hydrochemistry measurements on surface water features at multiple locations and collection of surface water samples for laboratory analysis.

Baseline

7.16.41. The appeal site is situated in two separate catchments and within this spans a number of sub-catchments:

- The wind farm site, the northern part of the peat storage and restoration area and part of the grid connection route, fall within the Corrib Catchment. With regard to sub-catchments, most of the wind farm site and northern part of the peat storage and restoration area fall within Joyce's sub-catchment, with a small part of the wind farm site alongside the N59 (at the site entrance) falling within the Ballycuirke Lough Stream sub-catchment. This sub-catchment is listed as a Margaritifera Sensitive Area under the Habitats Directive.
- The southern part of the peat storage and restoration area and part of the grid connection route, fall within the Galway Bay North catchment and the Furnace sub-catchment.

7.16.42. The wind farm site is topographically elevated in the north/north west and lower lying in the south and east site. It contains a number of small streams which

are headwaters for the Owenwee and Owenree Rivers which outfall into Lough Corrib to the north of the site (WFD 2016-2021, Good status and Not at Risk). There are no lakes within the site. The proposed peat storage and restoration area lies to the south of Loughanillaun (WFD 2016-2021 Good status, At Risk), and to the north Arderry Lough (WRD 2016-2021 Good status, Not at Risk). Loughanillaun lake has been identified in the WPA Blue Dot programme as a waterbody that should have a high status objective. The waterbody is at risk, therefore, of not achieving this status.

7.16.43. The peat storage and restoration has a largely flat topography and contains both natural and artificial drainage ditches (Figure 9.3 Mapped Surface Water Bodies and Drainage Network). This includes two unnamed streams which cross the northern part of the peat storage and restoration area and discharge into Loughanillaun. Overall site elevations are shown in a 3D hydrological flow map in Figure 9.6. Both the wind farm site and the northern part of the peat storage and restoration area draining to Lough Corrib via various intervening waterbodies. Lough Corrib is also identified as a Drinking Water Protected Area, as a public water source for Galway City and other areas of the County. The Owenree River is also used for a limited number of domestic consumption purposes. An Irish Water public water main exists along the public road that the grid connection will follow (R336 and R340).

7.16.44. Water quality monitoring locations are shown in Figure 9.4 and in Tables 9.16 to 9.25. These provide a contextual framework for the development and indicate the generally 'Good' status of waters in the area of the site. Groundwater vulnerability across the wind farm site, peat storage area and grid connection route, varies from Moderate to Extreme (Figure 9.14). Groundwaters underlying the site have a WFD status of Good and Not at Risk. Groundwater flowpaths within the site are considered to be short with blanket peat overlying bedrock with low permeability with groundwater discharging rapidly to nearby streams and small springs.

7.16.45. On the basis of rainfall data, recharge coefficients and site characteristics, the site characterised as having a very flashy network of streams/rivers and high surface runoff rates. The EIAR states that the drainage system for the site is designed with the capacity to accommodate a 1 in 100 year 6 hour return period rainfall event i.e. for one year in every hundred, rainfall 69.3mm of rain would fall in 6 hours. I note

that estimated storm duration and return periods for the site are consistent with generalised modelling for the area.

Water Balance

7.16.46. The water balance assessment carried out, uses data for the wettest month of the year, minimum PE and recharge coefficient for poorly drains site and assumes a worst case scenario (e.g. all hardstands and access roads would be impermeable). It estimates that surface water runoffs at the site would increase by 0.38%, a negligible increase (Table 9.12). NB the assessment does not appear to take account of climate change (increase in rainfall intensity/events).

Flood Risk

7.16.47. Flood risk is assessed in section 9.3.7. It has regard to the OPWs data on flooding events and flood risk. The OPW dataset identifies no historical single or recurring flood events within the EIAR site boundary. Four recurring flood events are recorded on the existing roadway which the grid connection route will traverse, including west of the wind farm site entrance (c.290m and down gradient of site entrance), south of Maam Cross on the R336 and east of Screebe sub station (Figure 9.11). Having regard to the proposed drainage arrangements which provides increased attenuation during heavy rainfall events, prior to discharge to the surrounding bog environment for natural recharge, the EIAR concludes that the development will not exacerbate the pre-existing and recurring pluvial flood event.

7.16.48. With regard to the grid connection route, as the proposed route would consist of trenching of underground cables, to be restored with like for like surfaces (in addition to HDD at 5 no. bridges), runoff characteristics will be effectively unchanged when compared to the existing surfaces along the proposed route.

7.16.49. The assessment also considers National Indicative Fluvial Mapping (NIFM) with reference to fluvial flooding for current day and future scenarios (flooding of rivers and streams). The EIAR refers to the medium and low probability present day scenarios (1 in 100 year and 1 in 1000 year event), with no fluvial events occurring within the development site and a possible 1% fluvial event downstream of the site adjacent to the Owenree River east of Loughaunierin. However, there is no predicted flooding of the eastern site boundary. Further, given the proposed increase in attenuation of rainwater during heavy rainfall events, the EIAR considers

that the potential risk of exacerbating a theoretical 1% or 0.1% AEP fluvial flood downstream of the site is negligible. Similar conclusions are reached in respect of the High End Future Scenario (30% increase in rainfall resulting from climate change), given the absence of flooding of the subject site and arrangements for attenuation. The EIAR also has regard to GSI probability maps for risk of groundwater flooding (no risk) and OPW database on Arterial Drainage Schemes benefitting areas (no effects due to distance from such lands and attenuation on site).

Potential Effects

7.16.50. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table W1 below.

Table W1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • Current land use practices to remain with no significant impacts on hydrology or hydrogeology but potential for ongoing sedimentation of water bodies e.g. Loughanillaun.
Construction	<ul style="list-style-type: none"> • Increased hydraulic loading (surface water runoff & hardstanding). Increase in hydraulic load calculated to 0.38% with direct (and indirect) negative, imperceptible, not significant permanent impact. • Earthworks: <ul style="list-style-type: none"> ○ Increase in suspended solids in surface water arising from earthworks and dewatering of foundations, watercourse crossings and upgrading of culverts/bridges, direct, negative, potential significant/profound, temporary but not reversible impact. ○ Localised peat stability issues/peat slide: Increase in suspended solids, impact on established drainage networks with direct and indirect negative, significant to profound significant impact, potentially permanent. NB risk of peat slide considered to be low. • Excavation dewatering: <ul style="list-style-type: none"> ○ Increase in suspended solids in surface water with direct, negative, significant/profound, temporary effects and not reversible. ○ Impacts on groundwater and hydrogeological flow regimes at a local level, with negative, slight localised impact. • Diversion and enhancement of drainage with likely, negative, moderate, localised impact (change to natural pre-existing conditions). • Watercourse crossings: Risk of increased sedimentation/contaminants, with likely negative, significant, temporary impacts. Potential for changes to hydromorphology of watercourses from works in proximity to these.

	<p>Likely negative, significant, Profound weighted significance, localised impact</p> <ul style="list-style-type: none"> • Direct and indirect effects on surface water: Increased sedimentation, nutrients, hydrocarbons and cementitious materials with impacts on downstream water quality dependent habitats and species and sites of conservation interest, with negative, potential significant to profound impact, temporary but not reversible. No potential for impacts on groundwater given natural process of filtration through soils of low permeability. • Wastewater: With release of wastewater likely increase in BOD, lowered dissolved oxygen with effects on aquatic life and pollution by sanitation chemicals with negative, significant profound medium to long term impacts. • Impacts on local groundwater supply wells. Assuming worst case scenario all downstream dwellings have supply wells, neutral to negative, slight to moderate localised impact (low permeability of subsoils, temporary nature of construction work, low recharge rates). • Grid connection works: Slight to moderate negative localised effect on water quality (loss of drilling fluids, contamination of wells), neutral to negative, slight to moderate localised impact (shallow trenching, HDD drilling, temporary nature of works). • Reinstatement of redundant access track and hardstand areas: Risk of increase in suspended solids in surface water runoff with potential for slight impacts (short term) and positive benefits long term.
Operation	<ul style="list-style-type: none"> • Increased run off from impermeable area, potential for significant effects without mitigation.
Decommissioning	<ul style="list-style-type: none"> • Imperceptible to slight, neutral, permanent impact on the hydrological and hydrogeological setting surrounding the site. • Potential for increase in suspended solids and contaminants (surface and groundwater), with reduced effects from construction e.g. with pre-existing hardstandings.
Cumulative	<ul style="list-style-type: none"> • Potential for cumulative effects on hydrology and hydrogeology with nearby development (restoration of railway station at Maam Cross) and pre-existing effects on surface water environment.

Mitigation

7.16.51. As a consequence of the identified potential effects, the EIAR sets out a series of mitigation measures. Notably these include mitigation by design, where works are largely removed from watercourses by c.50m (except for required crossings/upgrading of existing crossings/bridges). Also of note, and key to preventing adverse effects are the detailed arrangements set out in the Surface Water Management Plan and Construction Environmental Management Plan (Appendix 2.1). These include detailed pollution control measures, active management of surface water upstream (uncontaminated) and downstream (potentially contaminated), with treatment prior to managed and diffuse discharge, a

programme of water quality monitoring to be agreed with IFI, adherence to IFI, OPW and NRA guidelines for the protection of waters during construction, the employment of an Ecological Clerk of Works to oversee all construction works and the maintenance of drainage at floating roads, to ensure hydrological connectivity from upslope to downslope of the structure. For the peat storage area, impermeable berms will be put in place in advance of spoil storage and existing drainage ditches will be blocked in advance of deposition of material.

Residual Effects

7.16.52. With the implementation of mitigation measures, the EIAR predicts no significant effects on the water environment as a consequence of the development during all phases. Construction stage residual effects are some limited temporary decrease in water quality, to be mitigated by the proposed extensive control measures. During operation, the anticipated increase in hydraulic load from the construction of hard surface, as stated above to be c.1,117m³/month, or 0.38% relative to the area of the site, with a consequential imperceptible impact. However, the EIAR does acknowledge that with the increase in impermeable area, *'the finalised drainage design may result in some areas becoming more saturated, particularly at lower elevations, whilst other predominantly upland areas may result in a net drying effect being observed'*. It nonetheless concludes that this is considered to be a direct, neutral, localised impact of the operational phase of the development.

7.16.53. Cumulative effects are not considered to be significant largely due to the absence of other substantial developments in the area of the site with potential to impact on water quality, and the proposed mitigation measures.

Direct and Indirect Significant Effects

7.16.54. I have examined, analysed and evaluated Chapter 9 of the EIAR, all of the associated documentation and submissions on file. I am satisfied that the applicant's understanding of the baseline environment, by way of desk and site surveys, is comprehensive and that the key impacts in respect of likely effects on hydrology and hydrogeology, as a consequence of the development have been identified.

7.16.55. Having regard to the characteristics of the subject site, the layout of the development which seeks to avoid impacts on water bodies, the proposed

arrangements for the management of potential pollutants and the detailed approach to surface water management which seeks to mimic the hydrological regime, through a process of interception, treatment and dispersal, I consider that whilst the development will give rise to impacts on the movement of surface water within the site, these will not be significant or extend to groundwater flows or beyond the site or protected sites or result in any significant change to water quality status of any waterbody under the terms of the Water Framework Directive. This conclusion is predicated on implementation of the full suite of mitigation measures and the arrangements for monitoring and reporting on surface water quality throughout all phases of the development and that the issue of peat slide risk is adequately addressed in advance of any consent.

7.16.56. Parties to the appeal raise concerns regarding the risk of downstream flooding and the pollution of water bodies. For the reasons stated above, I am satisfied that the active management of surface water on site and the implementation of pollution control measures, as set out in the CEMP and SWMP, will prevent significant risk of downstream flooding and pollution of waterbodies.

Conclusion

7.16.57. I have considered all of the written submissions made in relation to water and the relevant contents of the file including the EIAR. I am satisfied that subject to the satisfactory resolution of issues in respect of peat stability (should the Board decide to grant permission for the development) the potential for significant adverse impacts on water can be avoided, managed and/or mitigated by measures that form part of the proposed development (designed in measures), 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 impacts on the water environment.

Air and Climate

Issues Raised

- 7.16.59. Third parties raise concerns regarding noise in submissions on the planning application. Chapter 10 of the EIAR deals with noise and Chapter 15 with air and climate.

NOISE

Examination, analysis and evaluation

- 7.16.60. I have examined Chapter 10 of the EIAR. It is supported by Technical Appendices 10.1 to 10.4. The report includes a description of the methodological approach to the assessment, and includes reference to industry guidelines and standards. Notably the EIAR refers to specific noise limits for wind farms set out in the government's Wind Energy Development Guidelines 2006, the draft revised Guidelines of 2019 (background noise + 5dBA day time and 43dBA nighttime) and NRA standards (70dB LAeq (1hr), daytime) for construction noise. The assessment assumes that emissions are not tonal or impulsive. It also excludes noise arising from the proposed substation given the very low levels of noise associated with it (at less than 30dBA at 150m). No cumulative assessment is carried out, as there are no other wind farms within 4km of the proposed development.

Baseline

- 7.16.61. Baseline monitoring was undertaken at three locations, H30, H35 and H50, to the south, west and north of the proposed windfarm respectively continuously between 26th October and 18th November 2021 (Appendix 10.1). Prevailing background noise levels, at different wind speeds, are given in Table 10.8 and indicate a quiet noise environment, but not a low noise environment (section 10.3.4). Designed in mitigation includes the fitting of the preferred turbine model with serrated trailing edge (STE) as standard, to minimise noise emissions (section 10.3.7).

Potential Effects

- 7.16.62. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table N1 below.

Table N1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • Not examined. However, I note there would reasonably be expected to be no change in the noise environment.
Construction	<ul style="list-style-type: none"> • Construction noise: Direct, short term, not intensive effects associated with construction of foundations, hardstandings, site access tracks, 38kV on-site substation, road widenings, installation of grid connection, upgrading of Screebe substation and removal/spreading of spoil during construction. • Construction traffic: Indirect effects of additional noise arising from the importation of material, concrete, spoil movement and delivery of turbines. • Predicted effects. For construction noise (Table 10.0) and traffic (page 27), noise effects are predicted to be well within NRA guidelines (noise at construction sites) and effects overall are predicted to be negative, not significant and temporary. • Grid connection cable laying: Construction traffic noise is predicted to have an insignificant and temporary effect (less than three truck movements/hour). Predicted noise from machinery and HDD drilling is less than NRA standards at relevant receptor and development will progress in sections along the grid connection route (temporary effects). Where works occur within 20m of a receptor an acoustic barrier is proposed, with up to 10dBA reduction in noise.
Operation	<ul style="list-style-type: none"> • Direct effects of windfarm on nearest receptors (Table 10.11 and Figure 10.1, based on maximum power output at a wind speed of 11ms⁻¹), adopts a conservative approach to assessment and predicts noise at all receptors to be lower than the relevant noise limit in all cases (43dB(A) L90,10 – see section 10.3.6). • Direct effects of upgrading of Screebe substation, permanent effect. However, with application of standard ESB approaches to upgrading of substations and, if necessary use of concrete/block structure to reduce transmission noise, no significant effects are predicted. • Long term operational noise impacts are predicted to be negative, not significant and long term.
Decommissioning	<ul style="list-style-type: none"> • Effects similar to construction but for shorter duration (site access tracks and turbine foundations to be left in place and covered with topsoil/peat).
Cumulative	<ul style="list-style-type: none"> • None. No operational, permitted or at application stage wind farm sites within 4km of the development. No industrial development within 2km of the wind farm. In addition, I note that there are no substantial developments permitted or proposed in the area of the site.

Mitigation

7.16.63. As no significant construction noise effects have been identified, the applicant proposes general guidance for controlling construction noise and working times set out in any permission. A similar approach is proposed for decommissioning, subject to best practice guidelines at the time.

Residual Effects

7.16.64. No residual effects from construction are therefore predicted.

7.17. Operational noise is predicted to be within the noise limits for day time and night noise set out in the Government's 2006 Wind Energy Guidelines, with no special mitigation measures, beyond fitting rotors with STE (discussed above) and no residual effects. The potential for cumulative impacts is considered to be negligible having regard to the absence of permitted or proposed development in the area of the site.

Direct and Indirect Significant Effects

7.17.1. I have examined, analysed and evaluated Chapter 10 of the EIAR, all of the associated documentation and submissions on file in respect of noise. Having regard to the nature of the proposed development, and its location, it will introduce short term construction activity to a remote and quiet rural environment. Further, the long term effects of the wind farm will be an increase in background noise in the area of the site. Notwithstanding these effects, having regard to the absence of submissions made in respect of the noise effects of the subject development, my inspection of the appeal site and surrounding area, the distance of the wind turbines from sensitive receptors, my examination of the EIAR and the conservative approach adopted towards the likely effects of the development on the noise environment, I am satisfied that the proposed development will not give rise to any significant adverse direct, indirect or cumulative effects and is acceptable in this regard.

7.17.2. Conclusion

7.17.3. Having regard to the foregoing, and for the reasons stated, I am satisfied that the applicant, through the EIAR and associated documents submitted, has satisfactorily demonstrated absence of significant effects arising from the development as a consequence of noise.

AIR AND CLIMATE

Examination, analysis and evaluation

7.17.4. I have examined Chapter 15 of the EIAR, in respect of air and climate. The report refers to the climatic trends as a consequence of climate change (increasing mean monthly temperatures, change in frequency, distribution and intensity of rainfall and

increased risk of river flooding). However, it is considered that these trends are unlikely to affect the development, having regard to the imperceptible increase in surface water runoff, absence of flood risk in the area of the site, low risk of peat slide, low risk of mass movements/landslides or absence of significant risk of enhanced erosion or degradation of peat. The development's vulnerability and resilience to climate change is therefore not considered any further. (NB The board should note that I have raised concerns in respect of the peat stability impact assessment under land and soils).

7.17.5. Focus of the assessment is therefore on air quality (peat disturbance, dust emissions and likely CO₂ reductions). The assessment methodology has regard to desk study and air quality baseline data in the area of the site and standards in respect of air quality in the State.

Baseline

7.17.6. Air quality at the nearest EPA monitoring station (Mace Head, c.32km to the south west of the development site) indicates 'Good' air quality (Table 15.2).

Potential Effects

7.17.7. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table AC1 below.

Table AC1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> Not examined in EIAR. However, I note there could reasonably be no change to air or climatic factors with the 'do nothing' scenario.
Construction	<ul style="list-style-type: none"> Direct, temporary effect on air quality from dust emissions during construction (dust becomes friable and may be a nuisance to workers, residents and road users). Refers to standard mitigation measures and residual effect of imperceptible, slight, negative and short term (with regard to nearest habitable dwelling c.740m from nearest turbine). Direct, temporary, localised effects on air quality from emissions from plant and machinery (carbon dioxide, carbon monoxide and particulate matter) with temporary imperceptible effects.
Operation	<ul style="list-style-type: none"> No emissions to air (by way of dust or emissions from plant/machinery). Greenhouse gas emissions will be offset by the development once emissions associated with manufacture and installation are offset and potential generation of CO₂ emissions from removal of peat (section 15.7 i.e. worst case scenario if all peat to be removed was combusted). EIAR estimate operational time of 2 years for the development to displace

	emissions equivalent to those used in the manufacture and installation of wind turbines. NB the EIAR refers to a lifetime of 40 years in the calculations, compared to the 35 year operational life sought. Overall a small positive impact by reducing GHG emissions, on climate change on a national and global scale.
Decommissioning	<ul style="list-style-type: none"> As per construction (direct, temporary effects, dust and emissions from plant/machinery) but reduced in scale.
Cumulative	<ul style="list-style-type: none"> The development will have a cumulative effect with other renewable generation and contribute to renewable energy deployment in the State.

Mitigation

7.18. The EIAR refers to mitigation measures for the management of dust on site. These are set out in Chapter 14 of the EIAR and refer to standard good practices on construction sites to minimise dust.

