Inspector's Report ABP-319961-24

Proposed Development	Four wind turbines and associated development, including entrance off L6132 local road, meteorological mast, clear-span bridge, electrical substation and grid connection
Location	Ballykett, Tullabrack East, Tullabrack, Tullabrack West, Gower South and Gowerhass townlands, Kilrush, County Clare
Planning Authority	Clare County Council
Planning Authority Reg. Ref.	P24/60143
Applicant	Ballykett Green Energy Limited
Type of Application	Permission
Planning Authority Decision	Refuse to Grant Permission
Type of Appeal	First Party
Appellant(s)	Ballykett Green Energy Limited
Prescribed Bodies	None

Observers	Michael Duffy Timmy Dooley Rita McInerney Ballykett Action Group Paul & Eileen O'Dea
Date of Site Inspection	17th October 2024
Inspector	Colm McLoughlin

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1.0 Site Location and Description

1.1. The appeal site is located to the southwest of County Clare, approximately 2.5km northeast of Kilrush and generally comprises commercial coniferous plantations, as well as cutover peatlands and agricultural pastures. The proposed turbine area of the appeal site features frontage directly onto the L6132 local road, connecting between the R483 regional road and the N68 national road. The immediate area to the site is characterised by a patchwork pattern of commercial forestry, peatlands and agricultural fields, interspersed with one-off rural housing and farmsteads situated off a local road network. A 110 kilovolt (kV) overhead electricity powerline with associated pylons traverses the northern portion of the appeal site in an east-west direction. The Moyasta river also traverses the northern portion of the site.

1.2. The proposed grid-connection route forming part of the appeal site would follow the L6132 local road on the northern boundary of the main turbine site area, before traversing the R483 regional road at Tullabrack Cross and subsequently following the L2036-15 local road leading west towards the Tullabrack 110kV electricity-substation compound.

1.3. The turbine-delivery route traverses counties Limerick and Clare, commencing at the port of Foynes and following the N69 national road eastwards, before connecting with the N18 / M18 travelling north until junction 12 at Killow. Following this, the deliveries would initially be routed westwards along the N85 national road on the southern side of Ennis, before being routed southwest on the N68 national road in the direction of Kilrush. At a road junction located 8.5km northeast of Kilrush the delivery route turns off the N68 national road onto the L6132 local road leading directly to the northern boundary of the appeal site.

2.0 Proposed Development

2.1. The proposed development would consist of the following elements:

- erect four wind turbines with an overall ground-to-blade tip height of 150m, a rotor diameter of 136m and a hub height of 82m, with a combined power output of between 16 megawatts (MW) and 20MW;

- construct crane hardstand areas, turbine foundations, internal site-access tracks, a clear-span bridge crossing the Moyasta river, a 38kV electrical substation and a temporary construction compound, with associated site offices, parking areas and security fencing;
- installation of a permanent meteorological mast with an overall height of 82m;
- vehicular entrance onto the L6132 local road, with vertical realignment of a crest curve on the L6132 local road;
- upgrade of an existing vehicular access track;
- site drainage network, biodiversity enhancement measures, two permanent spoil-storage areas, ancillary forestry felling and a borrow pit;
- underground electrical and communications cabling connecting the turbines to a proposed on-site substation and a 1.84km-long underground electrical-grid connection to the existing Tullabrack 110kV substation compound, with road widening works along a 500m stretch of the western end to the L6132 local road;
- all associated development;
- ten-year permission, with a 35-year operational lifespan.

2.1.1. In addition to the standard contents, the application was accompanied by technical reports with appendices and drawings, including the following:

- Planning Statement;
- Environmental Impact Assessment Report (EIAR) (Volume I. Non-Technical Summary, Volume II. Main Report, Volume III. Figures & Drawings and Volume IV. Appendices);
- Natura Impact Statement (NIS);
- Landscape and Visual Impact Photomontage booklet.

3.0 Planning History

3.1. Appeal Site

3.1.1. The following planning applications relate to lands partially overlapping the appeal site:

- Clare County Council (CCC) reference (ref.) P23/60219 – in August 2023, the Planning Authority refused to grant permission for four wind turbines and associated development for six reasons relating to the visual impacts of the development on the amenities of the area and surrounding landscape, noise, traffic and overbearing impacts for neighbouring residents, lack of certainty regarding the potential impacts of the turbine-delivery route along the L6132 local road and the grid connection option to Moneypoint substation, impacts on Poulnasherry Bay, a designated-shellfish waterbody, impacts on biodiversity, including birds and bats, and a lack of comprehensive assessment of environmental impacts in the application EIAR;
- CCC ref. P25/60257 – in July 2025, the Planning Authority refused to grant permission for three wind turbines with a maximum tip height of 150m and associated development in Moanmore Lower townland along the L2034 local road, 2.7km to the west of the appeal site, with works along the turbine-delivery route, including vertical realignment of a crest curve on the L6132 local road at Gower South townland and a blade transfer area off the L6132 at Tullabrack East townland overlapping the appeal site. A spoil-management area adjacent to Kilrush rugby club in Moanmore South townland, a grid connection to Tullabrack 110kV electricity substation compound and a ten-year permission were sought, along with a 40-year operational lifespan for the development. The reasons for refusal issued by the Planning Authority relating to the visual impacts of the development on the amenities of the area and surrounding landscape, noise, traffic and overbearing impacts for neighbouring receptors, depreciation in property values, potential impacts on Hen harrier and insufficient details regarding water monitoring, with risk of pollution to waterbodies, including Poulnasherry Bay, the Lower River

Shannon Special Area of Conservation (SAC) and the River Shannon and River Fergus Estuaries Special Protection Area (SPA).

3.2. Surrounding Area

3.2.1. The report of the Planning Authority (May 2024) provides a detailed list of planning applications relating to lands in the immediate and wider area, the majority of which are of relatively minor scale and relate to one-off housing, domestic extensions and alterations, agricultural developments and quarrying. The following recent neighbouring application relates to lands adjoining to the southwest of the main turbine area to the appeal site:

- CCC ref. 15/125 – in June 2015, the Planning Authority granted temporary permission until September 2015 to amend condition 1 of quarry registration no. QY27 to allow for an increase in the annual material extraction from 1,500 tonnes up to a maximum of 20,000 tonnes and all associated site works.

3.2.2. In addition to the application referenced above, the following applications relate to proposals for renewable-energy developments on lands within the immediate and wider area of the appeal site:

- An Bord Pleanála (ABP) ref. 123292 / CCC ref. 00/952 – in November 2001, the Board granted permission for seven turbines with 67m-high towers and 70m-diameter blades, transformer substations, access tracks, hardstandings and associated development. This windfarm, known as Moanmore, has since been completed with the nearest turbine located approximately 1.8km west of the nearest proposed turbine on the appeal site, and with an access off the L2036-15 local road;
- ABP ref. PL03.206520 / CCC ref. 03/1100 – in July 2004, the Board refused to grant permission for six turbines with a height of 87m, hardstandings, anemometer mast, electrical-switchyard compound and 2.5km of access tracks in Moanmore Lower townland, located approximately 3.2km to the west of the appeal site, due to the potential adverse impacts on the landscape, proximate to the N67 national secondary road and houses, and due to the large-scale disposition and height of the proposed turbines;

- ABP ref. PL03.222255 / CCC ref. 03/908 – in September 2007, the Board refused to grant permission for six turbines with a height of 100m, hardstandings and access tracks in Tullabrack townland to the northwest of the appeal site, due to the visual intrusion on the open, flat landscape, proximate to Moanmore windfarm, houses and habitat of importance to bird species of natural heritage value;
- CCC ref. 10/64 – in July 2010, the Planning Authority granted permission for six turbines, an electrical compound, a substation building, electrical cabling, car parking spaces, associated site roads and work areas accessed off the L2036-15 local road, with the period for this permission extended in August 2015 under CCC ref. 15/474 until July 2020. Known as Tullabrack windfarm, this windfarm has since been completed with CCC ref. 16/383 providing for reduced turbine heights of 119.3m, the nearest of which would be approximately 2km northwest of the proposed turbine site;
- ABP ref. PL03.244088 / CCC ref. 14/487 – in July 2015, the Board refused to grant permission for nine turbines with an overall height of 126m, an electrical compound with a control building, a meteorological mast, accessed off the L2034 local road and all associated works on peatlands located approximately 5km to the northwest of the appeal site, due to concerns regarding the risk of impairment to Doonbeg River aquatic habitat and freshwater pearl mussel;
- CCC ref. 18/679 – in November 2018, the Planning Authority granted permission for a solar energy development on a site located approximately 2.3km to the northwest of the appeal site, to include an electrical-substation building, ten compact substations, electrical transformer and inverter modules, storage container, ground-mounted photovoltaic panels on support structures, internal access tracks, security fencing, electric cabling and ducting, closed-circuit television and other ancillary infrastructure, drainage, landscaping, habitat enhancement works and vehicular access. This development was not in place during my site visit and the permission expired in 2023.

3.2.3. An application was recently received by the Commission with respect to the following:

- ABP ref. 321697-25 – in January 2025, permission was sought for a 30 turbine off-shore windfarm, known as Sceirde Rocks, to be located west of Inishmore island, with generators and gravity-based fixed-bottom foundations and all associated work, including a 220kV grid-connection line and an associated construction compound 1km to the southwest of the appeal site within the grounds of Kilrush golf club. A decision on this case is due in July 2025.

3.3. Pre-application Consultation

3.3.1. Prior to lodgement of the previously refused application (CCC ref. P23/60219), an initial pre-application consultation meeting under section 247 of the Planning and Development Act 2000, as amended (hereinafter 'the Act of 2000'), took place between representatives of the applicant and the Planning Authority on the 21st day of September, 2022 (under CCC ref. PPI 22/133), in respect of a development generally comprising four satellite wind turbines to the Tullabrack windfarm, with tip heights of 150m to 160m and with two potential grid-connection routes. A copy of the Planning Authority's record of this meeting has been placed on the appeal file and based on these records the main topics raised for discussion at the pre-application stage included the following:

- the wind-energy strategy designation for the site is 'open for consideration';
- proximity to an existing windfarm could result in a potentially haphazard appearance;
- Tullabrack electrical substation requires upgrades to accept an energy increase;
- the need to consider the neighbouring 'acceptable in principle' lands;
- visual impact and extent of visibility, including from West Clare Greenway;
- flood risk and hydrological connections;
- in-combination effects;
- the need for robust consideration of alternatives.

4.0 Planning Authority Decision

4.1. Decision

4.1.1. The Planning Authority decided to refuse to grant planning permission for the proposed development for four reasons, which can be summarised as follows:

Reason 1 – visual impacts from local and long-range vantage points, and cumulative visual impacts on the Kilrush farmlands, Loop Head and Shannon estuary farmlands landscape character areas;

Reason 2 – injurious to the amenities and depreciation in values of neighbouring residential properties, including via noise, the general disturbance arising from the associated construction traffic and overbearing impacts;

Reason 3 – the potential impacts and risks to Poulnasherry Bay, a designated-shellfish waterbody, the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA have not been adequately considered, with particular reference to the felling of a significant area of commercial forestry and a reliance on post-consent site investigations;

Reason 4 – it cannot be concluded that the proposed development would not have significant impacts on hen harrier based on the information available, the limited long-term post-consent hen harrier monitoring data and the density of windfarms in west Clare.

4.2. Planning Authority Reports

4.2.1. The recommendation within the report of the Planning Officer (May 2024) reflects the decision of the Planning Authority and this report can be summarised as follows:

<u>Principle, Validity & EIA</u>

- the proposed development would need to overcome previous reasons for refusal of planning permission under CCC ref. P23/60219;
- the site location is ‘open for consideration’ for wind-energy developments, subject to compliance with regional and national planning provisions, the Development Plan and the Clare Wind Energy Strategy;

- there are inconsistencies regarding the applicant's legal interest in the entirety of the site, including lands at the junction of the N68 national road and the L6132 local road;
- preparation of an EIAR is required;
- the competency of those who prepared the EIAR, compliance with regulatory requirements and the consideration of alternatives in the EIAR is acceptable;
- the proposed development would depreciate the value of property in the vicinity, due to the significant landscape and visual impact arising;
- the felling of commercial forestry has not been adequately assessed in the EIAR;

Biodiversity

- various surveys and the Biodiversity Enhancement and Management Plan are noted;
- the site or adjoining areas do not feature specific nature conservation designations;
- invasive species were not recorded on the site or along the grid-connection and turbine-delivery routes, although Japanese Knotweed was recorded in the Brisla East stream upriver of the turbine-delivery route road crossing;
- as survey information contained in both the NIS and EIAR is over two-years old, a professional ecologist / ornithologist, ideally the original author of the report, should have reviewed the validity of the reports and submitted a justification statement for their validity;
- mitigation measures and predicted impacts are noted for birds, bats, downstream aquatic habitat and terrestrial mammal species;
- the watercourses surveyed were not identified as suitable habitats for Habitats Directive annex II listed species or species of high-conservation value;
- based on the information available it cannot be concluded that there would be no environmental effects resultant from this proposal for hen harrier, in particular with regard to the National Hen Harrier Breeding Survey 2022;

- the series of measures associated with future tree felling should have been adequately assessed as part of the current application, including the preparation of a Harvest Plan, determining extraction routes, crossings, fuelling, stacking and turning areas, all of which have the potential to impact on local hydrology and surface-water conditions directly connecting with Poulnasherry Bay, a designated shellfish water body reliant on good water quality for aquaculture production;
- based on the information received with the application, the proposed development would present a significant risk of adverse environmental impacts for sensitive natural habitats of the site and wider area, and would constitute an unacceptable risk of pollution to watercourses in the area;

Soils, Geology, Hydrology and Hydrogeology

- considerable requirements for post-consent site investigations are noted and it cannot be concluded that the mitigation as proposed would be adequate, and that the proposal would not result in adverse impacts on the receiving soils and geology;
- inadequate information has been received with regard to the composition of subsoil materials within the proposed borrow pit to be excavated as part of the project;

Noise and Vibration

- it is unclear whether the residential receptors closest to the proposed turbines include recently permitted houses, for example the house permitted under CCC ref. P21/482;
- the noise level impacts for neighbouring receptors would be sufficiently representative of levels expected at the permitted house subject of CCC ref. P21/482;
- operational noise levels at all wind speeds are deemed not to have significant impacts;
- the application does not adequately address the noise and disturbance arising from traffic movements during the construction phase of the project;

Landscape and Visual Impacts

- when compared with the existing turbines, the additional 25m blade height for the proposed turbines would have significant visual impacts from six vantage points;
- the proposed turbines would not read as an extension to the existing windfarms, and, as such, would constitute an ad hoc piecemeal development, resulting in visual clutter within the rural landscape, contrary to provisions within the Clare Wind Energy Strategy addressing the capacity of the Kilrush, Loop Head and Shannon Estuary Farmland landscape character areas to absorb such developments;
- the adverse visual impacts arising from the development, would have knock-on adverse impacts for local tourism;