Residual Effects

7.18.1. With the application of mitigation measures, the EIAR predicts imperceptible/slight, negative short term effects on air quality from dust during construction and similar effects during decommissioning and positive and cumulative effects on climate change (reductions in GHG emissions).

Direct and Indirect Significant Effects

7.18.2. I have examined, analysed and evaluated Chapter 15 of the EIAR, all of the associated documentation and submissions on file in respect of air and climate. Having regard to the nature and location of the proposed development, I am satisfied that the direct and indirect effects of the development on air quality are short term adverse and not significant, arising during construction and decommissioning. In the longer term, during operation, positive effects on air quality and climate will arise. With the implementation of proposed mitigation measures, which are established good construction practices for controlling dust, I am satisfied that construction effects will not be significant. Similarly, contributions to improvements in air quality and renewable energy production will be modest but also cumulative with other renewable energy developments.

7.18.3. Conclusion

7.18.4. Having regard to the foregoing, and for the reasons stated, I am satisfied the subject development is acceptable in terms of likely emissions to air (dust) and will provide in

the longer term direct, positive and cumulative improvements in air quality, with reduced GHG emissions, and production of renewable energy.

7.18.5. Conclusion: Land, Soil, Water, Air and Climate.

7.18.6. I have considered all of the written submissions made in relation to land, soil, water air and climate and the relevant contents of the file including the EIAR and associated documents. Having regard to the foregoing:

- Land and soil: I am not satisfied that there is sufficient evidence presented in the report to demonstrate the efficacy of proposed mitigation measures to address the increased risk of peat failure in the location of proposed floating roads. Neither am I satisfied that there has been any assessment of the likely effects of climate change on rainfall patterns.
- Water: Subject to the satisfactory resolution of issues in respect of peat stability (should the Board decide to grant permission), I am satisfied that the potential for significant adverse impacts on water can be avoided, managed and/or mitigated by measures that form part of the proposed development (designed in measures), 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 impacts on the water environment.
- Air and climate: I am satisfied that the proposed development will not give rise to any significant adverse direct, indirect or cumulative effects on noise, air quality or climate and is acceptable in this regard and that if permitted the development would make a positive contribution to improvements in air quality and climate change (with cumulative benefits of renewable energy production).

7.18.7. **Material assets, cultural heritage and the landscape**

Issues Raised

7.18.8. Parties to the appeal have raised concerns in respect of the impact of the development on the Air Corp Low Flying Training Area, roads and traffic, broadband services, tourism and adequacy of the EIAR, in respect of material assets and roads and traffic.

7.18.9. Chapter 12 of the EIAR deals with material assets, including impacts on aviation, and Chapter 14 deals with traffic and transport. These are considered in turn below. Effects on tourism is addressed in the Landscape section of the EIAR and this report.

Material Assets

Examination, analysis and evaluation

7.18.10. Chapter 12 of the EIAR addresses material assets. It is supported by Technical Appendices 12.1, Shadow Flicker Assessment, and 12.2, Shadow Flicker Map. I have examined this chapter and the associated appendices. It focuses on the likely effect of the development on telecommunications, electromagnetic interference (EMI), ESB electricity networks, air navigation, waste generated and shadow flicker.

Baseline

The EIAR describes the baseline environment of the wind farm site, haul route and grid connection route. It refers to the modest temporary and permanent land take (wind farm, peat storage/restoration area and road widening to facilitate haulage from Galway port) and location of the grid connection primarily in the public road.

Potential Effects

7.18.11. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table MA1 below.

7.18.12. Impacts on television and radio signals (Digital Terrestrial Television) are not considered due to likely negligible effects and distance to nearest dwellings (c.740m). However, RTE indicated a potential for impacts to the broadcasting

service in the area and requested that they be notified should the Development progress (Table 12.1).

Table MA1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> Not examined in EIAR. However, I note there would reasonably be expected to be no foreseeable significant change in the existing environment.
Construction	<ul style="list-style-type: none"> Telecommunications: Potential for temporary electromagnetic emissions (e.g. short term use of electrical power tools, generators). Devises to comply with Irish and European law with no potential for electromagnetic emissions to cause interference to other equipment. Tall cranes may have a temporary effect as per the operational wind turbines (below). No significant effects predicted. Grid connection: Possible requirement for temporary outages in supply whilst grid connection works take place (e.g. installation of new transformer bay at Screebe substation). Minor negative and temporary effect. Waste management: Waste separation streams to be provided for office and onsite waste. Waste from port-a-loo units to be removed by tanker to designated STP. Potential for pollution from use of cement, fuels/lubricants etc. and refuelling (addressed under water and soils). No significant effects predicted. Excavated materials: Excavated peat and non-peat material to be utilised on site and/or in the spoil storage areas. Spoil generated from grid connection works to be disposed of in recycling centre. No significant effects predicted.
Operation	<ul style="list-style-type: none"> Telecommunications: Turbine and substation control electronics will comply with Irish and European law, with no potential for electromagnetic emissions to interfere with other equipment or health (EMF). Wind turbines outside of separation distances sought by telecommunication operators. No significant effects predicted. Air navigation: Potential for effects on radar, for obstruction to aviation and on overall performance of communications, navigation and surveillance equipment. However, with distance of development from nearest airports/heliports (+24km), no potential effects to air navigation. Waste management: Rainwater harvesting proposed as source of water for onsite toilet facilities. Wastewater from staff welfare facilities (control building) to be collected in a sealed storage tank, alarmed and tankered offsite to WTP. Waste separation streams for any operational waste arising with appropriate disposal. No potential for significant effects. Shadow flicker: Development eliminates shadow flicker for all sensitive receptors, with either absence of predicted effects or embedded mitigation measures for affected dwellings (Table 12.9 and 12.10), where turbines are shut down in the event of shadow flicker occurring.
Decommissioning	<ul style="list-style-type: none"> Similar to construction but likely to be less.
Cumulative	<ul style="list-style-type: none"> Telecommunications: Cumulative effects of electromagnetic impacts are considered to be highly unlikely given the distance to nearest operational wind farms. No significant effects predicted.

	<ul style="list-style-type: none"> • Air navigation: Each wind farm in the area of the site is responsible for engaging with aviation authorities to ensure no effect on radio signals (barrier effect). Each project is designed and built to avoid potential impacts. No potential therefore for cumulative effects. • Shadow flicker: No potential for cumulative effects as no operational or consented wind farms within 2km of the development.
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Mitigation

7.18.13. Mitigation measures in respect of the operational phase of the development include that where effects to telecommunications and electromagnetics, additional mitigation options, such as technical solutions (e.g. re-alignment or replacement of TV antenna, re-tuning to alternative TV transmitters or provision of subscription free satellite television services) can be implemented.

7.18.14. With regard to shadow flicker, embedded mitigation measures will eliminate potential for shadow flicker to affect any properties in the study area. Notwithstanding this, if complaints arise the applicant proposes a formal investigation of any occurrence and further refinement of the shadow control system to eliminate shadow flicker.

7.18.15. For air navigation, whilst no potential impacts have been identified, mitigation measures are proposed which include obstacle warning lights to be installed and agreed with IAA, as constructed coordinates and forewarning of intent to construct infrastructure >100m and commencement of crane operations.

7.18.16. With regard to waste management, mitigation measures are proposed for the judicious use and disposal of concrete, chemicals, fuels, oils and waste used in/arising for all phases of the development.

Residual Effects

7.19. With the implementation of mitigation measures, the EIAR identifies no potential for significant environmental effects on material assets.

Direct and Indirect Significant Effects

7.19.1. I have examined, analysed and evaluated Chapter 12 of the EIAR, all of the associated documentation and submissions on file in respect of material assets. I am satisfied by virtue of the detailed nature of the assessments undertaken and/or measures to manage or potential impacts, I am satisfied that the proposed

development will generally not give rise to significant direct or indirect effects on material assets.

- 7.19.2. The PAs fourth reason for refusal, on foot of the submission by the Department of Defence, relates to the location of the subject development in an area used for low flying by the Irish Air Corp (Low Flying Training Area (LFTA) West), the elevational location of the wind farm and height of turbines, and the risk this poses to aviation safety and public health and safety. In their submission to the PA, the Department of Defence state that the area is used for military training with low flying down to 250 feet above ground, and that wind farms or other tall structures are incompatible with low level flying. It is also stated that obstacle lighting will not mitigate the impact of the wind turbines to low level flight and that the wind farm would be of major concern to the Department.
- 7.19.3. In their appeal, the applicant provides a report on the Low Flying Training Area. It is included in Appendix D of the appeal, 'Aviation Review'. Essentially the report concludes that the wind farm should not pose a risk to aviation safety on condition that it is made widely known in the Irish Aeronautical Information Publication (AIP) and has acceptable aviation lighting. It is also stated that the LFTA West is not a identified airspace user in accordance with the IAA Act 1993. The report refers to a draft position paper developed by the Irish Air Corp on windfarms and tall structures in 2014 (Draft Air Corps Wind Farm/ Tall Structures Position Paper, 2014) and states that whilst the LFTA West is identified in the paper, that the vertical limits of the LFTA are not provided. It also argues that the paper is in draft form and represents the position of Air Corps and has not been consulted on by other airspace users, including wind farms. The Aviation Review report also refers to experience elsewhere, where wind farms if lit and charted are acceptable in low fly zones.
- 7.19.4. I am mindful of the points raised by the applicant in Aviation Review paper and the lack of clarity regarding the status of the LFTA West and the potential for and practice of low fly zones and wind turbines to occupy the same space. Notwithstanding this, I am also concerned that the subject development, if permitted, would not introduce an aviation safety hazard. Should the Board decide to grant permission for the development I would recommend further information from the Air Corp to respond the matters raised in the appeal. In view of the foregoing and lack

of resolution of the issue, I do not consider that the PAs fourth reason for refusal should remain.

Conclusion

- 7.19.5. Having regard to the foregoing, I am not satisfied that sufficient information has been provided in respect of risk to air traffic safety but is otherwise acceptable in terms of likely effects on material assets.

Traffic and Transport

Issues Raised

7.19.6. In their decision to refuse permission for the development, the PA and TII raise concerns regarding issues in respect of traffic and transport. These are referenced below but are addressed in the Planning Assessment of this report.

Examination, analysis and evaluation

7.19.7. Chapter 14 of the EIAR addresses traffic and transport. It is supported by the following Technical Appendices and Figure 14.1.

- Abnormal Indivisible Load Route Survey (Appendix 14.1, Parts 1, 2 and 3).
- Traffic Management Plan (Appendix 14.2).
- Drawings, including Visibility at N59 Site Entrance (Drawing no. 6276-JOD-XX-DR-C-402).

7.19.8. The assessment methodology has regard to relevant legislation and best practice guidelines, desk study and field work. Field work includes survey of the delivery route from Galway Port, existing and predicted traffic flows on the N59 (section 14.3.6).

Baseline

7.19.9. The proposed wind farm is situated on the N59, between Maam Cross and Oughterard. In the vicinity of the site, the N59 consists of a 6m wide two lane carriageway with road markings and signage. The development will be connected to Screebe substation via underground connection along the N59, R336 and R340 (Figure 2.10). Turbine parts will be moved to the site from Galway Port via the R337 (Galway city), R336 and N59. It will pass through the villages of Spiddal and Maam Cross. Figure 2.4 indicates the proposed haul route and locations where works are required on third party lands. As stated in the Planning Assessment, the Abnormal Indivisible Load Route Survey (Appendix 14.1) indicates a number of locations where third party lands are required. These include, but are not limited, to the locations shown in Figure 2.4, Proposed Haul Route. (Table 14.4 of the EIAR refers to works locations which are also more extensive than the four locations indicated in Figure 2.4, which I assume correspond to the wider locations where works are required in Appendix 14.1). The reasons for inclusion/exclusion are unclear.

However, the haul route does not form part of the planning application but is included for the purpose of enabling a full assessment of the development as a whole under EIA and AA. Further, I draw the Board's attention to the Route Survey drawings, which incorrectly show the entrance to the proposed wind farm (Abnormal Load Route Survey, Appendix 14.1, Part 3, Proposed Site Access).

7.19.10. The EIAR states that quarries in the N59/R336 corridor will be used to supply concrete and aggregates during construction. The location of these quarries are shown in Figure 14.1. However, I draw the Board's attention to the location of these quarries which extend beyond the stated N59/R336 corridor. Access to the wind farm site will be by way of upgrading of the existing farm access, and will provide a simple priority T junction on the N59 with the junction widened to accommodate the swept path of abnormal loads and 215m visibility splays stated to be provided in each direction.

7.19.11. Sensitive receptors in the area of the site include other road users and land uses situated alongside the public road (see Table 14.5). Existing traffic flows on the N59 in the area of the site are shown in Table 14.8 and predicted future traffic flows in Table 14.9, with reserve capacity indicated in both instances in 2024/25, when construction is likely to commence.

7.19.12. Data for existing flows is taken for the TII traffic counter located east of Maam Cross near the entrance to the wind farm site. I note that data is for May and is not representative of flows in the summer peak season. Flows range from a low of 162 total traffic between 19.00 and 20.00 and an am peak of 249 at 11am and a pm peak of 300 at 5pm. HGV traffic ranges from 4 to 17 vehicles/hour.

Potential Effects

7.19.13. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These arise from predicted traffic movements during different phases of the development:

- Construction (scheduled to take place over 10 months). Heavy goods vehicles (HGV's) delivering construction materials to and from site, abnormal load vehicles (including extendable semi-trailers and or blade lifter vehicles – Plates 14.1 and 14.2) transporting turbine components from Galway Port to site, HGV's removing excess unsuitable material from site (largely to the peat

storage area), HGV's and plant involved with grid connection works on the public road network, HGV's and plant involved with alterations to existing junctions to facilitate the movement of abnormal load vehicles and construction operatives visiting the site in cars and light goods vehicles.

- Operation. Wind farm traffic will include cars and light goods vehicles involved with site maintenance, servicing and repair.
- Decommissioning. Similar to the construction phase and will consist of HGV's and abnormal load vehicles removing turbine components and electrical installations from site and HGV's importing materials for site landscaping.

7.19.14. Potential effects are summarised in Table TT1 below.

Table TT1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • Not examined in EIAR. However, I note there would reasonably be expected to be no foreseeable significant change in the existing environment.
Construction	<ul style="list-style-type: none"> • Wind farm: The estimated number of HGV and abnormal load deliveries and predicted daily traffic movements are shown in Tables 14.10 and 14.11 respectively. A maximum of 152 HGV trips (304 HGV movements) will be generated at the site entrance (Table 14.11), with an additional 30 LGV (60 traffic movements) a day at the site entrance. Peak movements will occur for six days with the construction of turbine foundations. Outside these times, the EIAR states that construction traffic will consist of 77 HGV trips (158 HGV movements) and 30 LGV (60 traffic movements) at the N59 site entrance. Trips will be distributed throughout the day (Table 14.12 page 22) and not exceed the capacity of the N59 (Table 14.12 page 25). EIAR does not indicate magnitude of effect, except to state short term effects. • Grid connection: To be carried out in a phased manner and to involve traffic management. Effects, due to noise and vibration and increased journey times, are predicted to be short term negative, not significant effects on residents, businesses and road users. • Haul route: Works on the turbine supply route (Appendix 14.1), include hedge trimming, temporary removal of utility poles, laying of load bearing surfaces etc. Effects are predicted to be slight, negative, temporary effect on residents, businesses and road users due to increased noise and vibration resulting from construction activities and increased journey times and delays due to temporary traffic management. • Air quality: Increase in traffic movements will average c.250 two way trips/day over short term and is predicted to have an imperceptible impact on air quality. • Noise and vibration: Due to the relatively low number of trips generated per day in relation to existing traffic volumes on the national and regional road network, the restrictions on working hours and the short-term nature of the construction phase, the effects are not predicted to be significant.

	<ul style="list-style-type: none"> • Pedestrians and vulnerable road users: Alterations to public road network to be carried out under road opening licence and traffic management plan and to include for pedestrian movements. Effects will be short term and not significant. • Driver delay: On public road network, with HGV turning movements and traffic management (site access, haul route enabling works, grid connection), potential for driver delay arises. Traffic analysis carried out indicates likely delay of 25 seconds at temporary traffic lights on N59. Junctions at wind farm entrance and peat storage to operate within capacity (Table 14.13). Abnormal loads will be carried out under permit and outside of peak times. Not considered to be significant. • Severance: No significant effects, turbine delivery and construction haul route to wind farm will use existing national and regional road network. • Mud and debris: Potential nuisance to road users or damage to vehicles, predicted to be direct, negative, minor and short term during construction.
Operation	<ul style="list-style-type: none"> • Wind farm: Will be unmanned but with regular maintenance/inspections with one/two visits week (cars/light vehicles). Traffic during operation is estimated to be similar to baseline and imperceptible. • Should replacement of turbine/parts be necessary, effects will be similar to construction with reduced magnitude.
Decommissioning	<ul style="list-style-type: none"> • Removal: HGV volume will be relatively small compared to construction phase (e.g. with foundations, hard stands to remain in situ, landscaped and allowed to revegetate). Only substation building and electrical equipment to be removed and recycled. If site access tracks and hardstands to be dug up and materials transported off site, impacts would be similar to construction, with slight, negative and short term effects. • Mud and debris: Potential nuisance to road users or damage to vehicles, predicted to be direct, negative, minor and short term. • Grid connection: To remain in place. No impacts.
Cumulative	<ul style="list-style-type: none"> • No relevant consented developments within 10km of wind farm site and no potential for significant cumulative effects (construction and decommissioning).

Mitigation

7.19.15. Mitigation measures in respect of construction phase of the development include implementation of the Traffic Management Plan (Appendix 14.2, EIAR), appropriate Road Opening Licences, active management of delivery of abnormal loads in consultation with An Garda Síochána and Galway County Council and to avoid peak times, wheel cleaning equipment in proximity to the public road (site access), standard practices to reduce dust, appropriate signage, reinstatement of public road. The EIAR also states that monitoring during construction will ensure that any damage to the public road is repaired as soon as practicable.

Residual Effects

7.20. With the implementation of mitigation measures, the EIAR predicts the potential for negative, slight/moderate, direct and short term effects during construction and decommissioning only, and a slight positive residual effect from road strengthening, widening and surfacing works along the haul route if GCC require the works to be left *in situ* post construction. During operation, effects will be imperceptible due to the low vehicle trips required. If replacement turbines are required, effects will be similar to construction (but reduced in magnitude).

Direct and Indirect Significant Effects

- 7.20.1. I have examined, analysed and evaluated Chapter 14 of the EIAR, all of the associated documentation and submissions on file in respect of traffic and transport. I am satisfied that the applicant has identified the direct and indirect effects of the proposed development on the proposed development i.e. an increase in traffic (including HGV and abnormal loads) during construction and to a lesser extent decommissioning, an increase in waiting time (road works, traffic management, HGV turning movements), noise and vibration at construction sites and offsite works along the haul route. Predicted traffic movements are clearly set out in the Traffic and Transport Chapter and associated appendix, are substantiated and are not unreasonable.
- 7.20.2. Notwithstanding this, I would have concerns that the baseline data for assessment (i.e. existing flows) lies outside of the peak tourist season and there is no data on how flows change over this period. Further, in contrast to the applicant, I would consider the short term effects on the national and regional public road network to be moderate to significant, given the substantial increase in HGV traffic on these roads during construction e.g. with the number and proportion of HGVs on the N59 during construction increasing by more than 30%, and the threshold above which the IEMA considers to be potentially significant (Table 14.12, page 25 and section 14.2.8, Chapter 14). Whilst I accept that this is a standard to assess potential effects of major developments on the road network during operation and is not for short term construction and decommissioning phases, I consider that it is indicative of the potential for significant short term effects on the national road and underlies the requirement for a Road Safety Audit for the construction phase, in advance of any permission. I also note that planning application refers to the upgrading of the

entrance to the spoil storage area (Appendix 14.2) but provides no details on proposed works and these should be required before any permission is granted.