Air Quality and Climate

- air-quality sampling was not undertaken, although air-quality mitigation measures for the construction and decommissioning phases, as set out in the EIAR, are considered adequate;
- operation of the windfarm would have a long-term moderate positive impact on climate, due to the associated reduction in greenhouse gas emissions;

Shadow Flicker and Electromagnetic Interference

- a permitted house (CCC ref. P21/482) and an existing house in the immediate area have not been assessed in the EIAR in order to address shadow flicker impacts on these sensitive receptors, therefore the assessment is incomplete;
- issues pertaining to electromagnetic interference (EMI) are accurately assessed in the EIAR as not resulting in likely significant effects;

Archaeology and Cultural Heritage

- issues pertaining to the protection of archaeological heritage from any potential direct impacts could be appropriately managed by a condition of a planning permission;

Material Assets

- significant effects for agricultural lands, commercial-forestry operations, telecommunications, aviation and electricity networks would not arise;
- both Kilmihil and Kilkee wastewater-treatment plants have capacity issues, therefore, they may not have the capacity to accommodate the wastewater loading arising from the proposed development during the construction phase;
- an assessment of welfare facilities to be provided for visiting staff during the operational phase is not provided;

Traffic and Transport

- further information with respect to the achievement of 160m visibility splays at the proposed entrance onto the L6132 local road would be needed;
- a final traffic management plan to provide for continued access for traffic and emergency services should be provided as a condition of a permission;
- the cost of reconstructing the local roads along the grid-connection route and a 5% damage cost to regional roads along material haul routes would need to be secured by appropriate conditions;
- the cost of fully reconstructing a 6km-long stretch of the L6132 local road on the turbine-delivery route, as well as repairing an estimated 1% damage cost to the N68 national road on this route, would need to be included as appropriate conditions;
- details of overhead cables to be removed, structural constraints, weight loadings and swept-paths for the turbine-delivery route should be sought;
- various technical details would need to be addressed as conditions of a permission, as well as the attachment of a condition requiring submission of a bond;

Interactions, Major Accidents and Natural Disasters

- the interactions of key environmental issues have been satisfactorily compiled and adequately set out, although several shortcomings in terms of the information in the EIAR have been highlighted;

- assessments in relation to turbine safety, peat stability and flooding are provided;
- potential sources of pollution are limited on site and potential sources of pollution in the area are noted;
- the development is not anticipated to exacerbate an identified pluvial flood risk area located 3.4km from the site along the N67 national road;
- there would be limited risk from fire occurring;

EIA Conclusion

- the main significant direct and indirect effects of the proposed development on the environment comprise impacts on the landscape, adjacent land uses and sensitive receptors, as well as impacts arising for biodiversity, aquatic ecology, soils, geology, hydrology and hydrogeology during the construction and operational phases;
- the benefits of this renewable energy project would not outweigh the serious adverse environmental effects that its construction and operation would likely deliver, and the proposed development is determined to have unacceptable direct and cumulative impacts on the environment;

Appropriate Assessment

- an alternative grid connection to that proposed would require a new planning application;
- the information submitted, including the lack of consideration for forestry felling, does not allow for a complete examination and identification of potential significant effects of the development, alone or in combination with other plans and projects, on European sites;
- the clear felling of 17.6ha of forestry is a considerable portion of the project and mitigation measures to address the impacts on hydrology and surface water connecting with Poulnasherry Bay within the Lower River Shannon SAC, including the risk of phosphate mobilisation in peat soils, have not been set out;

- it is unclear what mitigation measures and technical details would be developed post consent;
- there is insufficient information regarding the mitigation measures required to avoid, reduce, or remediate the potential for adverse effects;
- it cannot be concluded beyond reasonable scientific doubt that adverse effects would not arise.

Inter-Departmental Reports

- Environmental Assessment Officer – given that the survey information contained in both the NIS and EIAR are over two years old and in some cases four-years old, a professional ecologist / ornithologist should have reviewed the validity of the report, including whether additional surveying was necessary. It is difficult to conclude a finding of no cumulative environmental effects for hen harrier with post-consent monitoring data not available for recently-constructed windfarms. The proposal adds to a significant concentration of turbines in the West Clare landscape. Clear felling of 17.6ha of commercial forestry and the works associated with this should have been assessed as part of the application, including the EIAR and NIS, and considerable post-consent site investigations are required for the turbine foundations and hardstandings, resulting in insufficient information to be capable of concluding that there would be no adverse effects from this element of the project for connected sites;
- Municipal District Engineer – grid-connection routes 2 and 3 to Moneypoint are unacceptable, a bond for works along the grid-connection route is required, the 6km-long, turbine-delivery route along the L6132 local road would require full reconstruction, repair costs would apply to the material-haul routes and conditions should be attached with respect to traffic management, consultation, road-opening licences, bridges and culverts, pre and post-condition road surveys, a financial bond, construction timing and grid-connection details;
- Road Design Office – various conditions need to be agreed, including works to roads, a traffic-management plan, waste management and prior, during and

post-condition surveys for roads, bridges and culverts on the standard and abnormal-delivery routes. Further details are required with respect to the turbine-delivery access, overhead cables, consultation with Transport Infrastructure Ireland (TII), details of construction activities and outages along the roads, clarification of certain matters, structural assessment of a watercourse crossing on the L6132 local road east of the site and provision of 160m sightline visibility onto this local road.

4.3. Prescribed Bodies

- Uisce Éireann – no objection, with no adverse impacts on water infrastructure anticipated and standard conditions recommended regarding connection agreements and compliance with standards and codes;
- Minister for Housing, Local Government & Heritage (Archaeology Unit) – previously unrecorded archaeological remains may be disturbed during groundworks and it is broadly agreed that the assessment of impacts and the measures recommended to mitigate the impacts of the proposed development on archaeological heritage would be adequate, with additional conditions recommended, including undertaking of a detailed archaeological assessment prior to commencement of development based on geophysical surveys and test excavations in the area of proposed turbine 4 and the borrow pit;
- Minister for Housing, Local Government & Heritage (National Parks and Wildlife Service - NPWS) – noting the bird field surveys dating from October 2022, the competent authority should ensure use of more up-to-date information for their AA determination. Mitigation measures should be implemented in full and remediation undertaken;
- An Taisce – no response;
- The Heritage Council – no response;
- Inland Fisheries Ireland (IFI) – various requirements listed with respect to works affecting instream and riparian habitat, felling operations, crossings, water-quality monitoring, planting buffers, drainage and construction-phase mitigation measures.

4.4. Third-Party Submissions

4.4.1. According to the Planning Authority, a total of 87 third-party submissions were received during the consultation period for the application, and these were received from residents of Kilrush, Clare and the wider area, residents' groups, local political representatives and local sporting organisations. The substantive issues raised in these third-party submissions can be summarised as follows:

Principle of Development

- the rationale for the period of the permission and the operational lifespan of the development should be sought;
- the cumulative impacts of the development need to be considered alongside other existing and proposed neighbouring windfarm developments;
- the Wind Energy Development Guidelines 2006 are outdated;
- there is greater scope for wind-energy development in offshore locations and in less-intrusive locations, such as along the coast;
- the previous reasons for refusal of a permission on this site under CCC ref. P23/60219 have not been overcome;
- proposal would lead to precedent for similar ad hoc development;
- proposals would be contrary to section 11.47 of the Development Plan and the proper planning and sustainable development of the area;

Landscape and Visual Impacts

- proposals feature excessive turbine heights, particularly considering the heights of existing turbines;
- there is limited scope for the receiving landscape to absorb the turbines;
- there is an excessive concentration of windfarm developments in the immediate and wider west Clare area;
- there are inadequacies in the submitted photomontages;
- negative visual impacts would arise along scenic routes, including the Wild Atlantic Way;

Traffic and Access

- traffic-management concerns arise, with the area experiencing extensive traffic already;
- the estimated volume of truck movements is queried;
- there is limited capacity for local roads to facilitate the development, with scope for damage to roads and substantive nuisance and disruption for local residents;
- abnormal-load movements and heavy-goods vehicles (HGVs) could result in structural damage to homes and roads;
- the proposed access arrangements would lead to road-safety issues;
- additional details of the wheel-wash facilities would be necessary;

Human Health

- turbines would be situated too close to houses;
- unacceptable impacts from shadow flicker would arise, including for houses and passing motorists;
- turbines would lead to various health conditions;
- unacceptable noise impacts would arise during the construction and operation phases;

Biodiversity

- inappropriate impacts would arise for peatlands, including raised and blanket bogs that are protected habitats;
- proposals would negatively impact on bird species, including hen harrier, kestrel, Canadian geese and barn owls;
- the project would impact on flora and fauna, such as pine marten, as well as habitats, including watercourses, the neighbouring estuary and European sites;

Drainage and Ground Conditions

- the development could lead to an increased flood risk on other lands;

- issues would arise for groundwater, including the water table and wells;
- proposals with respect to wastewater treatment and bedrock reuse are queried;
- more detailed assessment of ground conditions is required, with potential for landslides to arise;

Material Assets

- the development would result in a depreciation in the value of local property;
- negative impacts on telecommunication signals and aviation would arise;
- undue impacts for tourism, local businesses, oyster farming and a local gun club that uses the turbine site lands during winter months;
- the development would have knock-on impacts for the development potential of the area, including use of land for housing, forestry and agriculture;
- details are required in relation to the maintenance operations, with limited future employment likely;
- matters arise with respect to certain quarries referenced in the application;
- the community benefit fund is queried;

Procedural Matters

- the validity of the application is queried with respect to the visibility of the associated site notices, as well as the application form and applicant details;
- queries are raised regarding the applicant's legal interest or consent to undertake all of the proposed works, including along roadside boundaries;
- there has been a lack of public consultation regarding the project;
- the scope to enforce planning conditions is queried or how the decommissioning phase would be financed;
- a number of application reports date from two years previous to lodging;
- in the absence of a forestry-felling licence a decision cannot be made.

5.0 Planning Policy & Context

5.1. European Planning Policy

Renewable Energy Directive 2023/2413/EU

5.1.1. This Directive sets a target for the EU to provide at least 42.5% of energy in 2030 from renewable sources, up from the previous 32% target, and with an aspiration to reach 45%. This new target represents almost a doubling of the existing share of renewable energy in the EU. Expanding from the Renewable Energy Directives of 2009 and 2018, the updated Directive includes more robust actions to maximise the use of all available opportunities for advancing and adopting renewable energy sources. This plays a crucial role in reaching the EU's goal of achieving climate neutrality by 2050 and bolstering Europe's energy security.

Climate and Energy Policy Framework 2030

5.1.2. The Climate and Energy Policy Framework 2030 was adopted in 2023 and includes EU-wide targets and policy objectives for the period between 2021 and 2030. It seeks to drive continued progress towards a low-carbon economy and build a competitive and secure energy system that ensures affordable energy for all consumers and an increased security of supply for the EU's energy needs. It aims to achieve at least a 55% reduction in greenhouse-gas emissions in the EU by 2030.

Effort Sharing Regulation (EU) 2018/842

5.1.3. The Effort Sharing Regulation (EU) 2018/842 lays down obligations on Member States with respect to minimum requirements to fulfil the EU's target of reducing its greenhouse-gas emissions. In April 2023 Regulation (EU) 2023/857 amended the Effort Sharing Regulation setting revised targets in reducing EU greenhouse-gas emissions by 40% below 2005 levels in 2030 and by 42% below 2005 levels in Ireland.

5.2. National Planning Policy

Project Ireland 2040 - National Planning Framework 2025

5.2.1. Project Ireland 2040 links planning and investment in Ireland through the National Planning Framework (NPF) and a ten-year National Development Plan (NDP). The NPF encapsulates the Government's high-level strategic plan to shape the future

growth and development of Ireland up to the year 2040. The NPF identifies the importance of climate change in National Strategic Outcome (NSO) 8, which aims to ensure a transition to a carbon-neutral and climate-resilient society, while National Policy Objective (NPO) 70 seeks to 'promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a climate neutral economy by 2050.'

5.2.2. Chapter 9 of the NPF addresses climate transition and our environment, with a framework acknowledging that forests and peatlands play an important role in helping with climate change mitigation, through carbon sequestration and acting as carbon sinks. Targets referenced in the Climate Action Plan 2024 are referenced, including ambitions for 9GW of renewable energy from onshore wind in 2030. NPO 73 supports co-location of renewable energy. Regional renewable-energy capacity allocations are included in NPO 74 of the NPF, with an allocation of an additional onshore wind power capacity of 978MW for the southern region.

Climate Action and Low Carbon Development Act 2015, as amended

5.2.3. This Act provides for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low-carbon, climate-resilient and environmentally-sustainable economy, to establish the Climate Change Advisory Council and to provide for matters connected therewith. Section 15 of the Act requires certain bodies, including An Bord Pleanála, in so far as practicable, to perform its functions in a manner consistent with the relevant climate action plan and national long-term climate action strategy, the national adaptation framework and approved sectoral adaptation plans, the furtherance of the national climate objective, and the objective of mitigating greenhouse-gas emissions and adapting to the effects of climate change in the State.

Climate Action Plan 2024

5.2.4. The Action Plan notes that there are over 300 onshore windfarms in Ireland, placing the country in the top five globally for both installed wind power capacity per capita and the contribution of wind energy to electricity demand. Greater alignment between national, regional and local plans and renewable energy targets is considered critical to support investment in and delivery of onshore renewable

energy. Publishing of the Revised Wind Energy Development Guidelines for onshore wind is noted as a key action for 2025.

Climate Action Plan 2025

5.2.5. Climate Action Plan 2025 references renewable-energy capacity allocations outlined in the NPF and builds upon the 2024 Action Plan by refining and updating the measures and actions required to deliver the carbon budgets and sectoral emissions ceilings.

Ireland's Long-Term Strategy on Greenhouse Gas Emissions Reduction 2024

5.2.6. The strategy provides a pathway to a whole-of-society transformation and serves as a vital link between shorter-term climate action plans and carbon budgets, and the longer-term objective of the European Climate Law and Ireland's National Climate Objective. The strategy acknowledges the extent of electricity deployed from onshore wind.

National Adaptation Framework 2024

5.2.7. The National Adaptation Framework (NAF) sets out the potential implications of climate change for Ireland and outlines the national strategy for the development of adaptation measures. The Framework requires Government departments, infrastructure providers and Local Authorities to prepare a new cycle of Adaptation Plans for key sectors, including agriculture, forestry, biodiversity, transport, flood risk management and tourism. In addressing the sectoral impacts and opportunities arising from climate change, appendix 3 of the Framework notes that 'increased wind variability may require backup generation or storage, and strong winds may lead to turbine shutdown or damage'.

Wind Energy Development Guidelines 2006

5.2.8. The Wind Energy Development Guidelines 2006 provide statutory guidance for wind-energy development, including consideration of environmental issues, such as noise and shadow flicker, design, siting, spatial extent and scale, cumulative effect and spacing, as well as the layout and height of wind turbines having regard to the landscape and other sensitivities. The Guidelines indicate the need for a plan-led approach to wind-energy development.

5.2.9. In December 2013, the Minister for Housing and Planning announced a public consultation process with respect to a focused review of the 2006 Guidelines and a 'preferred draft approach' to the review was announced in June 2017.