Intensification of use of an existing access

7.20.3. During construction the proposed development would intensify the use of the existing access roads to the site and peat restoration area from the N59. Whilst these impacts are likely to be significant, effects will be limited to a short term period of c.10 months (estimated construction phase) and thereafter very modest. I do not consider therefore that they would give rise to significant effects on the transport function of national roads. The consequences for the policy implications of this conclusion are considered in the Planning Assessment of this report and I recommend that if the Board were minded to grant permission, a Road Safety Audit be carried out in advance of any development, to the satisfaction of the PA and to ensure the safe operation of the road.

Adequacy of site entrance/access road

7.20.4. The PA raise concerns regarding the adequacy of sightlines at the entrance to the site, the proposed access road alignment (horizontal and vertical), line marking and proposed pavement finishes.

7.20.5. The applicant proposes 215m sightlines in each direction at the entrance to the wind farm site. These are indicated in drawings reproduced in Appendix C of the appeal, Site Layout Plan, Sheet 1 of 15 and Drawing 6276-JOD-TWF-XX-DR-C-402 Visibility at N59 site entrance. Access track construction details are shown in drawing no. 6276-JOD-TWF-XX-DR-C-401 'Access Track Construction Details' and include pavement finish. In the appeal document, the applicant restates that the access to the wind farm site will be by simple priority junction (stop controlled with priority to N59 traffic), with the junction signposted in accordance with Chapter 8 of the Traffic Signs Manual during construction of the wind farm.

7.20.6. As stated in my description of the site, sightlines to the east are limited by a ridge in the National road. In the drawings submitted, where the vertical elevation of the public road to the east of the site entrance is indicated (Drawing 6276-JOD-TWF-XX-DR-C-402), the applicant has not demonstrated the extent of the ridge, its effect on the proposed 215m sightline and any requirement for/detailed design in respect of

the realignment of the National Road. This is a significant matter and would require resolution in advance of any permission.

Conclusion

- 7.20.7. Having regard to the foregoing, I am not satisfied that sufficient information has been provided in respect of baseline data for assessment, road safety in terms of provision of a Road Safety Audit, detailed design of upgrade to spoil storage area and details to demonstrate adequacy of sightlines at the entrance to the wind farm site.

Cultural Heritage

Issues Raised

7.20.8. No concerns are raised by parties to the appeal in respect of cultural heritage.

Examination, analysis and evaluation

7.20.9. Chapter 13 of the EIAR deals with cultural heritage. It is supported by :

- Appendix 13.1 - Cultural heritage plates.
- Figure Booklet, Chapter 13 - Figures 13.1 to 13.12.

7.20.10. I have examined the chapter and the associated appendices. It focuses on tangible and intangible aspects of cultural heritage and includes archaeology and architectural heritage. The assessment methodology adopted includes:

- Definition of study area for all aspects of the development, 2km in all directions from red line boundary (10km for National and International monuments), 100m area centred on grid connection route and works areas to facilitate delivery of turbines, Figures 13.1 - 13.12.
- Desk and field survey to identify all recorded and potential cultural heritage resources within the study area, and
- Relevant guidance and legislation.

7.20.11. The report cross references to the landscape and visual assessment which considers the significance of visual impacts on publicly accessible cultural heritage receptors within 20km.

Baseline

7.20.12. The EIAR describes the baseline environment of the wind farm site by reference to desk resources and field survey, with recorded archaeological monuments and designated architectural structures within 2km of the site and spoil/enhancement areas shown in Figure 13.1 and 13.7, LiDAR imagery of the wind farm site in Figure 13.6, cultural heritage assets within 100m of the proposed grid connection route in Figure 13.9 and Table 13.8 and cultural heritage assets in proximity to the haul route in Figure 13.11 and Table 13.9.

Potential Effects

7.20.13. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table CH1 below.

Table CH1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> Not examined in EIAR. However, I note there would reasonably be expected to be no foreseeable significant change in the existing environment.
Construction	<ul style="list-style-type: none"> Wind farm site: No direct impacts on known archaeological monuments within redline boundary or wider landscape. The use of an existing track, close to G053-002, levelled bridge structure, will involve no works to former location of structure. No designated architectural heritage structures within development site and no undesignated features of cultural heritage interest at the proposed construction site. No predicted direct impacts on known cultural heritage resource. Potential for direct, negative, permanent effects on unrecorded, sub-surface archaeology, within footprint of construction areas. No indirect effects on recorded archaeological monuments as all are removed from the wind turbines (>1.53km). Potential for low magnitude, short term, indirect, slight impact on environs of Maam Cross Railway station (NIAH 30403902) during construction (spoil storage area). Grid connection: Route crosses two masonry road bridges, designated PS 3959 and 3359, and Kockadav Bridge (of local architectural heritage significance) but HDD drilling under watercourses and will avoid direct/indirect effects. No works at three recorded archaeological sites within 100m of northern end of route (GA053-004; -005, -002) as grid connection is within existing roads and tracks. No or indirect direct effects. No significant impact on Galway Gaeltacht (southern end of route extends to Gaeltacht, temporary influx of workers). Haul route: No constraints within environs of proposed works areas (including constraints at Joyce's roundabout, Galway City). No direct or indirect effects.
Operation	<ul style="list-style-type: none"> Wind farm: No predicted direct effects on known cultural heritage resources. Slight to moderate, indirect, long term negative impact on setting of known cultural heritage assets within surrounding landscape, including National Monuments (Table 13.11), given distance, inaccessible nature of National Monuments to public, and assessment of visual effects (in Landscape section of EIAR and this report). Grid connection: Buried cable within roads and tracks, no predicted direct or indirect impacts. Haul route: Use of same haul route if turbines require replacement, and no potential therefore for direct or indirect impacts.
Decommissioning	<ul style="list-style-type: none"> Reversal of indirect negative effects on setting of archaeological monuments in the wider landscape.
Cumulative	<ul style="list-style-type: none"> No predicted effects with wind farm developments within 25km of the site, as no significant direct or indirect effects predicted in EIAR for these wind farms (Table 13.12), no sub-surface remains found in archaeological monitoring carried out and absence of predicted effects of subject development on archaeological monuments within 10k of the development. No likely significant cumulative effects.

Mitigation

7.20.14. Mitigation measures in respect of the proposed development include archaeological monitoring of ground works during construction, under licence from the National Monuments Service, with appropriate mitigation measures in conjunction with the NMS. Any signage in the Galway Gaeltacht area, during construction of the southern section of the haul route, will include Irish and English text.

Residual Effects

7.21. With the implementation of mitigation measures, the EIAR identifies the potential for slight/moderate significant direct environmental effects on unrecorded archaeology and long term, slight to moderate, indirect negative impacts of a visual nature on the wider setting of archaeological sites within the surrounding landscape, which will be reversed with decommissioning.

Direct and Indirect Significant Effects

7.21.1. I have examined, analysed and evaluated Chapter 13 of the EIAR. Having regard to the comprehensive approach taken to the assessment of likely effects, the location of the footprint of the development outside of location of known cultural heritage resources and/or construction methodology which avoids these resources (e.g. HDD drilling at bridges) and proposed archaeological monitoring of construction, I am satisfied that the proposed development will not give rise to significant direct or indirect effects on cultural heritage. However, as stated in the EIAR the development will give rise to a long term, slight to moderate indirect negative impacts of a visual nature on the wider setting of archaeological sites within the surrounding landscape. Given the distance of the proposed development to other wind farm development in the area of the site, I am satisfied that these effects will be confined to the area of the site and not give rise to cumulative effects on cultural heritage.

Conclusion

7.21.2. I have considered all of the written submissions made in relation to water and the relevant contents of the file including the EIAR. Subject to the satisfactory implementation of proposed mitigation measures (archaeological pre-development

testing), I am satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on the cultural heritage.

Landscape

7.21.3. Issues Raised

7.21.4. The PA in their second reason for refusal and submissions by Failte Ireland and third parties on the planning application raise concerns with regard to the likely significant landscape and visual effects of the proposed development and the adequacy of the EIAR in respect of these effects.

Examination, analysis and evaluation

7.21.5. Chapter 11 of the EIAR deals with landscape and visual amenity. It is supported by:

- Figures 11.1 to 11.16,
- Appendix 11.1, Visual Receptor Sensitivity and Magnitude of Visual Impacts at Representative Viewpoint Locations, and
- Visual Impact Assessment, Photomontages, Parts 1 to 5.

7.21.6. I have examined this chapter and the associated figures and appendices. It focuses on the likely effects of the development on landscape character and the effects of it on views and the general visual amenity of the area, as experienced by people. The assessment methodology has regard to government and industry guidelines and is based on field and desk survey. Consistent with the Wind Energy Guidelines (2006/2019), a zone of theoretical visibility of 20km is identified (blade tip >100m) and a Central Study Area of 5km (higher potential for significant effects). Landscape value and sensitivity is defined in Table 11.1, Magnitude of landscape impacts in Table 11.2 and Landscape impact significance matrix in Table 11.3. Visual sensitivity is defined as a function of receptor sensitivity (section 11.2.6.1) versus magnitude of visual effects (Table 11.4). Significance of visual impact is also indicated in Table 11.3. Consistent with government guidelines, cumulative impact assessment is principally focused on other wind farms, and magnitude of effect (very high to negligible) is defined in Table 11.5.

Baseline

7.21.7. The EIAR describes the baseline environment of the wind farm site. The study area for the proposed development is described as a series of four distinct quadrants centred around the cross-roads settlement of Maam Cross (Figure 11.14), with:

- The northeastern quadrant characterised by large loughs (Lough Mask and Lough Corrib) backed by upland areas to the west and gently undulating farmland and peat bogs to the east.
- The north-western quadrant dominated by the Maumturk Mountains and Twelve Bens, interspersed with farmed valleys and narrow loughs.
- The southwestern quarter of the Study Area by a coastal bog, marginal farmland, small loughs and intricate inlets and islands of the Connemara coastline.
- The south-eastern quadrant by a broad undulating area of hill country with numerous loughs and rivers that drain towards the northern coast of Galway Bay and which includes Galway Wind Park, with numerous wind turbines.

7.21.8. The landscape context is considered to be a relatively complex landscape setting, most consistent with the 'Transitional Marginal Landscape' type from the government's Wind Energy Development Guidelines (2006). However, the EIAR acknowledges that the wider landscape includes a mix of landscape types including, 'Mountain Moorland', 'Hilly and Flat Farmland' and 'Flat Peatland'.

7.21.9. Within the context of the Galway CDP, the site is situated within the West Galway landscape region (essentially the area of the County located west of Headford/Galway/the eastern extent of Lough Corrib). Within this, two landscape character areas are considered to be relevant to the subject development, Upland Bog Landscape, in which the site is situated, and Lake Environs Landscape, which the site borders (Figure 11.4) and within these, two sub-units, or Landscape Character Units (LCU), the West Connemara Unit in which the site lies and Upper Corrib Environs Unit, which lies to the north of the site (Figure 11.4 and 11.5 EIAR). (Additional Landscape Character Units in the wider area are set out in Table 11.6).

7.21.10. In terms of landscape sensitivity, the site lies an area of Special landscape sensitivity (high sensitivity to change), and to the south and west of areas of Iconic sensitivity (unique Landscape with high sensitivity to change), the second highest and highest categories of sensitivity, respectively (Figure 11.6). The EIAR identifies the following scenic routes as particularly relevant to the proposed development (Figure 11.8):

- Maritime Scenic Route,

- Lough Corrib Scenic Route, and
- Galway Clifden, Sraith Salach Letterfrack & Maum Valley Scenic Route.

These routes are described together because they provide alternative routes through the same large area/distinctive landscape).

7.21.11. Protected views in the zone of influence of the development are set out in Table 11.7 and Figure 11.9 and are directed away from the immediate area of the site.

7.21.12. With regard to the LARES, the EIAR states in section 11.3.5.5. the development is proposed in an area considered 'not normally permissible' for wind energy development. In accordance with the strategy document, the landscape and visual impact assessment therefore has regard to the constraints and challenges set out in sections 5 and 9 of the document for proposed developments situated outside of areas identified as Strategic Areas of Acceptable in Principle.

7.21.13. The proposed development is situated >10km from County Mayo, with the development potentially visible from the scenic route lining Lough Mask, identified in Figure 11.11 and Figure 11.12, in County Mayo. Centres of population in the study area are Oughterard, Cong, Maam Cross and other smaller settlements and clusters of residential development throughout the Study Area.

7.21.14. The principle transport route passing through the area is the N59, c.1.5km to the south of the site, and regional roads linking settlements in the area, in particular around Lough Corrib. Tourism, recreational and heritage features are indicated in section 11.3.7.5 of the EIAR and include visitor attractions e.g. the Quiet Man Bridge between Lough Boffin and Lough Agraffard, Screebe Fisherman's Hut, the Wild Atlantic Way, walking routes, settlements around Lough Corrib and the elevated and dramatic topography of the Twelve Bens and Maumturk Mountains.

7.21.15. Viewshed Reference Points 1 to 29 are identified in Table 11.9 and in Figures 11.15 and 11.16. These are considered to be viewpoints which are representative of the likely views of the development for different receptor types. Existing/permitted wind farms in the zone of influence of the project are set out in Table 11.11 and these comprise sites to the south east in the area of Galway Wind Farm (see Figure 11.16).

Potential Effects

7.21.16. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table LV1 below.

Table LV1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> Landscape and visual effects likely remain in the same or similar condition (no significant developments proposed).
Construction	<ul style="list-style-type: none"> Landscape: Modest physical impact on landscape within the site due to its small footprint, limited land disturbance/vegetation clearance, excavations to tie into existing ground levels, location of internal access tracks to avoid environmental constraints, internal site cabling to follow access tracks, road layout follows natural contours to minimise cut and fill, minor levelling of site for 38kV substation, heavily screened by surrounding terrain, location of grid connection route in private lands/public roads and temporary short term duration of works. Temporary/short term, not significant construction stage effects on landscape character generated by the intensity of construction activities (workers and heavy machinery), bare ground and stockpiling of materials. Installation of grid connection will result in minor and localised construction stage landscape effects. Overall, construction stage landscape effects are considered to be Medium magnitude.
Operation	<ul style="list-style-type: none"> Landscape – Introduction of tall structures and moving components to local landscape with change in character of the immediate area but not the wider area (with 67 wind turbines established in the area of Galway wind park). In terms of scale and function, the development will assimilate well within the landscape of the Central Study Area due to broad scale of the landform, landscape elements and land use patterns. Landscape impacts are deemed to be High-medium within the site and its immediate environs (c.1km) reducing to Medium for the remainder of the central Study Area. Beyond 5km magnitude of landscape impact reduces to Low and Negligible. Significant effects on Landscape Character Units, outside the Central Study Area varies from Slight to Moderate-Slight (Table 11.12). Visual effects – The EIAR refers to the visual impact assessment at each of the 29 selected representative viewpoints (Appendix 11.1) and provides a summary of the visual impact of the development at these viewpoints (Table 11.13). Impacts range from Slight to Moderate, with greatest effects at VP10 and VP23 (Substantial - Moderate) and at VP2, VP11, VP12, VP17 to VP22, VP24 (all Moderate).
Decommissioning	<ul style="list-style-type: none"> Landscape - Some temporary effects, similar to construction, with movement of large turbines away from site, minor loss of vegetation (to be reinstated). In the long term landscape impacts will be reversible with limited evidence of its existence on the site within 2 to 3 years of decommissioning (with retention only of foundations, hardstandings and on site substation). Decommissioning stage effects are not considered to be significant.
Cumulative	<ul style="list-style-type: none"> Landscape: EIAR states that the effect of the development will be one of intensification and extension of established land use (67 turbines in the wider landscape at Galway Wind Park). However, cumulative impact is considered to be low and not significant due to favourable views of distant turbines, similar landscape context to existing wind farm development.

7.21.17. Mitigation measures in respect of the landscape and visual effects comprise the iterative design process associated with the development, which are embedded in the assessed project. No further mitigation measures are proposed.

Residual Effects

7.22. With the implementation of mitigation measures, the EIAR identifies no potential for significant environmental effects.

Direct and Indirect Significant Effects

7.22.1. I have examined, analysed and evaluated Chapter 11 of the EIAR, all of the associated documentation and submissions on file in respect of landscape and visual effects. I have inspected the application site, the surrounding area, each of the viewpoints referred to in the Tullaghmore Visual Impact Assessment (Appendix 11 and associated Photomontages.) and the associated photomontages. I have also had regard to landscape character and sensitivity as set out in the policy framework in the Galway and Mayo County Development Plans and the sensitive receptors identified in these. Having regard to this I have the following concerns with the assessment:

- Landscape effects. The significance of potential landscape effects of the development are set out in Table 11.12, with Moderate effects for the central study area (<5km from the site) and Slight to Moderate-Slight for the wider landscape units. Significance of effects (Table 11.3) is determined by a balance between sensitivity of the landscape (Table 11.1) and magnitude of impact (Table 11.2). 'Significant' impacts, in terms of EIA, are considered to arise for 'substantial' effects and above and, therefore, no significant effects are predicted.

As indicated by the applicant in response to the appeal and as set out in Table 11.12, the central study area is deemed to have Medium sensitivity, despite its location in Class 3 'Special' Landscape with high sensitivity to change. (The North East Lakelands, is also assigned a High/Medium sensitivity, and is identified as an Iconic Landscape of High sensitivity to change in the CDP).

The appellant argues that the appeal site lies at the fulcrum of four landscape types (Figure 11.14), is more appropriately described as a transitional landscape (at the end of a long forested ridge system that links back towards Galway Wind

Park), and is unfairly pulled into the same policy context as the more discrete Connemara Bog and Coastal Bog landscape context. On page 27 of the appeal, the applicant also argues that the landscape sensitivity should be moderated from one which is 'high' as defined in the CDP, to one which is 'medium', employing a more universal categorisation system that can be used throughout the country.

Whilst I would accept that the appeal site sits at a location where there is a transition between areas of quite different landscape character, I do not accept the appellant's assertion that the landscape character can be moderated to one of Medium sensitivity. From my inspection of the site and surrounding area, including the Galway Wind Park, it is evident that the site provides a gateway to and forms part of the landscape context for the iconic landscapes to the north west and north east of the site. Due to the scale of the proposed turbines, the landscape effects of the development will extend significantly beyond the site into areas of greater sensitivity. The Galway Wind Park is significantly removed from the site. The Wind Park lies in a demonstrably different upland landscape which is dominated by forestry and does relatively little to inform the landscape context for the subject development. I would therefore not accept the appellant's assertion that the landscape effect of the development '*one of intensification and extension of an established land use in this landscape and not the introduction of a new and unfamiliar feature*'.

In view of the foregoing and having regard importance given to landscape character in Chapter 8, Tourism and Landscape, of the CDP '*landscapes and seascapes ...are one of the county's most important assets*', I am not confident that the applicant's moderation of landscape sensitivity is appropriate and I consider that the landscape effects of the development, have been underestimated and that significant adverse direct and indirect landscape effects will arise in respect of tourism (downgrading of landscape).

- With regard to visual effects, the development will be most pronounced on approaching the site from the west (Galway Clifden Scenic Route) and north west (Maam Valley Scenic Route), when passing it (Lough Corrib and Galway Clifden Scenic Routes), as depicted in VP16, 17, VP10, and VP 19 and 20 and to a lesser extent when approach from the east (VP22). It will also visible and

dominant from the local road to the west of the site (VP18) and introduce turbines to views from Quiet Man Bridge (VP23). Significant effects are predicted only for VP10 and VP 23 (Table 11.13), from Maam Valley Scenic Route and from Quiet Man Bridge, based on the criteria set out in Table 11.3 and are a function of visual receptor sensitivity and visual impact magnitude.