Draft Revised Wind Energy Development Guidelines 2019

5.2.10. Consultation on these draft Guidelines ended in February 2020. The draft Guidelines identify Specific Planning Policy Requirements (SPPRs), and subject to formal adoption of the Guidelines, it is intended that these SPPRs would be applied by Planning Authorities and An Bord Pleanála in the performance of their functions, as well as having regard to additional matters for consideration in assessing wind-energy developments. Notable changes in the draft Guidelines when compared with the 2006 Guidelines relate to community investment, shadow flicker, noise limits consistent with World Health Organisation 2018 guidelines, visual impact and siting arrangements, underground cables to be the standard approach for grid connections and the introduction of minimum separation distances between turbines and sensitive receptors.

National Landscape Strategy for Ireland 2015-2025

5.2.11. This Strategy aims to integrate consideration of landscape into our approach to sustainable development, based on the carrying out of an evidence-based assessment and description of landscape character, provision of an integrated policy framework to protect and manage the landscape, and the avoidance of conflicting policy objectives.

National Biodiversity Action Plan 2023-2030

5.2.12. This Action Plan sets out the national biodiversity agenda for the period 2023-2030 and is founded on five objectives comprising, the adoption of a whole-of-Government, whole-of-society approach to biodiversity, meeting urgent conservation and restoration needs, securing nature's contribution to people, enhancing the evidence base for action on biodiversity and strengthening Ireland's contribution to international biodiversity initiatives.

Other Guidelines

5.2.13. Although not an exhaustive list, the following planning guidance and strategy documents are also considered relevant in the consideration of this appeal:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018);
- Ireland's Transition to a Low Carbon Energy Future 2015-2030 (2015);
- Traffic and Transport Assessment Guidelines (2014);
- Spatial Planning and National Roads Guidelines for Planning Authorities (2012);
- National Renewable Energy Action Plan (2010);
- The Planning System and Flood Risk Management - Guidelines for Planning Authorities, including the associated Technical Appendices (2009);
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (2009);
- Quarries and Ancillary Activities: Guidelines for Planning Authorities (2004);
- Framework and Principles for the Protection of the Archaeological Heritage (1999).

5.3. Regional Planning Policy

5.3.1. The 'Regional Spatial & Economic Strategy for the Southern Region' supports the implementation of Project Ireland 2040 and the economic and climate change policies of the Government, by providing a long-term strategic planning and economic framework for the southern region, including County Clare. Chapter 8 of the Strategy addresses 'Water and Energy Utilities', with section 8.2 of this chapter addressing the 'strategic energy grid', inclusive of regional policy objective (RPO) 221 supporting the sustainable development of renewable-energy generation and demand centres, as well as the goal of a carbon-neutral energy region. The Strategy recognises and supports opportunities to harness onshore wind as a major source of renewable energy, noting that wind energy is the largest contributor to renewable-energy production in the region, with potential to achieve between 11 gigawatt (GW) and 16GW of onshore wind and 30GW of offshore wind in the region by 2050.

5.4. **Local Planning Policy**

Clare County Development Plan 2023-2029

5.4.1. The Wind Energy Development Guidelines (2006) and the 2019 draft revision of these Guidelines are stated to have guided the formulation of chapter 2 to the Clare County Development Plan addressing 'Climate Action', chapter 11 addressing 'Transport, Service Infrastructure and Energy' and Volume 5 to the Development Plan titled 'Clare Renewable Energy Strategy'.

5.4.2. Section 2.4 of the Development Plan sets out the intention of the Planning Authority to take a lead role in respect of renewable-energy technology to assist in meeting national, regional and county targets in energy consumption and carbon dioxide (CO_2) reduction. Table 2.2 of the Development Plan lists the renewable energy targets for County Clare in 2030, with reference to a target of 550MW of planned or accessible renewable energy from onshore-wind resources.

5.4.3. Section 8.3.4 of the Development Plan addresses renewable-energy objectives, including reference within objective CDP8.12 supporting the implementation of the Clare Renewable Energy Strategy forming Volume 5 of the Development Plan and the Clare Wind Energy Strategy forming Volume 6 of the Development Plan. The Clare Renewable Energy Strategy sets out that the County is well positioned to become self-sufficient in renewable energy. The Development Plan states that the Clare Wind Energy Strategy identifies optimum locations for wind-energy developments in the county, having regard to environmental and geographical constraints and the protection of the amenities of local residents.

5.4.4. Objective 11.47 of the Development Plan addresses renewable energy, including the encouragement and favourable consideration of renewable-energy developments, the assessment of future energy-related development proposals having regard to the Clare Renewable Energy Strategy 2023-2029, the preparation of an updated Wind Energy Strategy, the protection of residential amenities, the support of new technologies and indigenous-energy production, and ensuring proposals comply with habitats and environmental directives. Item (c) of Development Plan objective 11.47 supports the sustainable development of renewable wind energy (onshore and offshore) at appropriate locations and related grid infrastructure, in accordance with all relevant policies and guidelines pertaining to the protection of the environment,

and assessment of proposals having regard to the Clare Wind Energy Strategy, the Development Plan and any updates.

5.4.5. Chapter 9 of the Development Plan addresses tourism and includes map 9A indicating tourism corridors within the County, including the N67 national route running through Kilrush, which is also considered a scenic route. In addition to addressing renewable energy, Chapter 11 of the Development Plan titled 'Physical Infrastructure, Environment and Energy', addresses noise pollution, air quality, light pollution, energy security and electricity networks.

5.4.6. Figure 14.1 of the Development Plan identifies the landscape character types in the County, with the appeal site located within a 'farmed rolling hills' landscape. Figure 14.2 identifies the site as overlapping the Shannon Estuary Farmland, Kilrush Farmland and Loop Head Landscape Character Areas (LCAs). The location of the appeal site is categorised in map 14a of the Development Plan as a settled landscape, where people work and live, as opposed to a heritage-prioritised, intensively-settled or natural resource working landscapes. Chapter 15 of the Development Plan addresses 'Biodiversity, Natural Heritage and Green Infrastructure', including various protected areas, assessments, sensitive habitats and protected species.

5.4.7. Chapter 16 of the Development Plan addresses policy with respect to the cultural heritage of the County, including protected structures. Brew's House located in Ballykett townland, 250m from the turbine site boundary, is included in the Record of Protected Structure (ref. 593) that is appended to the Development Plan.

Clare Wind Energy Strategy

5.4.8. This Strategy provides a map of permitted wind-energy developments in the County with an energy output of greater than 500kW (see figure A, p.11), including the neighbouring operational Moanmore and Tullabrack windfarms. Various factors are considered in the Strategy in identifying four broad area categories and their receptiveness to wind-energy developments, including areas acceptable in principle, open for consideration and not normally permissible for wind-energy developments, as well as strategic wind-energy sites. Parts of the Shannon Estuary Farmland, Kilrush Farmland and Loop Head LCAs feature areas 'acceptable in principle' for wind-farm developments, however, the appeal site is not included in such areas, as it

is situated in an area where wind-energy developments are open for consideration. Objective WES Ten of the Strategy states that 'wind energy applications in these areas will be evaluated on a case-by-case basis, subject to viable wind speeds, environmental resources and constraints, and cumulative impacts'.

5.5. Natural Heritage Designations

5.5.1. The approximate distance and direction to a selection of the nearest European designated natural heritage sites to the appeal site, including SACs and SPAs, are listed in table 5.1 below.