Again I am concerned that significance of effect is underestimated. This is due to the assessment in the VIA, that the visual impact magnitude for the above VPs is largely determined to be 'Medium'. In contrast, I consider that the proposed development will introduce substantial structures to the views (e.g. VP16, 17, 18, 19, 20), which cannot be considered as a 'moderate intrusion' and is more akin to the 'High' magnitude of impact set out in the Table 11.4.

Medium magnitude of visual impact. *'The proposal represents a moderate intrusion into the available vista and is a readily noticeable element. A noticeable degree of visual change will occur within the scene perceptibly altering its character, composition and associated visual amenity'.*

High magnitude of visual impact. *'The proposal obstructs or intrudes into a significant proportion or important part of the available vista and is one of the most noticeable elements. A considerable degree of visual change will occur within the scene substantially altering its character, composition and associated visual amenity.*

- In addition, as discussed above, the proposed development will extend the visual presence of wind turbines into Iconic and Special landscapes, in particular to the north and west of the site (VP1 to VP9), with visibility from associated designated scenic routes. Whilst the existing Galway wind park is visible in some of the views from the north (e.g. VP8), these more distant turbines appear as modest structures along the horizon. In contrast, the proposed development inserts large vertical structures into the natural landscape e.g. VP1, 2, 4, 5, 7, 9 and 29. In some views the proposed turbines will compete, in terms of height, with the mountainous context, potentially diminishing the scale of features the natural environment (e.g. VP9). The VIA predicts that the visual effects will range from Slight to Moderate (Table 11.13), with Magnitude of Visual Impact typically Low (Low - *'proposal intrudes to a minor extent ..would not have a marked effect on*

the visual amenity of the scene, Table 11.4) or Medium to Low for the above VPs. Again, having regard to the effect of the development on these views, I am not satisfied that the EIAR has adequately identified the magnitude of effects or resultant visual impacts. Further, in contrast to the conclusions of the EIAR, I consider that if permitted significant visual effects would arise and seriously detract from the amenity of scenic routes and protected views in the area of the site, with indirect effects on tourism (downgrading of visual amenity) .

Conclusion

7.22.2. Having regard to the foregoing, I am not satisfied that the EIAR adequately identifies and describes the likely landscape and visual effects of the proposed development and I consider that significant direct effects will arise in respect of landscape character and visual amenity, in respect of the area in which the wind farm is proposed (Special Landscape) and in the wider area of Iconic sensitivity and will detract from the amenity of designated scenic routes (Maum Valley Scenic Route, Galway Clifden Scenic Route, Lough Corrib Scenic Route) and viewpoints in the area of the site (e.g. the Quiet Man Bridge). Further, indirect and significant effects are likely, therefore, to arise on the tourism asset associated with landscape quality. The policy implications of this conclusion are considered in the Planning Assessment of this report.

7.22.3. **Conclusion: Material Assets, Cultural Heritage and Landscape**

7.22.4. I have considered all of the written submissions made in relation to material assets, cultural heritage and landscape, and the contents of the EIAR and associated documentation. For the reasons stated:

a. I am satisfied that the proposed development, subject to the satisfactory implementation of proposed mitigation measures, would not have any unacceptable direct, indirect or cumulative impacts on the material assets or cultural heritage.

b. I am not satisfied that the proposed development would not give rise to significant impacts on air traffic safety or road traffic safety by reason of insufficient information in respect of impact on Air Corps Low Flying Training Area, baseline data or road traffic, provision of Road Safety Audit (construction phase) and adequate information in respect of provision of sightlines and entrance to spoil storage area.

c. I consider that the landscape and visual effects of the development have been underestimated and that it will have an adverse significant direct effect on the Class 3 landscape in which it is situated, and the adjoining Class 4 landscape and will detract from the amenity of associated Scenic Routes and protected views in the area of the site and the tourism asset associated with landscape quality.

7.22.5. **Interactions**

Issues Raised

7.22.6. In their decision to refuse permission for the development, the PA cite, in reason no. 6, that the EIAR is insufficient in respect of the information provided on the interactions between biodiversity, transport, material assets and the landscape. The Planning Report does not expand on these concerns.

Examination, analysis and evaluation

7.22.7. Chapter 16 of the EIAR deals with interactions. I have examined this Chapter of the EIAR in the context of my technical assessment, above. The EIAR states that where any potential negative impacts have been identified during the assessment process, these impacts have been avoided by embedded design mitigation or at a minimum reduced by proposed mitigation measures (summarised in Appendix 16.1 Summary of Mitigation Measures, Appendix 2.1, CEMP and Appendix 6.5 Habitat Management Plan). Table 16.1 presents an outline of potential interactions for all phases of the development, and it is stated that these have been addressed in individual topic sections of the EIAR.

7.22.8. I note that the Table excludes some interactions e.g. the potential for effects of air quality and climate on population and human health or the potential for operational impacts on biodiversity during operation. However, these omissions are addressed in Table 16.2 and in the relevant section of the EIAR and in this report.

Potential Effects

7.22.9. The EIAR identifies no potential for significant environmental effects arising from the interaction of impacts, which have not already been addressed in the EIAR.

Direct and Indirect Significant Effects

7.22.10. I have examined, analysed and evaluated Chapter 16 of the EIAR, all of the associated documentation and submissions on file in respect of interactions. I am satisfied that the applicant has identified the key interactions between environmental factors. However, having regard to my assessment of the individual topic sections of the EIAR, I am not satisfied that the EIAR identifies has adequately identified the significance of environmental effects arising the interaction of different environmental

parameters e.g. population and human health and traffic safety, landscape and tourism, peat stability and biodiversity.

7.22.11. **Vulnerability to Risk of Major Accidents and/or Natural Disasters**

Issues Raised

7.22.12. No issues are raised by parties to the appeal in respect of risk of major accidents or natural disasters.

Examination, analysis and evaluation

7.22.13. Chapter 1, section 1.6.2.3 deals with the risk of major accidents and/or natural disasters. I have examined this Chapter of the EIAR. It is stated that the development is not a recognised source of chemical pollution and is not regulated under the COMAH Regulations and is removed from any SEVESO site (c.35km). Ireland is a geologically stable with a mild temperate climate. Consequently, the risk of natural disasters is considered to be peat-slide, flooding and fire.

Potential Effects

7.22.14. Potential direct, indirect and cumulative effects of the development are identified in the EIAR, for the different phases of the development. These are summarised in Table RISK 1 below.

Table RISK 1: Summary of Potential Effects

Project Phase	Potential Effects
Do Nothing	<ul style="list-style-type: none"> • No change.
Construction/Operation and Decommissioning	<ul style="list-style-type: none"> • Risk of major accidents – No potential effects identified due to nature of development and distance from Seveso sites. • Peat slide – Peat Stability Risk Assessment identified a low potential for slope failure. • Flooding – Closest mapped flood event occurred c.290m to the west of the southern boundary of the EIAR, along the N59, down gradient of the site, where the road is liable to flood after heavy rain (low lying area). Development will not exacerbate this as there is no direct pathway between the site and flood location. With the proposed implementation of mitigation measures to manage surface water on site, mimic natural flows and manage discharges to water bodies, no significant risk of flooding is identified. • Fire – Published data indicates that risk of wind turbines catching fire is relatively low. Risk of significant environmental effects from such an event are therefore considered to be limited (no significant sources of pollution in the wind farm, spacing of turbines and distance to properties/infrastructure).

Direct and Indirect Significant Effects

7.22.15. I have examined, analysed and evaluated Chapter 1 of the EIAR, all of the associated documentation and submissions on file in respect of risk of major accidents and/or natural disaster. Having regard to the nature and location of the development in a remote rural area, removed from centres of population, and to the technical information on file, I am generally satisfied that there are no significant adverse effects on the environment deriving from its vulnerability to major accidents or to natural disasters. However, having regard to my comments in respect of the peat stability assessment, location of floating roads and absence of assessment of likely effects of climate change on rainfall data, I am not satisfied that the vulnerability of the development to peat instability has been adequately addressed.

7.22.16. **Reasoned Conclusion**

7.22.17. Having regard to the examination of environmental information contained above, and in particular to the EIAR and supplementary information provided by the developer, and the report and decision of the planning authority, submissions by prescribed bodies and third parties 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:

- Population and human health – Significant indirect and in-combination effects on people living in the area of the site arising from direct, significant and adverse effects of the development on landscape, and associated with this tourism, and the potential for significant adverse direct effects on traffic and transport.
- Biodiversity (including ornithology) – The loss of c.13ha of Annex I habitat, which cannot be justified in the context of other significant issues raised the assessment, and the potential for significant effects on White-tailed eagle, collision risk and cumulative effects on avifauna.
- Land, Soils, Water, Air and Climate: The potential for peat failure in the absence of further information on the efficacy of proposed mitigation measures to address the location of floating roads in areas at greater risk and the absence of assessment of climate change on rainfall patterns and peat stability.
- Material Assets, Cultural Heritage and the Landscape: The potential for significant effects on public safety, landscape and visual amenity by reason of:
 - (a) insufficient information in respect of baseline data on existing traffic flows, improvements to access to peat stability area, sightlines at the entrance to the wind farm site, provision of Roads Safety Audit (construction) and in respect of the impact of the development on the Air Corps Low Flying Training Area,
 - (b) significant landscape and visual effects of the development, having regard to the scale and form of the development and its location in a Class 3 Special

Landscape of High Sensitivity and proximity to a Class 4 Iconic Landscape, and on associated Scenic Routes and protected views.

7.22.18. Having regard to the foregoing, I consider that the EIAR has not provided a sufficient level of information in relation to the assessment of impacts on population and human health, biodiversity, ornithology, peat stability, traffic and transport, the landscape and interactions between these factors.

7.23. Appropriate Assessment

7.23.1. Appropriate Assessment – Screening

7.23.2. The requirements of Article 6(3) as related to the screening the need for appropriate assessment of a project under Part XAB, section 177U of the PDA 2000 (as amended) are fully considered in this section.

7.23.3. The applicant has submitted a Screening Report in support of Appropriate Assessment 'Tullaghmore Wind Farm, Screening Report for Appropriate Assessment'. It has been prepared in line with current best practice guidance and provides a description of the proposed development and identifies European sites within a possible zone of influence of the development and the likely significant effects of the development. It concludes that having regard to a source-pathway-receiver model there is potential for significant effects on eight European sites Connemara Bog Complex SAC, Maumturk Mountains SAC, Lough Corrib SAC, Kilkieran Bay and Islands SAC, Connemara Bog Complex SPA, Lough Corrib SPA, Lough Mask SPA and Lough Carra SPA.

7.23.4. Having reviewed the documents, appeal and submissions on file, I am satisfied that the information in respect of screening allows for a complete examination and identification of any potential significant effects of the development, alone, or in combination with other plans and projects on European sites.

Description of the Development and Development Site

7.23.5. The applicant provides a description of the proposed development in section 2 of the AA Screening Report. It is also summarised in section 2.0 of this report. In brief, the proposed development comprises 6 no. wind turbines (with upgraded site entrance, internal access roads, met mast, on-site substation, drainage network, underground cabling and temporary construction compound), peat storage and restoration area and underground connection to Screebe sub-station. Turbine parts delivered from Galway Port by defined haul route. The development will be constructed in accordance with the Construction and Environmental Management Plan (Appendix 2.1), Habitat Management Plan (Appendix 6.5) and suite of mitigation measures (Appendix 16.1). The CEMP includes a Surface Water Management Plan.

7.23.6. The site of the development is described in section 3.0 of the Screening Report (and in section 4.1 of the revised NIS submitted with the appeal). In summary it comprises:

- Wind farm site: Predominantly blanket bog and wet heath, as indicated with some areas of degraded and/or cutover bog (see Figure 4.1, NIS). The predominant land use is agricultural grazing (sheep and cattle). To the east and south of the wind farm site is the Owenwee River which flows into Tawnaghbeg Lough. Outfall from the Lough is to Lough Corrib to the north of the wind farm site via Owenree River. The wind farm site contains a small number of streams, which comprise the headwaters of the Owenwee and Owenree Rivers, also draining to Lough Corrib.
- Peatland restoration area: Predominantly cutover blanket bog and degraded blanket bog, with smaller areas of lowland blanket bog. The site is divided into two areas, one to the north and one to the south of the disused railway line. Drains from the restoration area, outfall either north into Loughanillaun or Lough Ardderry to the south.
- Grid connection route: Grid connection to be installed along the wind farm access track, formation of the N59, R336 and R340. Horizontal directional drilling will be used at five locations, with the launch and reception pits in the road corridor.
- Haul route: Road widening works are required at four locations (Figure 4.3, NIS). All works to take place outside designated sites with habitats occurring including grassy verge, agricultural grassland, scrub and existing hard surfaces.

7.23.7. The wind farm site, northern part of the peat storage area, part of the grid connection route and haul route lie within the Corrib catchment (WFD catchment 31), with most of the site falling within Joyce's sub catchment (WFD Joyce's_SC_010). A small part of the red line boundary, along the N59 east of the site entrance, extends into Ballycuirke Lough Stream sub catchment (WFD Ballycuirke Lough Stream_SC_010). The southern part of the peat storage area, the majority of the grid connection route and haul route lie within the Galway Bay North catchment (WFD catchment 30) and within the Furnace sub-catchment (WFD Furnace_SC_010). The southern section

of the haul route passes through a number of sub-catchments to Galway City comprising Cashla, Owenriff (South Galway), Owenboliska, Knock (Furbo), Corrib and Carrowmoneash (Oranmore) sub-catchments.

7.23.8. Taking account of the characteristics of the proposed development in terms of its location and the scale of works, the following issues are considered for examination in terms of implications for likely significant effects on European sites.

- Physical disturbance. The northern boundary of the peat storage area overlaps the boundary of the Maumturk Mountains SAC, with blanket bog and wet heath in the overlapping areas and adjoining other sections of the peat storage area. Any inappropriate disposal of spoil material or movement of construction plant and machinery at the edge of the proposed peat storage within the SAC boundary will have the potential to result in physical disturbance and damage to these qualifying habitats of the Maumturk Mountains SAC. Effects are most likely to occur during construction. The red line boundary of the application site also overlaps the boundary of the Connemara Bog Complex SAC in the area of the public road. Direct disturbance is therefore unlikely..
- Hydrological pathways and emissions to surface water. The wind farm site and peat storage are directly connected to the wider water environment. The grid connection route will be constructed in the public road and the haul route will utilise the public road. The public road crosses multiple water courses and surface water runs off the public road onto adjoining habitats. Where these hydrological pathways exist connecting the development site to a European site, the unregulated and uncontrolled discharge of polluted waters (e.g. faster flows, flows contaminated with silt and hydrocarbons), has the potential to impact adversely on water quality, water quality dependent habitats and species and hydromorphology. Potential effects could arise for all phases, construction, operation and decommissioning.
- Noise and vibration. Noise and vibration impacts could arise for all phases of the development with disturbance effects. The Screening Report identifies a zone of up to 300m from the emission source, for negative

impacts on biodiversity (based on the maximum disturbance zone of 300m for wetland bird species and lesser distances for other qualifying species) and 150m for mammal species. No instream or bankside works in or adjoining any SAC (and therefore no impacts on qualifying aquatic species from noise and vibration).

- Emissions to air: During construction and decommissioning, physical works have the potential to create dust, with potential for negative effects on sensitive habitats within 50m from source.
- Light emissions: Potential for negative effects on biodiversity from night time lighting of turbines.
- Visual emissions: The Screening Report identifies the potential for negative effects on certain qualifying features sensitive to visual changes in the landscape and to visual disturbance as a result of new structures e.g. geese and swans (within 600m of wind turbine structures). The Screening Report references a paper by McGuinness et al, 2015, *Bird Sensitivity Mapping for Wind Energy Developments and Associated Infrastructure in the Republic of Ireland* (Guidance Document, Birdwatch Ireland). This document refers to the main impacts of wind energy development on birds:- collision, disturbance displacement, habitat loss or damage and barrier effects. I would infer from this (although it is not entirely clear) that reference here is to collision risk, as disturbance and displacement, habitat loss and barrier effects would appear to be addressed under mobile species pathways. Further, I note that SPAs occurring within the zone of influence of the site are carried forward for detailed assessment, where collision risk, disturbance displacement, habitat loss and barrier effects are all assessed.
- Mobile species pathway: Potential for effects on mobile QIs if such species rely on the habitats within/affected by the development site, for example, from habitat loss, fragmentation or degradation e.g. fish species, otter or bird species. The Screening Report bases connectivity to the development site on published guidelines (Section 5.2 and Table 5.1, Screening Report).

7.23.9. The AA screening report states that infiltration of surface waters to ground is not considered to be high at the proposed development site. This is not unreasonable and is supported by information on soils on the site with a very flashy network of streams/rivers and high surface runoff rates and therefore little discharge to ground.

7.23.10. There is also potential for in-combination effects, should the development be carried out in conjunction with other construction projects or other developments in the area of the site.

Submissions and Observations

7.23.11. In their decision to refuse permission for the development the PA considered that insufficient information had been provided to enable the PA to determine beyond reasonable scientific doubt that the development would not have an adverse effect on Hen Harrier a species of conservation interest of the Lough Corrib SPA or on the qualifying interest species and integrity of the Maumturk Mountains SAC, Lough Corrib SAC and Connemara Complex SAC. Similarly, the DEHLG raised concerns in respect of collision risk modelling for avian receptors (including Hen Harrier), in combination effects and proximity of the peat storage and restoration area to the Maumturk Mountains Special Area of Conservation (SAC).

European Sites

7.23.12. The development site is not located in any European site however the peat storage and restoration area is adjacent to, and the site boundary overlaps slightly with, Maumturk Mountains SAC. Similarly, the wind farm site overlaps the boundary of Connemara Bog Complex SAC. Other European sites lie in the wider area of the site and are within the possible zone of influence of the development (Figure 5.1 and 5.2, Screening Report).

7.23.13. Having regard to the nature of the development, the source pathway receptor approach and data from the NPWS on SACs and SPAs in the area of the site, Table AA1 below identifies the European sites that could be significantly affected by the proposed development.