Table 5.1 Natural Heritage Designations

Site Code	Site Name	Distance	Direction
002165	Lower River Shannon SAC	4.2km	south
004077	River Shannon and River Fergus Estuaries SPA	4.3km	south
002343	Tullaher Lough and Bog SAC	6.1km	northwest
002250	Carrowmore Dunes SAC	8.7km	north
004182	Mid-Clare Coast SPA	8.7km	north
001021	Carrowmore Point to Spanish Point and Islands SAC	11.4km	north
002264	Kilkee Reefs SAC	11.6km	west
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	17.1km	south
004114	Illaunonearaun SPA	17.8km	west

6.0 The Appeal

6.1. Grounds of Appeal

6.1.1. The first-party grounds of appeal can be summarised as follows:

<u>Principle</u>

- An Bord Pleanála should exercise its decision-making function in a manner consistent with the most recent national climate policies and objectives, and the extent that the proposed development would be of strategic national importance in contributing towards the achievement of reductions in greenhouse-gas emissions and meeting the targets of the Climate Action Plan 2024;

- the subject application had sought to address reasons for refusal issued by the Planning Authority for a similar proposal (CCC ref. 23/60219);
- the applicant is a subsidiary of an innovative Irish renewable-energy company, with a strong and proven track record in operating projects of this nature;
- the proposed development is consistent with planning policy and would contribute to the achievement of national strategic objectives and targets in the Climate Action Plan 2024 and the Climate Action Low Carbon Development Act 2015, as amended;
- the site is in an area that is 'open for consideration' for windfarm developments, recognised in a recent Board decision (ABP ref. 317227-23) as being areas with potential suitability for wind-energy development;
- the proposed development would not have significant effects on the environment based on the conclusions of the application NIS and EIAR;
- a team of experts was engaged to respond to matters raised in the Planning Authority decision;
- the development would contribute towards meeting legally required targets for onshore wind energy and would make a valuable contribution to renewable energy generation;

<u>Reason for Refusal No.1 – Landscape and Visual Amenity</u>

- the proposal features very modest scale wind turbines when compared with typical turbine heights (180m to 200m);
- there is an established pattern of wind-farm developments in the area and the proposals would assimilate with the existing windfarm landscape;
- the low-lying, open and exposed landscape, features qualities that are typically suitable for windfarms;
- the rolling hills and drumlins of the Kilmihill Farmland LCA is noted in the Clare Wind Energy Strategy as offering capacity to accommodate windfarms of medium to large size;

- the principle of refusing permission for a wind-energy development in an open for consideration area should not form part of the reason for refusal;
- an appropriate design solution was reached by limiting the scale and extent of the development, as well as the heights of the turbines, to tie in with and complement the existing windfarms;
- the 25m difference in proposed and existing wind turbine tip heights would be difficult to discern and would not have a material visual impact;
- minimum setback distances of 600m, in line with the 2019 draft Guidelines, would be achieved and the turbines would have no greater visual or overbearing impacts than the existing turbines;
- it is possible for landscapes to evolve over time to absorb wind energy development, such as Bellacorrick in Mayo and Dunmanway in Cork, and the subject proposals would be in keeping with the medium / small windfarms in the wider area;
- in landscape terms, there is nothing to distinguish between the proposed windfarm site and the existing windfarms and the appeal site's wind deployment zoning is not considered to provide sound rationale to suggest that the development would seriously injure the visual amenities of the area;
- there are no landscapes or designated areas close to the site that are of particular sensitivity;

Reason for Refusal No.2 – Residential Amenity

- the scale of the turbines would appear similar to the existing turbines and with sufficient setbacks achieved, overbearing impacts would not arise;
- the closest inhabited house not involved in the project is greater than 600m from the nearest turbine;
- numerous studies have concluded that windfarms do not contribute to variations in property values;
- positive impacts of the development, such as energy security, community benefits and employment, would contribute to sustainable growth in property values;

- the construction phase would last ten months, with approximately 2,472 loads of materials and building supplies to be delivered and removed from the site and a maximum of 113 loads expected in any one day and for a limited period of four days;
- a borrow pit is to be developed on site to extract rock for use in the project and disturbance along the local road network would be temporary;
- a traffic management plan has been prepared for the project, including measures with respect to the undertaking of the grid connection works over a 12-week period;
- construction phase noise emissions would comply with the provisions of the relevant NRA Guidelines, the Noise Directive 2002/49/EC and British Standard (BS) 5228: 2009-1A; 2014 Code of Practice for Noise and Vibration on Construction and Open Sites;
- operational phase noise emissions are addressed in the EIAR with mitigation measures where necessary;
- there would be no disturbance via shadow flicker;

<u>Reason for Refusal No.3 – Forestry Felling</u>

- details of the afforestation requirements associated with the project are provided in the Biodiversity Enhancement Plan and the Forestry Report forming appendices 6.6 and 15.2 to the EIAR;
- the tree clearance method and construction methodology would follow the approach developed by the Forestry Service, with more conservative project-specific mitigation measures developed to ensure that there are no significant effects on the environment;
- forestry felling and the associated specific mitigation measures are discussed in more detail in the EIAR headings when addressing hydrology and hydrogeology, soils and geology, and aquatic ecology;
- potential impacts arising from clear felling are assessed in the EIAR, including any release of suspended solids, release of nutrients and increased runoff;

- all downstream receptors are identified, including those of medium to high sensitivity and importance, with mitigation measures to address potential impacts and monitoring also proposed to ensure the efficacy of the mitigation measures;
- it is acknowledged that any deterioration in waters would be unacceptable, however, the proposed development has been designed to address this and there would not be any impacts on water quality downstream, including in Poulnasherry Bay, the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA;
- all of the potential effects on water quality have been assessed as part of the application;
- IFI and the Department of Housing, Local Government and Heritage did not raise concerns regarding the potential resultant water quality;
- even if the project did not go ahead, felling of forestry would occur in two to three years;
- an array of conservative mitigation measures is proposed, including measures within the project CEMP, measures designed into the project and the consideration of attenuation requirements, plus a climate-change factor;
- it is common practice to consult with key stakeholders when preparing planning compliance documents;

Reason for Refusal No.4 – Hen Harrier

- the conservation importance of hen harrier is acknowledged, as well as the neighbouring River Shannon and River Fergus Estuaries SPA and West Clare Uplands Important Bird and Biodiversity Area (IBA);
- the appeal site is approximately 9km from the nearest known breeding pair of hen harrier and only a single sighting of this species was recorded during 24 months of baseline vantage point activity surveys, involving an immature male hunting over grassland 250m to the east of the site;
- during winter roost surveys, one hen harrier was observed using a roost site located over 5km from the appeal site;

- bird surveys are ongoing, although they were not included in the application in March 2024 as the season was not complete and the data was incomplete;
- the potential foraging habitat within and adjoining the site, including cutover bog and open canopy plantation are acknowledged as being suitable foraging habitat for hen harrier;
- the loss of 0.54ha of cutover bog within the site would be offset through the provisions within the Biodiversity Enhancement and Management Plan, which aim to restore 3.16ha of planted bog that is expected to provide suitable habitat for peatland species, such as meadow pipit, the main prey item of the hen harrier;
- significant disturbance to foraging habitat of the hen harrier would not arise;
- the decline in hen harrier in West Clare Uplands IBA is acknowledged, including threats and pressures for this bird, however, given the survey findings and distance to this upland area from the appeal site, the proposed development would not increase risk of a decline in the West Clare Uplands IBA hen harrier population;
- rigorous post-construction bird monitoring would be implemented;
- the density of wind turbines in the area would not be expected to have significant impacts on hen harrier;

<u>Response to Prescribed Bodies</u>

- the ecological surveys are fully valid and come within the criteria of the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance;
- further focussed pre-construction surveys would be undertaken for specific species and if protection from construction-related disturbances arises, appropriate measures would be undertaken to comply with legislation and best practice guidance;
- there has been no change to the habitat or land uses on site since commencement of bird surveys for the project in 2020, therefore it would not

be expected that any change in the distribution or abundance of bird species associated with the site would arise;

- the noted reduction in hen harrier in the West Clare Uplands IBA would reduce the likelihood of hen harrier foraging in the area of the development;
- pre-construction surveys are not required to get data to assess any potential likely significant effects of the proposed development, with up-to-date, adequate information provided to allow a decision to be made;
- the majority of the IFI recommendations are addressed in the application EIAR and CEMP, and all the recommendations would be complied with.