Table AA1. Assessment of European Sites within a possible zone of influence of the proposed development

European site (code)	QI/SCI	Distance to European site	Connections (SPR)	Considered further
Maumturk Mountains SAC (002008)	<ul style="list-style-type: none"> • Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • Alpine and Boreal heaths [4060] • Blanket bogs (* if active bog) [7130] • Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] • Siliceous rocky slopes with chasmophytic vegetation [8220] • <i>Salmo salar</i> (Salmon) [1106] • <i>Najas flexilis</i> (Slender Naiad) [1833] 	0km	<p>Proximity and emissions to air - There is a minor overlap of sections of the proposed peat storage area boundary and the boundary of the SAC. Therefore the subject site is physically connected to the SAC with potential for direct impacts e.g. damage, and indirect effects by way of dust.</p> <p>Hydrological pathway - The northern side of the peat storage area drains to Loughanillaun within the SAC (oligotrophic waters) with the potential for hydrological impacts on SCIs (e.g. salmon).</p>	Yes
Connemara Bog Complex SAC (002034)	<ul style="list-style-type: none"> • Coastal lagoons [1150] • Reefs [1170] • Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] • Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] • Natural dystrophic lakes and ponds [3160] • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] 	0km	<p>Proximity, emissions to air - There is a minor overlap of red line boundary of the site and the SAC along the along the N59 near the site entrance. The overlap is confined to the public road and no works are proposed on the southern side of the N59. The public road in which the grid connection route will be installed, and which comprises the haul route, runs alongside and within the SAC. There is potential for impacts by way of disturbance/dust from installation of cable</p>	Yes

	<ul style="list-style-type: none"> • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) [6410] • Blanket bogs (* if active bog) [7130] • Transition mires and quaking bogs [7140] • Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] • Alkaline fens [7230] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355] • <i>Najas flexilis</i> (Slender Naiad) [1833] 		<p>and widening of haul route at four locations.</p> <p>Hydrological pathway - The southern peat storage area drains to the SAC via Ardderry Lough. Grid connection route cross watercourses that are within or connect to the SAC and road widening (haul route, four locations) has potential to take place in proximity watercourses and therefore for hydrological effects. No instream works are proposed and the road is already affected by traffic noise/disturbance.</p>	
Lough Corrib SAC (000297)	<ul style="list-style-type: none"> • Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] • Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] • Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. [3140] • Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) [6410] • Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] • Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] 	c.1km	<p>Hydrological pathway - The wind farm site and peat storage area are hydrologically connected to the SAC, with potential for adverse effects on SCI which are sensitive to water quality (Figure 6.4, NIS).</p> <p>Noise, vibration and air emissions - Effects can be ruled out based on distance (site is c.1km from development site).</p>	Yes

	<ul style="list-style-type: none"> • Petrifying springs with tufa formation (Cratoneurion) [7220] • Alkaline fens [7230] • Limestone pavements [8240] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] • Bog woodland [91D0] • Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] • Austropotamobius pallipes (White-clawed Crayfish) [1092] • Petromyzon marinus (Sea Lamprey) [1095] • Lampetra planeri (Brook Lamprey) [1096] • Salmo salar (Salmon) [1106] • Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] • Lutra lutra (Otter) [1355] • Najas flexilis (Slender Naiad) [1833] • Hamatocaulis vernicosus (Slender Green Feather-moss) [6216] 			
Kilkieran Bay and Islands SAC (002111)	<ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Atlantic salt meadows (Glaucopuccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Machairs (* in Ireland) [21A0] • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoetoneanojuncetalia [3130] • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] • Lutra lutra (Otter) [1355] • Phoca vitulina (Harbour Seal) [1365] 	<p>c.9km southwest of wind farm site</p> <p>c.8km south of peat storage area</p> <p>Adjacent to grid connection route and haul route</p>	<p>A short sections of the grid connection route and haul route, along the public road, run alongside/adjoin the SAC. There is potential therefore for a hydrological connection between the development and the SAC with the potential for effects on water quality sensitive species in proximity to development (from watercourse crossings/waterbodies in vicinity to any works area).</p> <p>There is potential for impacts by way of disturbance/dust from installation of cable and widening of haul route at four locations.</p>	Yes

	<ul style="list-style-type: none"> Najas flexilis (Slender Naiad) [1833] 			
Lough Carra/Mask Complex SAC (001774)	<ul style="list-style-type: none"> Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] European dry heaths [4030] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210] Alkaline fens [7230] Limestone pavements [8240] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] Lutra lutra (Otter) [1355] Hamatocaulis vernicosus (Slender Green Feather-moss) [6216] 	c.9km	<p>Hydrological pathway – SAC located in separate surface water sub-catchment.</p> <p>Noise and vibration, emissions to air - Distance precludes effects of noise and vibration, air emissions, human effects.</p> <p>Light and visual emissions - SAC does not contain QI/SCI sensitive to light or visual emissions.</p> <p>Mobile species - No effects on mobile species (otters and lesser horseshoe bats) as situated up stream, in a different sub-catchment and at distance. No pathways connecting development site to other populations in SAC. Development site outside of core sustenance zone for Lesser horseshoe bat.</p>	No.
Ballymaglancy Cave, Cong SAC (000474)	<ul style="list-style-type: none"> Caves not open to the public [8310] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] 	c.11km	<p>Hydrological pathway - SAC in separate surface water sub-catchment. No hydrological pathway.</p> <p>Noise and vibration, air emissions, light emission, visual emissions, human disturbance - Site is outside of the distance likely to have effects on QI (core sustenance zone).</p>	No

<p>The Twelve Bens/Garraun Complex SAC (002031)</p>	<ul style="list-style-type: none"> • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] • Alpine and Boreal heaths [4060] • Blanket bogs (* if active bog) [7130] • Depressions on peat substrates of the Rhynchosporion [7150] • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] • Calcareous rocky slopes with chasmophytic vegetation [8210] • Siliceous rocky slopes with chasmophytic vegetation [8220] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] • Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] • Salmo salar (Salmon) [1106] • Lutra lutra (Otter) [1355] • Najas flexilis (Slender Naiad) [1833] • 	<p>c.13km</p>	<p>Hydrological pathway - No hydrological connectivity and separate surface water catchment.</p> <p>Noise, vibration and air emissions - Significant distance from development site and outside of maximum distance of the zone of sensitivity of QI/SCI with no potential for effects from noise and vibration, emissions to air or human disturbance.</p> <p>Mobile species - Mobile species that are QI/SCI, otter and Atlantic salmon, are located in a separate surface water sub-catchment at distance, with no pathways to connect development site to SAC.</p>	<p>No</p>
<p>Connemara Bog Complex SPA (004181)</p>	<ul style="list-style-type: none"> • Cormorant (Phalacrocorax carbo) [A017] • Merlin (Falco columbarius) [A098] • Golden Plover (Pluvialis apricaria) [A140] • Common Gull (Larus canus) [A182] 	<p>Adjacent to haul route (c.3.5km south of Screebe). c.1km to south of grid connection.</p>	<p>Wind farm and spoil storage area removed from SPA and with no hydrological connection.</p> <p>Potential for effects from noise, vibration and dust emissions on all species from haul route (road widening) and grid connection works. Potential for <i>ex situ</i> habitat loss (haul route widening). Mobile species - Wind farm site and peat storage area outside of the foraging</p>	<p>Yes</p>

		c.5.5km from peat storage area c.8km from wind farm	range for Cormorant, Merlin and Golden plover (not Common Gull). Light/visual emissions – Zone of sensitivity for Common gull overlaps with wind farm site.	
Lough Corrib SPA (004042)	<ul style="list-style-type: none"> • Gadwall (<i>Anas strepera</i>) [A051] • Shoveler (<i>Anas clypeata</i>) [A056] • Pochard (<i>Aythya ferina</i>) [A059] • Tufted Duck (<i>Aythya fuligula</i>) [A061] • Common Scoter (<i>Melanitta nigra</i>) [A065] • Hen Harrier (<i>Circus cyaneus</i>) [A082] • Coot (<i>Fulica atra</i>) [A125] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] • Common Gull (<i>Larus canus</i>) [A182] • Common Tern (<i>Sterna hirundo</i>) [A193] • Arctic Tern (<i>Sterna paradisaea</i>) [A194] • Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] • Wetland and Waterbirds [A999] 	c.1km from wind farm c.2.3km from peat storage area c.2.5km from grid connection and haul route	Hydrological pathway – Between wind farm site, peat storage area, grid connection route and haul route and SPA. Noise and vibration, air emissions – SPA is beyond noise and air emission zones of sensitivity. Light emission pathway - Zone of sensitivity for Hen Harrier, Golden Plover, Common Gull and Greenland White-fronted Goose, Wetland and waterbirds overlap with wind farm site, peat storage area and grid connection (Table 5.2). Visual emissions/mobile species pathways – Same as above. However, it is noted that Common gull is not sensitive to light emissions.	Yes
Lough Mask SPA (004062)	<ul style="list-style-type: none"> • Tufted Duck (<i>Aythya fuligula</i>) [A061] • Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] • Common Gull (<i>Larus canus</i>) [A182] • Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] • Common Tern (<i>Sterna hirundo</i>) [A193] • Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]* • Wetland and Waterbirds [A999] 	c.9.5km from wind farm c.9.7km from peat storage area	Hydrological pathway – No connection to SPA from development site. Noise, vibration and air emissions – SPA located beyond the zone of sensitivity for these emissions. Light emissions – Zone of sensitivity for Common gull and Lesser black-backed gull populations of the SPA overlaps with	Yes

		c.10.5km from grid connection and haul route	<p>the proposed development (development is outside of the zone of sensitivity of Greenland White-fronted Goose = 8km).</p> <p>Visual emissions - Common gull and lesser-black backed gull are not sensitive to disturbance as a result of changes in the visual setting of the wider surrounding landscape.</p> <p>Mobile species - Zone of sensitivity for Common gull and Lesser black-backed gull populations of the SPA overlaps with the proposed development.</p>	
Lough Carra SPA (004051)	<ul style="list-style-type: none"> • Common Gull (<i>Larus canus</i>) [A182] 	<p>c.24km from wind farm</p> <p>c.27km from peat storage area</p> <p>c.27km from grid connection and haul route</p>	<p>Hydrological pathway – No connection to SPA from development site.</p> <p>Noise, vibration and air emissions – SPA located beyond the zone of sensitivity for these emissions.</p> <p>Light emissions – Zone of sensitivity for Common gull populations of the SPA overlaps with the proposed development.</p> <p>Visual emissions - Common gull is not sensitive to disturbance as a result of changes in the visual setting of the wider surrounding landscape.</p> <p>Mobile species - Zone of sensitivity for Common gull population of the SPA overlaps with the development site.</p>	Yes.

7.23.17. Identification of Likely Effects on SCIs/QI

7.23.18. Having regard to the foregoing, the following European sites can be screened out for detailed assessment, in view of the lack of connectivity between the subject development and the European site:

- Lough Carra/Lough Mask Complex SAC (site code 001774).
- Ballymaglancy Cave, Cong SAC (site code 000474).
- The Twelve Bens/Garraun Complex SAC (site code 002031).

7.23.19. These sites are therefore not considered further in this screening exercise. Further, it can be concluded that the following European sites fall within the zone of influence of the subject development:

- Maumturk Mountains SAC: This SAC lies immediately north of the proposed peat storage area. In their site synopsis, the NPWS refer to the location of the Maumturk Mountains to the east of the Twelve Bens and west of the Maumtrasnas, between the Inagh Valley and the Leenaun/Maam road in Co. Galway. The site is bounded to the north by Killary Harbour and to the south by the Galway/ Clifden road. Most of the mountains within the range exceed 600 m in height and about half of the land within the site lies above an altitude of 250 m. In addition many rivers criss-cross the site. The site is of conservation interest as it is a good example of an extensive mountain landscape, containing blanket bog, large areas of heath, siliceous rocky vegetation, oligotrophic lakes and upland grassland. Qualifying interests of the SAC are shown in Table AA1 above. Conservation objectives are to maintain or restore the conservation condition of the QI by reference to defined attributes and targets.
- Connemara Bog Complex SAC: This site is described by the NPWS as a large site encompassing the majority of the south Connemara lowlands in Co. Galway. The site is bounded to the north by the Galway–Clifden road and stretches as far east as the Moycullen–Spiddal road. 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. Qualifying interests of the SAC are shown in Table AA1 above. Conservation objectives are to maintain or restore the conservation condition of the QI by reference to defined attributes and targets.

- Lough Corrib SAC: Lough Corrib lies to the north of the appeal site. It is described in the NPWS Site Synopsis the second largest lake in Ireland, with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south, and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones to the north. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. A number of rivers are included within the cSAC as they are important for Atlantic Salmon. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site. Qualifying interests of the SAC are shown in Table AA1 above. Conservation objectives are to maintain or restore the conservation condition of the QI by reference to defined attributes and targets.
- Kilkieran Bay and Islands SAC: This European site is more removed from the appeal site (wind farm and peat storage area). It lies c.8km to the south of the peat storage area. It is a coastal SAC, as described by the NPWS, located just north of Galway Bay and extending from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna. The site contains a large area of open marine water, many islands and rocky islets, and the coastline is much indented with a series of bays (notably the interconnected Kilkieran Bay and Greatman's Bay), channels and inlets. The entrances of the bays face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels. A number of streams, lakes and lagoons drain into the bays. The surrounding land is dominated by lowland blanket bog, with rock outcrops and small hills to the north. Qualifying interests of the SAC are shown in Table AA1 above. Conservation objectives are to maintain or restore the conservation condition of the QI by reference to defined attributes and targets.
- Connemara Bog Complex SPA: The site is described by the NPWS as a large site encompassing much of the south Connemara lowlands of Co. Galway. The site consists of three separate areas - north of Roundstone, south of Recess and north-west of Spiddal. The appeal site lies north of the north-west Spiddal area

and east of the south of Recess area. The Connemara Bog Complex SPA is characterized by areas of deep peat surrounded by heath-covered rocky outcrops. The deeper peat areas are often bordered by river systems and the many oligotrophic lakes that occur, resulting in an intricate mosaic of various peatland/wetland habitats and vegetation communities; these include Atlantic blanket bog with hummock/hollow systems, inter-connecting pools, Atlantic blanket bog pools, flushes, transition and quaking mires, as well as freshwater marshes, lakeshore, lake and river systems. The site is of special conservation interest to certain bird species, identified in Table AA1. Conservation objectives are to maintain or restore the conservation condition of the QI by reference to defined attributes and targets.

- Lough Corrib SPA: The NPWS Site Synopsis describes Lough Corrib as the largest lake in the country and is located, mostly, in County Galway, with a small section in the north extending into County Mayo. The lake can be divided into two parts, a relatively shallow basin in the south, and a larger, deeper basin to the north. The main outflowing river is the Corrib, which reaches the sea at Galway City. The shallow, lime-rich waters of the southern basin of the lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland. These Chara beds are a very important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters. Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*) occur around the margins of the lake. The lake has numerous islands, which range from relatively bare rocky islets to larger islands with grassland or woodland. The site is of special conservation interest for a number of bird species, listed in Table AA1 above. Conservation objectives are to maintain or restore the conservation condition of the QI by reference to defined attributes and targets.
- Lough Mask SPA: Lough Mask lies to the north and upstream of Lough Corrib. The NPWS Site Synopsis describes Lough Mask, at over 8,000 ha, as the sixth largest lake in the country. It is located in south Co. Mayo with a small area extending across the border into Co. Galway. It extends for over 14 km along its long axis and is on average about 5 km in width. The main inflowing rivers are the Cloon and Robe, and the stream from Lough Carra to the north-east. The main

outflow is to Lough Corrib to the south. The eastern part of the lake is edged by a low-lying shoreline which is subject to winter flooding but is considerably deeper on the western side where there is a long narrow trench with a maximum depth of 58 m. The water of the lake is moderately hard. Islands are a feature of the lake, especially in the south-east sector. The site is of special conservation interest for the certain species (Table AA1 above). Conservation objectives are generic, to maintain or restore the conservation condition of the bird species listed as Special Conservation Interest for the SPA.

- Lough Carra SPA: Lough Carra is situated north of Lough Mask, and also upstream of Lough Corrib. It is described by the NPWS as extending for over 9 km along its long axis, lying to the north-east of Lough Mask, in the Corrib catchment in Co. Mayo. It is one of the best examples in Ireland of a hard water marl lake. It is a shallow (mean depth 1.5 m, maximum depth 18 m), predominantly spring-fed lake with only a few inflowing streams. It is connected to Lough Mask via the Keel River. Lough Carra is classified as a mesotrophic system. It has well-developed stonewort communities in the submerged zones. The lake has a highly indented shoreline (over 69 km in length) and includes many small islands. It is fringed by a diverse complex of limestone and wetland habitats. The site is of special conservation interest to Common gull. Conservation objectives are generic, to maintain or restore the conservation condition of the bird species listed as Special Conservation Interest for the SPA.

7.23.20. For each of the above European sites, in Table AA2 is an assessment of the potential for effects of the subject development on the special conservation interest/qualifying interest of the site, having regard to the nature of the proposed development, the applicant's Screening Report, the associated technical studies in respect of water, soils, biodiversity and ornithology and NPWS data.

Table AA2 Identification of Potential Effects on SCI/QI of European Sites

European Site	Conservation Interest	Commentary	Can possibility of significant effect be excluded?
Maumturk Mountains SAC (002008)	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]	Map 3, NPWS Conservation Objectives, identifies Loughanillaun, to the north of the peat storage area, as a potential oligotrophic habitat. Existing streams and open drains connect the proposed peat storage area to the lake habitat. (Hydrological pathway).	No.
	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	Article 17 mapping indicates wet heath adjoining the boundary of the northern proposed peat storage area. (Potential for direct impacts, damage, and emissions to air, dust).	No.
	Alpine and Boreal heaths [4060]	Article 17 data indicates removed from development site. No pathways.	Yes.
	Blanket bogs (* if active bog) [7130]	Article 17 mapping indicates this habitat adjoining the boundary of the northern proposed peat storage area. (Potential for direct impacts, damage, and emissions to air, dust).	No.
	Depressions on peat substrates of the <i>Rhynchosporion</i> [7150]	Article 17 mapping shows no examples of this habitat in the wider area. No pathways.	Yes.
	Siliceous rocky slopes with chasmophytic vegetation [8220]	Article 17 data indicates removed from development site. No pathways.	Yes.
	<i>Salmo salar</i> (Salmon) [1106]	The northern section of the proposed peat storage area is hydrologically connected to Loughanillaun, which is known to support Atlantic salmon. (Hydrological pathway).	No.
	<i>Najas flexilis</i> (Slender Naiad) [1833]	Map 4, NPWS Conservation objectives, indicates species is substantially removed from development site. No pathways.	Yes.

Connemara Bog Complex SAC (002034)			
	Coastal lagoons [1150]	Map 3, NPWS Conservation objectives, indicate habitat removed from development site. No pathways.	Yes.
	Reefs [1170]	Map 4, NPWS Conservation objectives, indicate habitat removed from development site. No pathways.	Yes.
	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]	No pathways to confirmed examples of this habitat (Map 6, NPWS Conservation Objectives). However, grid connection route will be installed along sections of the public road that cross or adjoin potential 'oligotrophic waters' and the haul route widening location no. 3 is c.60m of an example of potential habitat. I note that the southern peat storage area currently is also hydrologically connected to Ardderry Lough. To the west of the R336 this Lough falls within the SAC and on Map 6 it would appear to be identified as this habitat type [3110] (Hydrological pathway).	No.
	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]	Lough Bofin c.150m to the south of the proposed wind farm site is an example of an oligotrophic to mesotrophic standing waters with vegetation of Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] and the location of Slender Naiad - Najas flexilis [1833]. However, it is not included as the habitat occurs in a separate surface water sub-catchment, and this approach seems reasonable given the limited extent of works in the vicinity of this Lough.	Yes.
	Natural dystrophic lakes and ponds [3160]	Map 6, NPWS Conservation Objectives indicates habitat is removed from site. No pathways.	Yes.
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260]	The exact location of this habitat in the SAC is unknown and therefore all watercourses are considered to be representative of potential examples of this habitat (Map 7, NPWS Conservation Objectives). Watercourses in the	No.