6.2. Planning Authority Response to Appeal

6.2.1. The Planning Authority's response to the grounds of appeal requests that the Commission uphold their decision to refuse to grant planning permission for the proposed development.

6.3. Observations

6.3.1. In response to the grounds of appeal, five observations were received by the Commission from political representatives and local residents. In addition to the matters raised initially in the third-party submissions to the Planning Authority, the observations can be collectively summarised as follows:

Principles

- the development would lead to a depreciation in the value of property based on research undertaken in the University of Galway (Working Paper appended to observation) and the appellant's references to international case studies is irrelevant;
- the ESB has questioned the need for additional turbines in Ireland;
- the application is lacking in information for the forestry operations, including consents and the risk associated with the removal of the commercial forestry;

Human Health

- negative impacts on residential amenities would arise via excess noise and shadow flicker, including the occupied houses close to the project compound and turbines;
- appropriate expertise should be engaged to properly determine noise impacts and shadow flicker;
- there would be difficulties in enforcing noise and shadow flicker impacts, with ongoing issues in this regard from the existing neighbouring turbines;
- it is likely that structural damage would arise for roads and houses, impacting the health and safety of local residents;

Material Assets

- consultations took place with telecoms operators over two years previous to submission of the application and there would be a loss of television signals and broadband coverage;
- proposals would result in an increase in traffic that is not consistent with previous figures presented as part of the refused application CCC ref. P23/60219;
- limited details of the works along the construction-haul, grid-connection and turbine-delivery routes have been provided, including the N68 / L6132 road junction;
- the capacity constraints of the local road network need to be assessed, with load bearing and slope stability to be considered;
- proposals are unable to achieve necessary sightline visibility on the western side of the turbine site entrance;

Land, Soils and Geology

- turf cutting continues on site in undisturbed blanket bog;
- proposals would undermine the development potential of neighbouring lands, thereby discouraging people to reside in the area;

- the risks associated with the construction phase have not been properly considered and have been understated with greater scope for impacts due to the underlying peat;
- potential for pollution of waters via peat instability and the works proposed;
- absence of site investigation boreholes for depths below the turbine foundations with potential for land to slide and impacts to water and habitats;
- site investigations comprising peat probes, do not follow best practice in the geotechnical profession, including slope-stability assessments;
- the reason for refusal of a windfarm on the site under CCC ref. P23/60219 relating to serious danger to the environment should remain given the absence of structural and construction details;
- lack of invasive geotechnical or hydrological assessments, with the assessments based on generalised mapping;
- no assessment of peat along the delivery route or the implications for peat being transferred to a borrow pit;
- there is a lack of clarity regarding rock and reserve spoil generated in the borrow pit and whether rock-breaking, rock-crushing or blasting activities would take place;
- the potential quarry providers are not located locally and it is not clear if they have capacity to serve the development;
- the local licenced, waste-disposal facility to receive extracted materials from the development has not been nominated;
- the reason for the extent of peat excavation at turbine hardstands is unclear and it is strange that the volume of peat directly correlates with the rock to be extracted from the borrow pit;
- proposals feature a lack of detail regarding turbine and mast foundations;
- there is a lack of consistency between the excavated material and the stone required for the construction phase;
- the range of peat depth under turbine 3 is unacceptably broad;

- the survey peat probe logs should be provided;
- the extent of construction that would be required would be excessive for the existing drainage network and watercourse crossings;

Landscape and Visual Impacts

- the development would result in 17 turbines in a localised flat area, in excess of what is envisaged for this area in the Development Plan;
- the cumulative visual impact of turbines, including where they are viewed along tourist routes, scenic views and roads, would materially contravene objectives CDP14.2 and CDP11.47 of the Development Plan;
- the proposals feature excessive heights for the turbines when compared with the existing turbines, and with overbearing impacts for neighbouring residents;
- photomontage images misrepresent the proposals and do not show the development in morning or evening light against a dark-sky background;
- An Bord Pleanála previously refused permission for a windfarm development to the southwest of the site, due to its visual impact on the landscape;
- the baseline County Clare Landscape Character Assessment, dating from 2004, is no longer fit for purpose;
- the landscape and visual impact assessment in the EIAR does not follow an appropriate methodology;

Biodiversity

- the project would result in undue disturbance of wildlife and negative impacts for birds, bats, flora, fauna, the Moyasta river, conservation objectives of coastal sites, freshwater pearl mussel, water quality and peatland;
- proposals would result in collision risk for bats and birds, including kestrel and hen harrier;
- incidental sighting of invasive species on site;
- the EIAR features limited extent of bird surveys (0.8% of the assessment duration) and failure to apply more recent Bird Survey Guidelines for Assessing Ecological Impacts (2023);

- the baseline ecological data should be based on the biodiversity context 100 years previous and there is a need to restore biodiversity;
- breeding pairs of hen harrier on Scattery Island may migrate to these areas;
- the project poses a substantive risk to designated sites and habitats due to the proximity of the works to important headwaters of rivers;
- there is limited reference to forestry felling in the NIS, despite the extent of felling area clearly not falling into an ancillary element of the project;
- the NIS does not address the entire works envisaged for the turbine delivery route along the L6132 local road, with tracts of this route over peat subsoils and potentially impacting on watercourses along the route;
- impacts on oysters farmed in Poulnasherry bay would arise consequent to sedimentation, chemical contamination and effects on water quality;
- An Bord Pleanála should have regard to the objectives of the National Biodiversity Action Plan;

Water

- the information required to assess the effects of the project on the status of waterbodies, is distributed across a multitude of documents;
- the competent authority must make a reasoned decision as to whether the project would be in breach of Article 4 of the Water Framework Directive;
- the competent authority should have regard to the methodology set out in the European Communities Environmental Objectives (Surface Water) Regulations 2009, including the programme of measures, quality status, potential pollutant impacts and hydromorphological impacts;
- mitigation measures must provide certainty and if there are discharges to a waterbody, emission limits should be applied;
- sustainable urban drainage systems (SUDS) cannot be fully relied on to control the discharge of pollution into surface waters;

- an assessment of compliance with the WFD is not possible based on the information provided with respect to Moyasta, Doonbeg and Wood river waterbodies;
- compliance with the WFD cannot be undertaken in the absence of the third-cycle information from the river basin management plans;
- the information presented in the EIAR is inadequate and cannot provide a basis for the Commission to carry out an independent assessment of the project for the purposes of the WFD;
- a risk-based catchment assessment of the project impact on groundwater as a source of public water supply is necessary, with no consideration of abstractions from surface waters and no meaningful engagement with private well owners or local group-water schemes, including a mapped protected area for drinking water;
- existing windfarms have contributed to the unsatisfactory status of local water and the proposed development would contribute to the cumulative adverse effects on the surface water network, including those feeding SACs;
- the EIAR features limited on-site assessment of the impacts on groundwater, including the implications of excavating the borrow pit;
- the project should be refused given the less than ‘good’ status of receiving waters;
- the application lacks consideration of humic acid, sulphates and fugitive hydrocarbons dissolved in waters leading to Poulnasherry bay;
- there are contradictory references to temporary and permanent wastewater storage in the application and a lack of clarity regarding the wastewater plant intended to serve the development;
- the welfare facilities for the operational phase do not comply with Building Regulations or the EPA Code of Practice;