		SAC are crossed by the grid connection route and haul route and road widening of areas 3 and 4 (haul route) are in vicinity to watercourses. (Hydrological pathway).	
	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	Occurs within 50m of the proposed grid connection route and haul route that pass through the SAC along the R336 and R340. (Emissions to air, dust).	No.
	European dry heaths [4030]	Dry heath habitat in proximity to haul route and grid connection route is buffered by c.80m from the R336.	Yes.
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	Article 17 mapping indicates habitat is not present in vicinity of site.	Yes.
	Blanket bogs (* if active bog) [7130]	Article 17 mapping shows that blanket bog habitat occurs along the proposed grid connection route and haul route that pass through the SAC along the R336. (Emissions to air, dust).	No.
	Transition mires and quaking bogs [7140]	Article 17 mapping indicates habitat is not present in vicinity of site.	Yes.
	Depressions on peat substrates of the Rhynchosporion [7150]	Article 17 mapping indicates habitat is not present in vicinity of site.	Yes.
	Alkaline fens [7230]	Article 17 mapping indicates habitat is not present in vicinity of site.	Yes.
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]	Map 8, NPWS Conservation Objectives indicates habitat is remote from subject site. No pathway.	Yes.
	<i>Euphydryas aurinia</i> (Marsh Fritillary) [1065]	Article 17 mapping indicates to south of SAC, no pathways connecting development to habitats up which the species is supported.	Yes.
	<i>Salmo salar</i> (Salmon) [1106]	Watercourses of the SAC are crossed by the proposed grid connection route and the haul route widening areas are in vicinity to watercourses. These watercourses have the potential to support Atlantic salmon. (Hydrological pathway). The southern peat storage area is hydrologically	No.

		connected to SAC, with potential for effects on mobile species.	
	Lutra lutra (Otter) [1355]	Watercourses of the SAC are crossed by the proposed grid connection route and the haul route widening areas are in vicinity to watercourses. These watercourses have the potential to support otter. (Hydrological pathway). The southern peat storage area is hydrologically connected to SAC, with potential for effects on mobile species.	No.
	Najas flexilis (Slender Naiad) [1833]	Lough Bofin c.150m to the south of the proposed wind farm site is an example of an oligotrophic to mesotrophic standing waters with vegetation of Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] and the location of Slender Naiad - Najas flexilis [1833]. However, it is not included as the habitat occurs in a separate surface water sub-catchment, and this approach seems reasonable given the limited extent of works in the vicinity of this Lough.	Yes.
Lough Corrib SAC (000297)	Oligotrophic waters containing very few minerals of sandy plains (Littorelletea uniflorae) [3110]	The development site is connected to the SAC by Owenwee River and Owenree River (discharging waters from Loughanillaun and the wind farm site). (Hydrological connection).	No.
	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]	Habitat separated from outfall of Owenwee River to Lough Corrib by intervening aquatic habitat, in large body of water.	Yes.
	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	Habitat separated from outfall of Owenwee River to Lough Corrib by intervening aquatic habitat, in large body of water.	Yes.
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260]	No pathways connecting the development site to this habitat type (site drains direct to Corrib via Owenwee/Owenree River).	Yes.

Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]	No examples of habitat type in vicinity of subject development.	Yes.
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	Article 17 mapping indicates no examples of habitat type in vicinity of subject development.	Yes.
Active raised bogs [7110]	Map 4, NPWS Conservation objectives indicates habitat remotely from development site.	Yes.
Degraded raised bogs still capable of natural regeneration [7120]	Map 4, NPWS Conservation objectives indicates habitat remotely from development site.	Yes.
Depressions on peat substrates of the Rhynchosporion [7150]	Article 17 mapping indicates no examples of habitat type in vicinity of subject development.	Yes.
Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]	Article 17 mapping indicates no examples of habitat type in vicinity of subject development.	Yes.
Petrifying springs with tufa formation (Cratoneurion) [7220]	Article 17 mapping indicates no examples of habitat type in vicinity of subject development. Groundwater dependent habitat. Development will not impact on ground water characteristics.	Yes.
Alkaline fens [7230]	Article 17 mapping indicates no examples of habitat type in vicinity of subject development.	Yes.
Limestone pavements [8240]	Map 7, NPWS Conservation objectives indicates habitat remotely from development site.	Yes.
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	Map 8, NPWS Conservation objectives indicates habitat remotely from development site.	Yes.
Bog woodland [91D0]	Map 8, NPWS Conservation objectives indicates habitat remotely from development site.	Yes.
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	The identified FPM catchment is restricted to the Owenriff sub-catchment occurring within the Ballycuirke Lough Stream sub-catchment (SC_010) (Map 9, NPWS Conservation Objectives). The proposed development is not located within this	Yes.

		catchment and there is therefore no hydrological pathway connecting the proposed development to this catchment.	
	Austropotamobius pallipes (White-clawed Crayfish) [1092]	Distribution of species is uncertain in the SAC. It is likely that the species occurs widely throughout the European site. The Owenwee River establishes a hydrological pathway between the proposed wind farm site and potentially suitable habitat for this species downstream at Lough Corrib. (Hydrological connection, mobile species).	No.
	Petromyzon marinus (Sea Lamprey) [1095]	Distribution of these species within the SAC is not mapped. No suitable habitat for lamprey species has been identified within the Owenwee catchment draining the proposed wind farm site. However, Lough Corrib downstream is known to support populations of this species. (Hydrological connection, mobile species).	No.
	Lampetra planeri (Brook Lamprey) [1096]	Distribution of these species within the SAC is not mapped. No suitable habitat for lamprey species has been identified within the Owenwee catchment draining the proposed wind farm site, Lough Corrib downstream is known to support populations of this species. (Hydrological connection, mobile species).	No.
	Salmo salar (Salmon) [1106]	Distribution of this species within the SAC is not mapped. However, Lough Corrib is known to be of significant importance for this species and the Owenwee catchment draining the proposed wind farm site also supports Atlantic salmon associated with the Lough Corrib population (see EIAR Chapter 6). (Hydrological connection, mobile species).	No.
	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	Map 8, NPWS Conservation objectives indicates habitat remotely from development site (with	Yes.

		nearest foraging and roost habitat 6km and 8.5km to the north east of the wind farm).	
	Lutra lutra (Otter) [1355]	Map 12, NPWS Conservation Objectives, indicate otter communing habitat associated with Lough Corrib. It includes the area where Owenwee River outfalls. Suitable habitat for otter population of the SAC occurring upstream of Lough Corrib along Owenree River. (Hydrological connection).	No.
	Najas flexilis (Slender Naiad) [1833]	Species occurs in Lough Corrib, north of the wind farm site, into which Owenwee River drains, Map 13, NPWS Conservation Objectives. (Hydrological pathway).	No.
	Hamatocaulis vernicosus (Slender Green Feather-moss) [6216]	Map 10, NPWS Conservation objectives indicates habitat remotely from development site. Species is restricted to peatland habitats within the SAC. No pathways connecting site to peat habitat.	Yes.
Kilkieran Bay and Islands SAC (002111)	Mudflats and sandflats not covered by seawater at low tide [1140]	Map 4 of the NPWS Conservation Objectives indicates habitat remotely from development site	Yes.
	Coastal lagoons [1150]	Map 4 of the NPWS Conservation Objectives for the site maps this habitat to the west of the haul route on the R336 in the area of Lough Corraundahy and Lough Carrafinla. Streams flow under the R336 along the main haul route and drain into examples of this habitat. (Hydrological connection).	No.
	Large shallow inlets and bays [1160]	Map 5 of the NPWS Conservation Objectives indicates habitat remotely from development site	Yes.
	Reefs [1170]	Map 6 of the NPWS Conservation Objectives for the site shows the location of reefs occurring within this SAC. These are located in the vicinity of the proposed grid connection route along the R340 and haul road along the R336 (in the vicinity of Lough	No.

		Corraundahy and Lough Carrafinla). Streams flow under the R340 and R336 along the proposed grid connection route and haul road and drain into the coast in the vicinity of this habitat. (Hydrological pathway).	
	Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330]	Potential Atlantic salt meadows habitat identified in vicinity of grid connection at Screebe along the R340, where the route crosses a watercourse (Map 8). (Hydrological pathway).	No.
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Potential habitat is identified in the area of the proposed grid connection route along the R340 at Screebe, where the route crosses a watercourse (Map 8). The habitat also occurs to the west the haul road, in the area of Lough Corraundahy and Lough Carrafinla. (Hydrological pathway).	No.
	Machairs (* in Ireland) [21A0]	Map 9 of the NPWS Conservation Objectives indicates habitat remotely from development site	Yes.
	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) [6510]	No examples of lowland hay meadows in the vicinity of the site.	Yes.
	<i>Lutra lutra</i> (Otter) [1355]	Map 10, NPWS Conservation Objectives, shows the location of otter commuting habitat. Suitable otter habitat occurs in the area of the grid connection route, along the R340 and to the west of the haul route, R336, in the vicinity of Lough Corraundahy and Lough Carrafinla. A hydrological pathway connects the proposed development to this habitat. (Hydrological connection).	No.
	<i>Phoca vitulina</i> (Harbour Seal) [1365]	Map 11 of the NPWS Conservation Objectives indicates habitat remotely from development site	Yes.
	<i>Najas flexilis</i> (Slender Naiad) [1833]	Map 12 of the NPWS Conservation Objectives indicates habitat remotely from development site	Yes.
Connemara Bog Complex SPA (004181)	Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Grid connection route and haul route widening area within 2km zone of sensitivity for species (grid connection and haul widening area c.1km to north of SPA). No hydrological connection between	No.

		works areas and SPA. Potential effects from noise/disturbance, deterioration of habitat (dust), loss of habitat (haul route widening), visual emissions and mobile species pathway.	
	Merlin (Falco columbarius) [A098]	Grid connection route and haul route within 5km zone of sensitivity for species, with potential effects from noise/disturbance, deterioration of habitat (dust), loss of habitat (haul route widening), visual emissions and mobile species pathway.	No.
	Golden Plover (Pluvialis apricaria) [A140]	Grid connection route and haul route within 3km zone of sensitivity for species, with potential for effects from noise/disturbance, deterioration of habitat (dust), loss of habitat (haul route widening), visual emissions and mobile species pathway.	No.
	Common Gull (Larus canus) [A182]	Wind farm, grid connection route and haul route within 25km zone of sensitivity for species, with potential for effects from noise/disturbance, deterioration of habitat (dust), loss of habitat (haul route widening), visual emissions and mobile species pathway.	No.
Lough Corrib SPA (004042)	Gadwall (Anas strepera) [A051] Shoveler (Anas clypeata) [A056] Pochard (Aythya ferina) [A059] Tufted Duck (Aythya fuligula) [A061] Common Scoter (Melanitta nigra) [A065] Coot (Fulica atra) [A125] Black-headed Gull (Chroicocephalus ridibundus) [A179] Common Tern (Sterna hirundo) [A193] Arctic Tern (Sterna paradisaea) [A194]	No potential for effects as species do not occur within the zone of influence of the development.	Yes.
	Hen Harrier (Circus cyaneus) [A082]	Wind farm site within 2km zone of sensitivity for species, with potential effects via mobile species, light and visual emission pathways.	No.
	Golden Plover (Pluvialis apricaria) [A140]	Wind farm and peat storage area within 3km zone of sensitivity for species, with potential for effects via mobile species, light and visual emission pathways.	No.

	Common Gull (Larus canus) [A182]	Wind farm and peat storage area within 25km zone of sensitivity for species, with potential for effects via mobile species, light and visual emissions pathways.	No.
	Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]	Wind farm, peat storage area, grid connection and haul route within 8km zone of sensitivity for species, with potential for effects via mobile species, light emission and visual emission pathways.	No.
	Wetland and Waterbirds [A999]	Disturbance distance given for wetland birds of 300m in Screening Report (page 38). However, included in Screening Report as a feature of interest with potential for effects via proximity to wind farm site, peat storage area, grid connection route and haul route and mobile species, light emission and hydrological pathway.	No.
Lough Mask SPA (004062)	Tufted Duck (Aythya fuligula) [A061] Black-headed Gull (Chroicocephalus ridibundus) [A179] Common Tern (Sterna hirundo) [A193] Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]* Wetland and Waterbirds [A999]	No potential for effects as species do not occur within the zone of influence of the development.	Yes.
	Common Gull (Larus canus) [A182]	Wind farm and peat storage area within 25km zone of sensitivity for species, with potential for effects via mobile species, light and visual emissions.	No.
	Lesser Black-backed Gull (Larus fuscus) [A183]	Wind farm and peat storage area within 70km zone of sensitivity for species, with potential for effects via mobile species, light and emissions.	No.
Lough Carra SPA (004051)	Common Gull (Larus canus) [A182]	Proposed wind farm area within 25km zone of sensitivity for species, potential for effects via mobile species, light and visual emissions.	No.

Mitigation Measures

7.23.21. No measures designed or intended to avoid or reduce any harmful effects of the project on a European Site have been relied upon in this screening exercise.

7.23.22. **Screening Determination**

7.23.23. The proposed development was considered in light of the requirements of Section 177U of the Planning and Development Act 2000 as amended. Having carried out Screening for Appropriate Assessment of the project, it has been concluded that the project individually (or in combination with other plans or projects):

- i. Would not be likely to give rise to significant effects on the following European sites, Lough Carra/Lough Mask Complex SAC, Ballymaglancy Cave, Cong SAC and The Twelve Bens/Garraun Complex SAC.
- ii. Could have a significant effect on eight no. European Sites, in view of the site's Conservation Objectives, and Appropriate Assessment (and submission of a NIS) is therefore required:- Maumturk Mountains SAC, Connemara Bog Complex SAC, Lough Corrib SAC, Kilkieran Bay and Islands SAC, Connemara Bog Complex SPA, Lough Corrib SPA, Lough Mask SPA and Lough Carra SPA.

7.23.24. **Appropriate Assessment**

7.23.25. The requirements of Article 6(3) as related to appropriate assessment of a project under part XAB, section 177V of the Planning and Development Act 2000 (as amended) are considered fully in this section.

The Natura Impact Statement

7.23.26. The application included a revised NIS 'Natura Impact Statement Tullaghmore Wind Farm', April 2023. It examines and assess potential adverse effects of the proposed development on the following European Sites. The NIS has been generally prepared in line with best practice. It sets out the methodological approach to the preparation of the NIS, describes the project, the development area and the European sites in the vicinity of the development which have been screened in for appropriate assessment. It examines the potential for impacts on each of these European sites, including in-combination effects, in the absence of mitigation and with the application of proposed mitigation measures. The NIS concludes that, with the application of prescribed mitigation measures, the development will not, alone or in combination with other plans or project, result in adverse effects to the integrity and conservation status of European sites in view of their Conservation Objectives and on the basis of best scientific evidence and there is no reasonable doubt as to that conclusion.

7.23.27. The report makes reference to the desk studies and ecological field surveys that have informed the NIS (page 10), including habitat and vegetation surveys, ornithological surveys, bat surveys, aquatic surveys and detailed hydrological and geotechnical surveys. It has regard to the CEMP, Surface Water Management Plan and suite of mitigation measures proposed and summarised in Appendix 16.1. In section 6.9.2 the NIS refers to updated information presented in respect of collision risk to Hen Harrier.

7.23.28. Having reviewed the documents and submissions on file, for the reasons set out below, I am **not satisfied** that the information allows for a complete examination and identification of any potential significant effects of the development, alone, or in combination with other plans and projects on the eight no. European sites identified

in the screening exercise above, notably in respect of collision risk and cumulative effects.

Appropriate Assessment of the implications of the proposed development

7.23.29. The following is a summary of the objective scientific assessment of the implications of the project on the qualifying interest features of the European sites using the best scientific knowledge in the field. All aspects of the project which could result in significant effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are considered and assessed.

European Sites

7.23.30. The following European sites are subject to Appropriate Assessment:

- Maumturk Mountains SAC.
- Connemara Bog Complex SAC.
- Lough Corrib SAC.
- Kilkieran Bay and Islands SAC.
- Connemara Bog Complex SPA.
- Lough Corrib SPA.
- Lough Mask SPA.
- Lough Carra SPA.

Aspects of the Proposed Development

7.23.31. The main aspects of the proposed development that could adversely affect the conservation objectives of European sites include:

- Habitat damage/loss, fragmentation, deterioration (land take, dust).
- Impacts on surface water quality.
- Disturbance/displacement as a result of noise, human activity, vibration, lighting and barriers effect.
- Collision risk.

Assessment of Effects on Conservation Objectives

7.23.32. In Tables AA3 to AA10 below I examine the likely effects of the proposed development on the conservation objectives of each of the European sites carried forward for appropriate assessment, having regard to the particular attributes and

targets for the SCI/QI identified in screening as likely to be affected by the subject development.

Table AA3: AA Summary Matrix Assessment of Effects on Conservation Objectives: Maumturk Mountains SAC

Maumturk Mountains SAC, site code 002008					
Summary of key issues that could give rise to adverse effects:					
<ul style="list-style-type: none"> • Impacts on water quality and water dependant habitats & species. • Habitat loss (direct or accidental) and/or deterioration (e.g. dust). 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]	To maintain favourable conservation condition with stable habitat area, no decline/change in habitat distribution, typical species, vegetation, hydrological regime, water quality, acidification status and fringing habitat.	<p>No change to habitat area or distribution.</p> <p>Hydrological pathway from peat storage area to Loughanillaun.</p> <p>Risk of deterioration in water quality during all phases with discharge of polluted waters from peat storage area to lough e.g. with impact on turbidity, colour, oxygen levels, nutrient enrichment, toxicity etc. and consequences for species composition, vegetation, hydrological regime etc. undermining the</p>	<p>All existing drains to lough to be blocked prior to commencement.</p> <p>Completion of works in accordance with Habitat Management Plan.</p> <p>Comprehensive programme of water quality monitoring for all phases, to be agreed with IFI and GCC.</p> <p>Oversight by Ecological CoW.</p> <p>Implementation of Surface Water Management Plan, pollution control measures in this and CEMP (including measures to minimised dust) and emergency</p>	<p>Likely on-going sediment loss from existing land use practices (prior to mitigation).</p> <p>Mitigation measures, to rehabilitate blanket bog and block existing drains will reduce sediment losses with positive impact on water quality.</p> <p>No significant projects permitted or proposed in proximity to development site for potential construction stage impacts (pages 116-120, NIS).</p> <p>During operation, the potential for cumulative adverse effects on water quality (development with other sources of water pollution), will be avoided by</p>	Yes.

		targets for different attributes.	response plan (section 7, NIS).	implementation of mitigation measures.	
Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	To restore favourable conservation condition with habitat area stable/ increasing, no decline in distribution, soil nutrients, community diversity, vegetation composition, vegetation structure, physical structure (bare ground and drainage) and local distinctiveness.	Risk of direct damage to habitat overlapping/ adjoining peat storage area. Risk of accidental damage or deterioration during construction (dust).	Boundary of SCI habitats and peat storage area surveyed (Figure 6.3a and 6.3b, NIS). No loss of habitat. Fenceline to be erected around peat storage area on damaged/degraded peat. All site operatives to be advised.	Mitigation measures in respect of potential effects to water environment during decommissioning will preclude potential for significant in-combination effects.	Yes.
Blanket bogs (* if active bog) [7130]	To restore favourable conservation condition with habitat area stable/ increasing, no decline in distribution, maintenance of soil nutrients, peat formation and hydrology, maintenance of community diversity, vegetation composition, vegetation structure, physical structure (bare ground and drainage) and local distinctiveness.	Risk of direct damage to habitat overlapping/ adjoining peat storage area. Risk of accidental damage or deterioration during construction (e.g. dust).	Standard dust control measures included in CEMP.		Yes.
<i>Salmo salar</i> (Salmon) [1106]	To maintain favourable conservation condition with maintenance of accessibility to river system, number of spawning fish, salmon fry, out-migrating smolt, number and occurrence of redds and water quality.	No instream works proposed or therefore barrier effects. Potential for water pollution to impact on spawning habitat with negative effects on salmon fry, out migrating smolts and redds.			Yes.
Overall conclusion: Integrity test. Following the implementation of mitigation, the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and no reasonable doubt remains as to the absence of such effects.					

Table AA4: AA Summary Matrix Assessment of Effects on Conservation Objectives: Connemara Bog Complex SAC

Connemara Bog Complex SAC, site code 002034 Summary of Key issues that could give rise to adverse effects: <ul style="list-style-type: none"> • Impacts on water quality and water dependant habitats & species. • Habitat damage (e.g. dust). 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]	To maintain the conservation condition with stable/ increasing habitat area, no decline in distribution, typical species, vegetation composition, hydrological regime, lake substratum, water quality and fringing habitat.	Southern peat storage area drains to SAC, with potential for impacts on water quality (sedimentation, pH, turbidity etc.). All phases. Construction of grid connection and widening of haul routes are a potential source of pollution arising from contaminated surface water discharging to roadside drains and watercourses (construction/ decommissioning) to this widespread habitat e.g. Nahasleam Lough, Loughaunfree, Aughawoolia Lough, Ahalia South Lough.	All existing drains to lough to be blocked prior to commencement. Completion of works in accordance with Habitat Management Plan. On going water quality monitoring during for all phases, to be agreed with IFI and GCC. Oversight be Ecological CoW. Implementation of Surface Water	Likely on-going sediment loss from existing land use practices. Risk of cumulative sediment loss with subject development. Mitigation measures, to rehabilitate blanket bog and block existing drains will reduce sediment losses with positive impact on water quality. No significant projects permitted or proposed in proximity to development site during construction phase (pages 116-120, NIS).	Yes.

		No potential for increase in rate of run off (works within public road).	Management Plan, pollution control measures in this and CEMP and emergency response plan. Road works to progress in 100m sections, with fill to be reinstated at end of shift, stored 10-25m from watercourses and siltation control measures in place.	During operation, the potential for cumulative adverse effects on water quality (development with other sources of water pollution), will be avoided by implementation of mitigation measures.	
Water courses of plain to montane levels with the Ranunculon fluitantis and Callitricho-Batrachion vegetation [3260]	To maintain the favourable conservation condition with stable/ increasing habitat area, distribution, hydrological regime, substratum composition, water quality, vegetation composition, floodplain connectivity and riparian habitat.	Southern peat storage area drains to SAC, with potential for impacts on water quality (sedimentation, pH, turbidity etc.). All phases of development. Construction of grid connection and widening of haul routes are a potential source of pollution arising from contaminated surface water discharging to roadside drains and watercourses (construction /decommissioning) to this widespread habitat. No potential for increase in rate of run off (works within public road).	Having regard to minor scale of works associated with installation of cable ducts and road widening, and mitigation measures in respect of dust, no potential for adverse effects on habitat by virtue of dust emissions.	Mitigation measures in respect of potential effects to water environment during decommissioning will preclude potential for significant in-combination effects.	Yes.
Northern Atlantic wet heaths with Erica tetralix [4010]	To restore the favourable conservation condition with stable/ increasing habitat area, no decline in habitat distribution, soil nutrients, community diversity, vegetation composition, vegetation structure, physical structure and local distinctiveness.	Location of habitat within 50m of haul route and grid connection route (widening areas), with potential for dust emissions to adversely impact on habitat (Figure 6.1, NIS).			Yes.
Blanket bogs (* if active bog) [7130]	To restore the favourable conservation condition with stable/ increasing habitat area, no decline in habitat	Location of habitat within 50m of haul route and grid connection route (widening areas), with potential for			Yes.

	distribution, soil nutrients, peat formation, hydrology, community diversity, vegetation composition, vegetation structure, physical structure and local distinctiveness.	dust emissions to adversely impact on habitat (Figure 6.2, NIS).			
Salmo salar (Salmon) [1106]	To restore favourable conservation condition with maintenance of accessibility to river system, number of spawning fish, salmon fry, out-migrating smolt, number and occurrence of redds and water quality.	No instream works proposed or therefore barrier effects. Potential for water pollution to impact on spawning habitat with negative effects on salmon fry, out migrating smolts and redds and water quality downstream within the catchment.			Yes.
Lutra lutra (Otter) [1355]	To maintain favourable conservation condition with no significant decline in distribution, extent of terrestrial, marine and freshwater habitat, couching sites and holts and fish biomass available.	Adverse effects to water quality in connected lake habitats and watercourses has the potential to affect the distribution of otters (via effects on fish biomass). No breeding/resting sites at or in vicinity of development.			Yes.
Overall conclusion: Integrity test. Following the implementation of mitigation, the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and no reasonable doubt remains as to the absence of such effects.					

Table AA5: AA Summary Matrix Assessment of Effects on Conservation Objectives: Lough Corrib SAC

Lough Corrib SAC, site code 00297 Summary of Key issues that could give rise to adverse effects: <ul style="list-style-type: none"> Impacts on water quality and water quality dependant habitats and species. 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]	To restore the conservation condition with stable/ increasing habitat area, no decline in habitat distribution, typical species, vegetation composition, hydrological regime, lake substratum, water quality and fringing habitat.	<p>Development site has potential to increase hydraulic loading (increase in runoff from hard surfaces, constructed drainage, during operation).</p> <p>Risk of increased risk of release of suspended solids (with increased turbidity, nutrients) (all phases). Also potential for release of hydrocarbons and other pollutants during construction (to a lesser extent operation and decommissioning) and consequential effects on water quality.</p> <p>No physical impacts to watercourses. Clear span bridges proposed. No instream works, but</p>	<p>Surface water management plan to actively manages flows arising from development site during all phases. Modest increase in hydraulic load during operation (0.38% relative to site).</p> <p>Pollution control measures in SWMP and CEMP and include an emergency response plan.</p> <p>On going water quality monitoring during for all phases, to be agreed with IFI and GCC.</p> <p>Oversight be Ecological CoW.</p>	<p>No significant projects permitted or proposed in proximity to development site during <u>construction</u> (pages 116-120, NIS).</p> <p>During <u>operation</u>, the potential for cumulative adverse effects on water quality (development with other sources of water pollution), will be avoided by implementation of mitigation measures.</p> <p>Mitigation measures in respect of potential effects to water environment during <u>decommissioning</u> will preclude potential for significant in-combination effects.</p>	See comments.

		potential for effects on flow regime and of pollution during construction.			
Austropotamobius pallipes (White-clawed Crayfish) [1092]	To maintain the favourable conservation condition with no reduction in baseline distribution, no change to population structure, negative indicator species, instances of disease, changes to water quality and habitat quality.	For all phases, changes to water quality has potential to undermine favourable conservation status (increase in sedimentation, colour, transparency), hydrological regime.			See comments.
Petromyzon marinus (Sea Lamprey) [1095]	To restore the favourable conservation condition with >75% of the main stem lengths of rivers accessible from estuary, no change to population structure of juveniles, extent and distribution of spawning habitat and availability of juvenile habitat.	No in-stream works/barriers to movement. For all phases, changes to water quality has potential to undermine favourable conservation status (e.g. increase in sedimentation) with effects on impacts on juvenile stage of species.			See comments.
Lampetra planeri (Brook Lamprey) [1096]	To maintain the favourable conservation condition access to all watercourses down to first order streams, no change to population structure of juveniles, extent and distribution of spawning habitat and availability of juvenile habitat.	As above.			See comments.
Salmo salar (Salmon) [1106]	To maintain the favourable conservation condition with	No instream works proposed or therefore barrier effects.			See comments.

	maintenance of accessibility to river system, number of spawning fish, salmon fry, out-migrating smolt, number and occurrence of redds and water quality.	For all phases, potential for water pollution to impact on spawning habitat with negative effects on salmon fry, out migrating smolts and redds and water quality downstream within the catchment.			
Lutra lutra (Otter) [1355]	To maintain favourable conservation condition with no significant decline in distribution, extent of terrestrial, marine and freshwater habitat, couching sites and holts and fish biomass available.	For all phases, adverse effects to water quality in Lough Corrib have the potential to affect the distribution of otters (via effects on fish biomass). No breeding/resting sites at or in vicinity of development.			See comments.
Najas flexilis (Slender Naiad) [1833]	To restore the favourable conservation condition by restoring spatial extent within Lough Corrib, population depth, viability, abundance, species distribution, habitat extent, hydrological regime, lake substratum, water quality, associated species and fringing habitat.	For all phases, any losses of excessive silt laden water has potential to increase colour and reduce transparency of water and contribute to nutrient loading, all factors which threaten conservation status of species.			See comments.
Overall conclusion: Integrity test. Following the implementation of mitigation, I am not satisfied that the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and reasonable doubt remains as to the absence of such effects.					

Table AA6: AA Summary Matrix Assessment of Effects on Conservation Objectives: Kilkieran Bay and Islands SAC

Kilkieran Bay and Islands SAC, site code 002111 Summary of Key issues that could give rise to adverse effects: <ul style="list-style-type: none"> • Effects on water quality and water quality dependant habitats and species. 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Coastal lagoons [1150]	To maintain favourable conservation condition with stable habitat area, no decline in habitat distribution, salinity, hydrological regime, barrier connectivity, water quality, typical plant and animal species and number/% cover of negative indicator species.	No works associated with the development are proposed along the section of the R336 that will be used as a haul route to the west of the coastal lagoons (Lough Corraundahy and Lough Carrafinla). No road widening proposals in these areas.	None required.	No.	Yes.
Reefs [1170]	To maintain the favourable conservation condition with permanent habitat stable or increasing, distribution of habitat to remain stable and community structure (biological composition) to be conserved.	<p>Reefs are located in the area of the grid connection route at Screebe (R340) and streams flowing under the R340 discharge to the SAC (Figure 6.6). R340 is c.40m from nearest example of reef habitat.</p> <p>Installation of grid connection has potential to result in contaminated surface water runoff to SAC</p>	<p>Water quality to be protected via:</p> <p>Implementation of Surface Water Management Plan, pollution control measures in this and CEMP and emergency response plan.</p>	<p>No significant projects permitted or proposed in proximity to development site during <u>construction</u> (pages 116-120, NIS).</p> <p>During <u>operation</u>, the potential for cumulative adverse effects on water quality (development</p>	Yes.

		(siltation, hydrocarbons) during construction. No increase in rate of surface water discharge (road to be restored to existing condition).	Measures include appropriate silt capture, minimum setback of distance of 10-25m from water courses (section 7.5 & 7.3, NIS).	with other sources of water pollution), will be avoided by implementation of mitigation measures.	
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	To restore the favourable conservation condition with habitat area stable or increasing, no decline in habitat distribution, physical structure and vegetation structure.	Habitat is located in the area of the grid connection route (R340) and streams flowing under the R340 discharge to the SAC. Installation of grid connection has potential to result in contaminated surface water runoff to SAC (siltation, hydrocarbons). No increase in rate of surface water discharge (road to be restored to existing condition).	Comprehensive programme of water quality management for all phases to be agreed with IFI and GCC. Oversight be Ecological CoW.	Mitigation measures in respect of potential effects to water environment during <u>decommissioning</u> will preclude potential for significant in-combination effects.	Yes.
Mediterranean salt meadows (Juncetalia maritimi) [1410]	To restore the favourable conservation condition with habitat area stable or increasing, no decline in habitat distribution, physical structure and vegetation structure.	As above.			Yes.
Lutra lutra (Otter) [1355]		Otter commuting habitat occurs in the coastal lagoon habitat to the west of the haul route on the R336 (Lough Corraundahy and Lough Carrafinla) and in the vicinity of the grid connection route at Screebe (Figure 6.5, 6.6 NIS).			Yes.

		<p>No works associated with the development are proposed along R336 near lakes.</p> <p>Installation of grid connection has potential to result in contaminated surface water runoff to SAC (siltation, hydrocarbons).</p> <p>No increase in rate of surface water discharge (road to be restored to existing condition).</p>			
<p>Overall conclusion: Integrity test. Following the implementation of mitigation, the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and no reasonable doubt remains as to the absence of such effects.</p>					

Table AA7: AA Summary Matrix Assessment of Effects on Conservation Objectives: Connemara Complex SPA

Connemara Bog Complex SPA, site code 004181 Summary of Key issues that could give rise to adverse effects: <ul style="list-style-type: none"> • Habitat loss/degradation (land take, dust). • Disturbance of QI species Conservation Objectives (noise, human activity, lighting, barrier effect). • Collision risk. 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Cormorant (Phalacrocorax carbo) [A017]	To restore the favourable conservation condition with long term breeding population stable or increasing, sufficient productivity rate, distribution, prey biomass, absence of significant disturbance at breeding site, freshwater and marine areas, no significant increase in barriers to connectivity	<p>No breeding by species on development site, no foraging habitat (no suitable water bodies on site).</p> <p>Zone of sensitivity is 2km (SNH) and species sensitivity to noise is 300m (section 6.5.1, NIS).</p> <p>Nearest construction works to SPA are 1km, so no impacts from noise/disturbance/dust from grid connection works or haul route widening at site 2.</p> <p>Use of R336 for transport of turbines not considered to change baseline noise environment of road.</p> <p>Habitat lost within foraging distances of SPA (2km), is modest at road widening area 2 and consists of terrestrial grassland habitat, not suitable for supporting Cormorants. Grid</p>	<p>Pre construction survey of and ongoing construction phase bird monitoring to identify SCI at the development site.</p> <p>In the event that wintering SCIs (e.g. Golden Plover, Greenland white-fronted goose) occurring on site, construction works to be restricted in these areas (buffer of 100-150m as per evidence base for disturbance).</p> <p>Re-confirmatory survey (March/April) of wind farm site and peat storage area for</p>	<p>No significant projects permitted or proposed in proximity to development site during construction phase (pages 116-120, NIS).</p> <p>Significant distance to other consented/operational wind farms within 20km (Table 6.1, NIS), lack of migration paths identified during surveys and results of hinterland survey indicate absence of significant cumulative effects during <u>construction and decommissioning</u> (with implementation of mitigation measures).</p>	See comments.

		<p>connection route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, decommissioning and operation of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance/displacement (Table 7-24), collision risk (0.02/year) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species, sensitivity of species, evidence in respect of collision risk and avoidance rates.</p>	<p>evidence of activity or occupation of new territories by breeding SCI. Works at any nesting locations to be outside of bird breeding season/ until chicks fledged.</p> <p>Use of 'white lights' to be avoided (attract night flying birds). Certain turbines to be lit with medium intensity fixed red obstacle lights and fitted with baffles to ensure light is directed to sky and not discernible from ground.</p>	<p>For <u>operation</u>, NIS states that in view of distances of permitted/ operational wind farms in relation to wind farm, lack of migration paths during survey, and results of the hinterland surveys, the cumulative risk on any avian receptors is considered negligible. Also point to studies that local wintering birds will habituate to presence of turbines.</p>	
Merlin (Falco columbarius) [A098]	To restore the favourable conservation condition with long term breeding population increasing, sufficient productivity rate, distribution (nesting options), foraging habitat, absence of significant disturbance at breeding sites.	<p>No merlin's breeding at development site.</p> <p>Zone of sensitivity is 5km (SNH) and species sensitivity to noise is up to 500-714m (section 6.5.2, NIS).</p> <p>Nearest construction works to SPA are 1km, so no impacts from noise/disturbance/dust from grid connection works or haul route widening works.</p> <p>Use of R336 for transport of turbines not considered to change baseline noise environment of road.</p> <p>Habitat lost within foraging distances of SPA (5km), is modest at road widening areas and consists of terrestrial grassland habitat etc. not suitable for supporting species. Grid connection</p>			See comments.

		<p>route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and displacement (Table 7-24), or collision risk (zero) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species (including Merlin Survey results), sensitivity of species, evidence of collision risk and avoidance rates.</p>			
Golden Plover (Pluvialis apricaria) [A140]	To restore the favourable conservation condition with long term breeding population stable or increasing, sufficient productivity rate, distribution and quality of breeding habitat, absence of significant disturbance at breeding sites, barriers to connectivity, distribution and extent of foraging habitat.	<p>Golden Plover recorded using wind farm site in non-breeding season. No use of peat storage area during non-breeding season.</p> <p>Zone of sensitivity is 3km (SNH) and species sensitivity to noise is up to 100m (section 6.5.3, NIS).</p> <p>Nearest construction works to SPA are 1km, so no impacts from noise/disturbance/dust from grid connection works or haul route widening works (area 2).</p> <p>Use of R336 for transport of turbines not considered to change baseline noise environment of road.</p> <p>Habitat lost within foraging distances of SPA (3km), is modest at road widening</p>			See comments.

		<p>areas and consists of terrestrial grassland habitat, scrub habitat etc. not suitable for supporting species. Grid connection route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and displacement (Table 7-24), or collision risk (zero) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species, sensitivity of species, evidence of collision risk and avoidance rates.</p> <p>Cessation of turbary activity will result in positive long term effect (increase in undisturbed peatland habitat).</p>			
Common Gull (Larus canus) [A182]	To maintain the favourable conservation condition with significant decline in long term breeding population size, sufficient productivity rate, distribution (nesting options in SPA), prey biomass, absence of	<p>No suitable breeding or foraging habitat on site.</p> <p>Zone of sensitivity is 25km and species sensitivity to human disturbance where activities are undertaken in vicinity of breeding colonies (section 6.5.4, NIS).</p> <p>NIS states no breeding colonies associated with common gull population in SPA located in vicinity of any element of proposed development. No evidence provided, but consistent with general location of nest sites (small rocky</p>			See comments.

	<p>significant disturbance at breeding sites and areas ecologically connected to colony and barriers to barriers to connectivity.</p>	<p>islands). Therefore no impacts from noise/disturbance/ dust from grid connection works or haul route widening works.</p> <p>Habitat lost within foraging distances of SPA (25km), is modest at road widening areas and consists of terrestrial grassland habitat, scrub habitat etc. not suitable for supporting species. Grid connection route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and displacement (Table 7-24), or collision risk (0.01/year) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species, sensitivity of species, evidence of collision risk and avoidance rates.</p>			
<p>Overall conclusion: Integrity test. Following the implementation of mitigation, I am not satisfied that the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and reasonable doubt remains as to the absence of such effects.</p>					

NB On page 122 of the NIS it is stated that there are no site specific conservation objectives for any of the four SPAs examined in the NIS. However, site specific objections are available for this site (January 2023) and are referred to above.

Table AA8: AA Summary Matrix Assessment of Effects on Conservation Objectives: Lough Corrib SPA

Lough Corrib SPA, site code 004042					
Summary of Key issues that could give rise to adverse effects:					
<ul style="list-style-type: none"> • Habitat loss/degradation (water pollution, land take, dust). • Disturbance of QI species Conservation Objectives (noise, human activity, lighting, barrier effect). • Collision risk. 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Hen Harrier (Circus cyaneus) [A082]	To restore the favourable conservation condition with long term winter population (roost attendance) stable or increasing, sufficient foraging area, roost habitat and absence of disturbance to impact significantly on wintering birds.	<p>Hydrological link. Potential for indirect effects if significant discharge of polluted surface water.</p> <p>No breeding or roosting within development site.</p> <p>Wind farm site only within 2km zone of sensitivity for species (no potential for effects of peat storage area, grid connection or haul route effects - noise, disturbance, dust).</p> <p>No roosts sites within development site or within 10km of proposed wind farm. So no impact on roost attendance or condition or disturbance effects on roost sites.</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning, arising from:</p> <ul style="list-style-type: none"> • Loss of habitat (Table 7-23, loss of c.9.15ha, 11.24%, sub-optimal breeding and foraging habitat, widespread availability in wider area, activity on site on two dates only), 	<p>Water quality to be protected.</p> <p>Implementation of Surface Water Management Plan, pollution control measures in this and CEMP and emergency response plan.</p> <p>Comprehensive programme of water quality management.</p> <p>Oversight be Ecological CoW.</p> <p>On going monitoring of water quality during operation/ decommissioning.</p>	<p>No significant projects permitted or proposed in proximity to development site during construction phase (pages 116-120, NIS).</p> <p>Significant distance to other consented/ operational wind farms within 20km (Table 6.1, NIS), lack of migration paths identified during surveys and results of hinterland survey indicate absence of significant cumulative effects</p>	See comments.

		<ul style="list-style-type: none"> • Disturbance and displacement (Table 2024), siting on two dates only, no indication of breeding on site, no additional observations in larger flight activity survey area – some potential for disturbance during construction works (birds hunting in site, breeding/hunting nearby). During operation (Table 7-26), no breeding or roosting at site, noise/visual intrusion not likely to deter foraging, evidence indicates birds may continue to use wind farms. • Collision risk (0.001/year, not breeding on site, no ‘sky-dancing’, high avoidance rate). • Barrier effects (Table 7-26, mixed evidence but most recent is that HH continue to use wind farms post construction and therefore do not act as a significant barrier). 	<p>Project ecologist to oversee operational phase, including implementation, management and monitoring of peatland habitat management and enhancement plan.</p> <p>Pre construction survey of, and ongoing construction phase bird monitoring to identify SCI at the development site.</p>	<p>during <u>construction and decommissioning</u> (with implementation of mitigation measures).</p> <p>For <u>operation</u>, NIS states that in view of distances of permitted/ operational wind farms in relation to wind farm, lack of migration paths during survey, and results of the hinterland surveys, the cumulative risk on any avian receptors is considered negligible. Also point to studies that local wintering birds will habituate to presence of turbines.</p>	
Golden Plover (Pluvialis apricaria) [A140]	To maintain the favourable conservation condition with long term winter population stable or increasing, sufficient winter spatial distribution, absence of disturbance to impact significantly on wintering site, barriers to connectivity and site use, sufficient foraging extent, roosting habitat	<p>Hydrological link. Potential for indirect effects if significant discharge of polluted surface water.</p> <p>No birds noted on wind farm site during breeding season. Use of site and surrounding area seems to be in non-breeding season.</p> <p>Wind farm, peat storage area, grid connection route, haul route (but not widening areas) within 3km zone of sensitivity. Nearest part of the development to the SPA is 1km so no potential or effects of noise, dust etc. (sensitivity to noise is up to 100m, section 6.5.3, NIS).</p> <p>Road surface for haulage/grid connection works do not offer suitable habitat.</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and</p>	<p>In the event that wintering SCIs (e.g. Greenland white-fronted goose) occurring on site, construction works to be restricted in these areas (buffer of 100-150m as per evidence base for disturbance).</p> <p>Re-confirmatory survey (March/April) of wind farm site and peat storage area for evidence of activity or occupation of new territories by breeding SCI. Works at any nesting locations to be</p>		See comments.

	and supporting habitat.	displacement (Table 7-24), or collision risk (zero) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species, sensitivity of species, evidence of collision risk and avoidance rates. Enhancement of peat storage area has potential to provide suitable undisturbed peatland habitat.	outside of bird breeding season/ until chicks fledged. Use of 'white lights' to be avoided (attract night flying birds). Certain turbines to be lit with medium intensity fixed red obstacle lights and fitted with baffles to ensure light is directed to sky and not discernible from ground.		
Common Gull (Larus canus) [A182]	To restore the favourable conservation condition with long term breeding population stable or increasing, sufficient productivity rate, availability of nesting sites, prey biomass, absence of significant disturbance to breeding sites and ecologically connected areas and barriers to connectivity.	Development situated within 25km zone of sensitivity and within the foraging zone of the population. Hydrological connection and potential for effects on water quality and indirect effects on species (e.g. foraging habitat). Common gull breeds in SPA. NIS states that no breeding colonies in vicinity of development, with no potential for effects by way of noise, dust, disturbance. No evidence provided, but consistent with general location of nest sites (small rocky islands). Habitat lost within foraging distances of SPA (25km), is modest at road widening areas and consists of terrestrial grassland habitat, scrub habitat etc. not suitable for supporting species. Grid connection route in road corridor (no loss of habitat). Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and displacement (Table 7-24), or collision risk (0.01/year) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on			See comments.

		modest area of habitat lost, use of site by species, sensitivity of species, evidence of collision risk and avoidance rates.			
Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]	To restore favourable conservation condition with long term winter population stable or increasing, sufficient winter spatial distribution, absence of significant disturbance at wintering site and barriers to connectivity.	<p>Hydrological link. Potential for indirect effects if significant discharge of polluted surface water.</p> <p>Development (except widening of haul route at area 1 and 2) is situated within 8km zone of sensitivity and within the foraging zone of the population.</p> <p>No record of species using development site during surveys (single flight recorded over forestry).</p> <p>Nearest distance between SPA and development site is 1km and therefore no potential for effects by way of air, noise, disturbance.</p> <p>Habitat lost within foraging distances of SPA (8km), is modest at road widening areas 3 and 4 and consists of habitat not suitable for supporting species. Grid connection route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, decommissioning and operation arising from loss of habitat (Table 7-23, no use of site/flying over), disturbance and displacement (Table 7-24, potential for disturbance impact with wind farm, however single siting off site, not a breeding species in Ireland), collision risk (zero) or barrier effect (Table 7-26, potential for barrier effect but no record of species on site in survey work). Conclusions are based on modest loss of habitat, use of site by species, recordings on site, collision risk assessment etc.</p> <p>Enhancement of peat storage area has potential to provide suitable undisturbed peatland habitat.</p>			See comments.

Wetland and Waterbirds [A999]	To maintain the favourable conservation condition with no significant loss of wetland habitat or significant impact on wetland habitat quality and functioning.	<p>No loss of wetland habitat. Potential for effects on water quality with hydrological connectivity to wind farm site and peat storage area.</p> <p>Other waterbirds not listed as SCI bird species identified as key avifauna receptors for development (page 109, NIS).</p> <p>Zone of sensitivity is generally >2km, with all elements of project occurring within foraging zone.</p> <p>Evidence based maximum distance from noise source for disturbance is 300m. Development is c.1km from SPA so no adverse effects from noise, dust, disturbance.</p> <p>Ornithological assessment predicts no significant effects during construction, decommissioning and operation arising from loss of habitat, disturbance, collision risk, barrier effect. Conclusions are based on modest loss of habitat, use of site by species, recordings on site, collision risk assessment etc.</p>			See comments.
<p>Overall conclusion: Integrity test. Following the implementation of mitigation, I am not satisfied that the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and reasonable doubt remains as to the absence of such effects.</p>					

NB On page 122 of the NIS it is stated that there are no site specific conservation objectives for any of the four SPAs examined in the NIS. However, site specific objections are available for this site (January 2023) and are referred to above.

Table AA9: AA Summary Matrix Assessment of Effects on Conservation Objectives: Lough Mask SPA

Lough Mask SPA, site code 004062					
Summary of Key issues that could give rise to adverse effects:					
<ul style="list-style-type: none"> Habitat loss/degradation (land take, dust). Disturbance of QI species Conservation Objectives (noise, human activity, lighting, barrier effect). Collision risk. 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
<p>Common Gull (Larus canus) [A182]</p> <p>N.B. Conservation objectives for SPA are generic. NIS refers to sample objectives from Saltee Islands SPA. Sample objectives used here from Lough Corrib SPA</p>	<p>To restore the favourable conservation condition with long term breeding population stable or increasing, sufficient productivity rate, availability of nesting sites, prey biomass, absence of significant disturbance to breeding sites and ecologically connected areas and barriers to connectivity.</p>	<p>Development situated within 25km zone of sensitivity and within the foraging zone of the population.</p> <p>Lough Mask is upstream of development site. So no hydrological connection or potential for effects on water quality.</p> <p>Common gull breeds in SPA. NIS states that no breeding colonies in vicinity of development, with no potential for effects by way of noise, dust, disturbance. No evidence provided, but consistent with general location of nest sites (small rocky islands).</p> <p>Habitat lost within foraging distances of SPA (25km), is modest at road widening areas and consists of terrestrial grassland habitat, scrub</p>	<p>Pre construction survey of, and ongoing construction phase bird monitoring to identify SCI at the development site.</p> <p>In the event that wintering SCIs (e.g. Golden Plover, Greenland white-fronted goose) occurring on site, construction works to be restricted in these areas (buffer of 100-150m as per evidence base for disturbance).</p> <p>Re-confirmatory survey (March/April) of wind farm site and</p>	<p>No significant projects permitted or proposed in proximity to development site during construction phase (pages 116-120, NIS).</p> <p>Significant distance to other consented/ operational wind farms within 20km (Table 6.1, NIS), lack of migration paths identified during surveys and results of hinterland survey indicate absence of significant cumulative effects during <u>construction and decommissioning</u> (with implementation of mitigation measures).</p>	<p>See comments.</p>

		<p>habitat etc. not suitable for supporting species. Grid connection route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and displacement (Table 7-24), or collision risk (0.01/year) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species, sensitivity of species, evidence of collision risk and avoidance rates.</p>	<p>peat storage area for evidence of activity or occupation of new territories by breeding SCI. Works at any nesting locations to be outside of bird breeding season/ until chicks fledged.</p> <p>Use of 'white lights' to be avoided (attract night flying birds). Certain turbines to be lit with medium intensity fixed red obstacle lights and fitted with baffles to ensure light is directed to sky and not discernible from ground.</p>	<p>For <u>operation</u>, NIS states that in view of distances of permitted/ operational wind farms in relation to wind farm, lack of migration paths during survey, and results of the hinterland surveys, the cumulative risk on any avian receptors is considered negligible. Also point to studies that local wintering birds will habituate to presence of turbines.</p>	
<p>Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]</p> <p>N.B. Conservation objectives for SPA are generic. NIS refers to sample objectives from Saltee Islands SPA.</p>	<p>To maintain or restore the conservation condition with regard to no significant decline in breeding population, productivity rate, distribution of breeding colonies, prey biomass, barriers to connectivity and disturbance at breeding sites.</p>	<p>Development situated within 70km zone of sensitivity and within the foraging zone of the population.</p> <p>Lough Mask is upstream of development site. So no hydrological connection or potential for effects on water quality.</p> <p>Species recorded on site (in vantage point survey), no evidence of breeding or foraging.</p> <p>Habitat lost within foraging distances of SPA (70km), is modest at road widening areas and consists of terrestrial grassland habitat, scrub habitat etc. not suitable for supporting species. Grid connection</p>			<p>See comments.</p>

		<p>route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, decommissioning and operation arising from loss of habitat disturbance and displacement (Table 7-23 construction - no suitable breeding habitat and foraging habitat is sub optimal; Table 7-26 operation – published data on habituation, no breeding on site, lack of suitable foraging on site), collision risk (recorded fatalities with wind farms, yet high level of micro-avoidance, 0.002/year), barrier effect (Table 7-26, mixed data on barrier effect, concludes negligible effect with low % of habitat lost). Conclusions are based on modest loss of habitat, use of site by species, recordings on site, collision risk assessment etc.</p>			
<p>Overall conclusion: Integrity test. Following the implementation of mitigation, I am not satisfied that the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and reasonable doubt remains as to the absence of such effects.</p>					

Table AA10: AA Summary Matrix Assessment of Effects on Conservation Objectives: Lough Carra SPA

Lough Carra SPA, site code 004051 Summary of Key issues that could give rise to adverse effects: <ul style="list-style-type: none"> • Habitat loss/degradation (land take, dust). • Disturbance of QI species Conservation Objectives (noise, human activity, lighting, barrier effect). • Collision risk. 					
Qualifying Interest	Targets and Attributes	Summary of Appropriate Assessment			Can adverse effects on the integrity of the site be excluded?
		Potential Adverse Effects	Mitigation Measures	In-combination Effects	
Common Gull (Larus canus) [A182] Conservation objectives for SPA are generic. NIS refers to sample objectives from Saltee Islands SPA. Sample objectives used here from Lough Corrib SPA	To restore the favourable conservation condition with long term breeding population stable or increasing, sufficient productivity rate, availability of nesting sites, prey biomass, absence of significant disturbance to breeding sites and ecologically connected areas and barriers to connectivity.	Development situated within 25km zone of sensitivity and within the foraging zone of the population. Lough Carra is upstream of development site. So no hydrological connection or potential for effects on water quality. Common gull breeds in SPA. NIS states that no breeding colonies in vicinity of development, with no potential for effects by way of noise, dust, disturbance. No evidence provided, but consistent with general location of nest sites (small rocky islands). Habitat lost within foraging distances of SPA (25km), is modest at road widening areas and consists of terrestrial	Pre construction survey of, and ongoing construction phase bird monitoring to identify SCI at the development site. In the event that wintering SCIs occurring on site, construction works to be restricted in these areas (buffer of 100-150m as per evidence base for disturbance). Re-confirmatory survey (March/April) of wind farm site and peat storage area for evidence of activity or occupation of new territories by breeding SCI. Works at any nesting locations to be outside of	No significant projects permitted or proposed in proximity to development site during construction phase (pages 116-120, NIS). Significant distance to other consented/ operational wind farms within 20km (Table 6.1, NIS), lack of migration paths identified during surveys and results of hinterland survey indicate absence of significant cumulative effects during <u>construction and decommissioning</u> (with implementation of mitigation measures).	See comments.

		<p>grassland habitat, scrub habitat etc. not suitable for supporting species. Grid connection route in road corridor (no loss of habitat).</p> <p>Ornithological survey predicts no significant effects during construction, operation and decommissioning of the wind farm/ peat storage area arising from loss of habitat (Table 7-23), disturbance and displacement (Table 7-24), or collision risk (0.01/year) and disturbance/barrier effect during operation (Table 7-26). Conclusions are based on modest area of habitat lost, use of site by species, sensitivity of species, evidence of collision risk and avoidance rates.</p>	<p>bird breeding season/ until chicks fledged.</p> <p>Use of 'white lights' to be avoided (attract night flying birds). Certain turbines to be lit with medium intensity fixed red obstacle lights and fitted with baffles to ensure light is directed to sky and not discernible from ground.</p>	<p>For <u>operation</u>, NIS states that in view of distances of permitted/ operational wind farms in relation to wind farm, lack of migration paths during survey, and results of the hinterland surveys, the cumulative risk on any avian receptors is considered negligible. Also point to studies that local wintering birds will habituate to presence of turbines.</p>	
<p>Overall conclusion: Integrity test. Following the implementation of mitigation, I am not satisfied that the construction, operation and decommissioning of this proposed development will not adversely affect the integrity of this European site and reasonable doubt remains as to the absence of such effects.</p>					

Discussion

7.23.39. Having regard to the foregoing, and notably the detailed arrangements for the mitigation of impacts in respect of the potential for direct and indirect effects by way arising from proximity or hydrological connections, I am satisfied that the proposed development would not adversely affect the integrity of Special Areas of Conservations in the vicinity of the site carried forward for appropriate assessment. However, as indicated earlier in this report, I have concerns with regard to the peat stability assessment and consider that in the absence of further information on the proposed efficacy of mitigation measures, risk of peat slide remains and potential adverse effects on downstream water bodies and therefore the SCIs of Lough Corrib SAC, cannot be ruled out.

7.23.40. With regard to the SPAs, in the course of the planning application the DHLG&H (Nature conservation, 13th March 2023) raised concerns in respect of collision risk impacts, in particular on Hen Harrier, in-combination effects and mitigation measures for works occurring immediately adjacent to Maumturk Mountains SAC.

Collision risk impacts

7.23.41. I have considered the applicant's collision risk assessment in the Ornithology section of this report and for the reasons previously stated, I do not consider that it is sufficiently accurate or demonstrably robust to draw clear conclusions. The collision risk assessment examines collision risk for SCIs occurring in the SPAs examined in this appropriate assessment i.e. Cormorant (SCI Connemara Complex SPA), Common Gull (SCI Connemara Complex SPA, Lough Corrib SPA, Lough Mask SPA and Lough Carra SPA), Hen Harrier (SCI Lough Corrib SPA) and Lesser black-backed gull (Lough Mask SPA. Due to inadequacies in the collision risk assessment I do not consider that adequate information has been submitted to exclude impacts on these SCIs.

7.23.42. The applicant's revised collision risk model and associated appendix consider the effect of the development on the local population of Hen Harrier. However, I note that the incorrect collision risk rate of 0.002/year has been referred to in the appendix (which assesses likely effect of the development on bird populations in the context of collision risk), against a predicted collision risk of 0.001/year (Table 6.1 no. of

predicted collisions/year, revised). Further, the justification for the conclusions refers to the degraded nature of heath/bog, which contradicts the findings of the biodiversity assessment which considers the upland bog on the subject site to be representative of best examples of undesignated Annex I blanket bog. In addition, the text of the Appendix refers to the collision risk of 0.08 birds per year and concludes that the additional loss of 0.08 birds/year in addition to a natural mortality rate of 19%, the additional loss of Hen Harrier, if from the Lough Corrib population of 8, from collision risk would not be significant. Whilst predicted mortality of birds from collision risk, may not of itself be significant, given the inconsistencies and errors in the Appendix and poor justification given for conclusions, I am not satisfied that the information provided is adequate or allows for a complete assessment of any adverse effects on the species.

Cumulative Effects

7.23.43. As stated in the ornithology section of this report, I am also not satisfied that the applicant's assessment of cumulative effects is (a) robust, as it is not based on an accurate collision risk assessment, or (b) that its conclusions in respect of the absence of effects is supported by evidence, for example, it does not present an understanding of the ecological relationships between the various wind farm habitats, their interdependencies (if any) or the movement of species between these sites (again, if any). For Hen Harrier, the potential for cumulative effects is particularly important given the recent documented decline of the population in the State by one third since 2015, and the pressures on the species, including from renewable energy (National Survey of Breeding Hen Harrier in Ireland, Gol, 2022).

Mitigation

7.23.44. DHLG&H argue that the peat storage area should be fenced off from the Annex I Blanket bog (*if active bog), occurring within the adjoining Maumturk Mountains Special Area of Conservation (SAC), with such works specified in the NIS and to come under the role of the Ecological Clerk of Works. This matter has been satisfactorily addressed by the applicant in the appeal documentation.

7.23.45. **Appropriate Assessment Conclusion**

7.23.46. On the basis of the information submitted with the application, including the submitted Natura Impact Assessment and associated documents, following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects:

- (i) Would not adversely affect the integrity of the following European sites in view of the site's Conservation Objectives: Maumturk Mountains SAC, Connemara Bog Complex SAC and Kilkieran Bay and Islands SAC. This conclusion is based a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.
- (j) Would adversely affect the integrity of the following European sites in view of the site's Conservation Objectives Connemara Bog Complex SPA, Lough Corrib SAC and SPA, Lough Mask SPA and Lough Carra SPA. This conclusion is based on the inadequacy of the peat stability, collision risk and cumulative impact assessments.

7.23.47. The Board is therefore precluded from granting planning permission for the proposed development.

8.0 Recommendation

8.1. I recommend that permission for the development be refused for the reasons and considerations set out below.

9.0 Reasons and Considerations

1. The proposed development by reason of its height (185m ground to tip height) and scale (6 turbines), location of the proposed development in an elevated and exposed designated Class 3 landscape, of high sensitivity, and in proximity to designated Iconic landscapes, designated scenic routes and protected views and in an area identified in the Local Authority Renewable Energy Strategy (LARES), which forms part of the Galway County Development Plan 2022-2028, classified as being 'Not Normally Permissible' for Wind Energy Projects, would be contrary to Policy Objectives LCM 1 and 2 which seek to preserve and enhance landscape character and have regard to

landscape sensitivity, and to Policy Objective RE 3 which facilitates wind farm development at suitable development within the County, having regard to the areas designated in the LARES. Accordingly, the Board is not satisfied that, notwithstanding the benefits of and policy support for renewable energy proposals, that the proposed development would not be plan led, or in accordance with the stated policy objectives of the statutory development plan for the subject site and would seriously detract from the landscape character and visual amenity of the area. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

2. The Board is not satisfied that the Environmental Impact Assessment Report has adequately assessed the likely effect of the development on population and human health, biodiversity, ornithology, peat stability, traffic and transport and the landscape and the interaction of these factors. Accordingly, the Board is not able to satisfy itself that the development will not have a significant impact on sensitive environmental receptors. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.
3. The Board is not satisfied that the information presented in the applicant's Natura Impact Statement, the associated documentation, submissions received, and in light of the Inspector's report, which the Board agreed with, allows for a complete assessment of the adverse effects of the development on the conservation objectives of Connemara Bog Complex SPA, Lough Corrib SAC and SPA, Lough Mask SPA and Lough Carra SPA, as a consequence of peat stability, collision risk and cumulative impact assessment with other wind farm development in the vicinity of the site. The Board was not satisfied, therefore, that the proposed development would not adversely affect the integrity of the aforementioned European sites in view of the site's conservation objectives and there is reasonable scientific doubt as to the absence of effects. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has

influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

Deirdre MacGabhann

Planning Inspector

29th February 2024