Climate Change

- as part of the climate change modelling there is no evidence that the project would displace fossil fuel energy from the grid;

- the carbon-saving effects are not dependable, with limited details of the carbon generation associated with the project;
- the increased provision of renewable energy supplies does not necessarily correlate with a commensurate reduction in greenhouse-gas emissions;
- the peat proposed to be excavated equates to a carbon sequestration asset amounting to 8 million kgs of CO_2 emissions;
- proposals are contrary to the Climate Action Plan and the Low Carbon Development Act 2015 and they cannot be justified simply by virtue of the Action Plan;

Procedural Matters

- limited public consultation took place for the project and a lack of engagement with local communities;
- it is not clear who would be responsible for the turbines;
- details regarding the management, maintenance, operation and decommissioning of the development are limited;
- the site notices remaining in situ for an extended period following the application consultation phase may be a serious breach of planning legislation;
- the Wind Energy Development Guidelines were not subject of Strategic Environmental Assessment (SEA) and, therefore, are in breach of the SEA Directive;
- the Wind Energy Development Guidelines contravene the European Union (EU) Nature Restoration Law;
- the Draft Revised Wind Energy Development Guidelines 2019 are not relevant, with the SEA process for these Guidelines not yet concluded;
- the EIA Directive requires engagement of expertise in the decision-making process;
- An Bord Pleanála did not publish the appeal on its website by the 19th day of June, 2024;

- gaps in the EIAR information, including the reason for requesting a ten-year permission, would lead to a lack of certainty as to when the development would be constructed, with potential for various changes to arise in the interim;
- decommissioning works cannot be accessed as they are too far into the future;
- a shorter timeframe and other sites should have been assessed as alternatives for the project;
- many of the mitigation measures have not been stated and maybe subject to change;
- the EIAR consultants are not independent experts;
- it is not possible to introduce new information or evidence as part of the appeal;
- works outside the redline boundary are required;
- deviations from the proposed development would arise.

7.0 Further Information

7.1. Further Information Request

7.1.1. In accordance with section 132 of the Act of 2000, a further information request was issued to the first party in April 2025, requiring the submission of details and results of field surveys stated in the EIAR accompanying the application to have continued on site since September 2022. This information was requested to ensure adequate up-to-date information is available, specifically with respect to Hen Harrier, in line with CIEEM 'Advice Note on the Lifespan of Ecological Reports and Surveys' (2019). Survey details were requested to be in accordance with NatureScot (formerly Scottish Natural Heritage) guidelines 'Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms'.

7.2. First-party Response to Further Information Request

7.2.1. In May 2025 the first party responded to the request of An Bord Pleanála by submitting a response report and four bird-activity summary reports for the period extending from winter 2022 through to summer 2024, as well as an updated collision-risk model report. The further information response can be summarised as follows: -

Surveys

- all of the bird surveys were carried out by the Irish Ornithological Survey Group;
- birds surveys followed standard guidance with the vantage-point surveys compliant with the NatureScot 'Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms' (2017);
- the standard surveys undertaken included vantage-point surveys and walkover transect surveys,
- the breeding bird surveys for both summer periods were focused to identify waders, woodcock, peregrine falcon and hen harrier;
- the surveys for both the winter month periods 2022 / 2023 and 2023 / 2024 were focused to identify hen harrier roosts, wildfowl distribution and hinterland birds, with winter woodcock survey occurring during the 2023 / 2024 period;
- the collision-risk model submitted is based on seven seasons of vantage-point survey data up to March 2024 with an increase in the number of bird species assessed with the model;
- the extent of survey data is in line with the CIEEM advice note;
- there have been no significant changes in bird diversity and populations within and around the study site since the 2020 to 2022 period;
- it was previously predicted in the EIAR submitted that a slight-adverse effect of short to medium-term duration and at a local level would arise for birds, with mitigation in place, and this conclusion still stands based on the additional survey data and modelling;

Hen Harrier

- the surveys reveal that there are no hen harrier breeding locations within 5km of the proposed turbine site;
- during hinterland breeding summer surveys a single hen harrier was observed on two occasions in locations 3km north and 6.5km northwest of the site;
- during the winter 2022 / 2023 and summer 2023 vantage-point surveys, five hen harrier flights was recorded outside the site boundaries and the cutover bog, and hen harrier was not recorded in the subsequent vantage-point surveys;
- during winter 2022 / 2023 observations of hen harrier were recorded on 13 occasions at a known roost site 7.5km to the northwest of the site, with an additional observation at a separate roost site 7km to the south of the appeal site;
- during winter 2023 / 2024 observations of hen harrier were recorded on nine occasions at a Tullaher Lough known roost site 7.8km to the northwest of the site;
- in the updated collision-risk model, a slight increase from the previously modelled 0.005 birds to 0.030 birds over a 30-year period was noted to arise for hen harrier;
- since the preparation of the EIAR the results of the National Hen Harrier Survey were published, which noted four possible / confirmed breeding pairs of hen harrier up to 2024 at distances of 7km from the proposed wind farm site and outside the core-foraging range;

Other Bird Species

- osprey and black-headed gull, which were not observed in the previous project surveys, were observed in the more recent vantage point surveys;
- the site does not offer suitable habitat for osprey or black-headed gull;
- cormorant, grey heron, whimbrel, snipe, great black-backed gull and merlin, which were observed in the previous project surveys, were not observed in the more recent vantage point surveys;

- a breeding pair of snipe was identified within the site during breeding wader surveys in 2024, with at least one breeding territory recorded and possibly a second;
- a buffer of 400m would be established around any confirmed snipe nest location and all works restricted within this zone until an ornithologist confirms that the breeding cycle is complete;
- a single woodcock was observed in the study area during a winter transect survey;
- the observations during surveys and the updated collision-risk model suggest an increased collision risk for kestrel (four collisions over a 30-year period), buzzard (three collisions over a 30-year period), sparrowhawk (0.35 collisions over a 30-year period), golden plover (0.31 collisions over a 30-year period), lesser black-headed gull (0.56 collisions over a 30-year period) and herring gull (0.46 collisions over a 30-year period).

7.3. Responses to Further Information Request

7.3.1. As new material was received by An Bord Pleanála in relation to matters that had been raised by parties to the appeal, the observers, prescribed bodies and the Planning Authority were afforded the opportunity to respond to the first party's response to the further information request. Prescribed bodies did not respond to the appellant's further information submission.

Observers

7.3.2. Responses were received from two observers, and these can be collectively summarised as follows: -

- the bird survey reports are not valid as they were commissioned to be prepared by the appellant;
- the additional bird surveys were required given shortcomings in the previous surveys;
- if the opportunity arises, an assessment should be prepared by independent ornithologists selected by a local action group, with scope for the public to respond to this;

- a dawn chorus survey was not carried out;
- in combination or cumulative impacts with the proposed Moanmore Lower windfarm (CCC ref. P25/60257) have not been considered;
- hen harrier has been seen on land bordering the proposed electricity compound and in the neighbouring area;
- two pairs of breeding snipe were present on the site in summer 2024, and they may have been present previously, with no details of any conditions altering on site that may have resulted in this revised habituating status for snipe;
- as the initial surveys noted difficulties in detecting snipe from standard vantage points, this should have instigated additional survey efforts, including surveys for breeding snipe;
- the results of bird surveys were not revisited with respect to the appellant's statement that breeding snipe may avoid suitable habitat around turbines;
- the appellant may have overlooked the potential for breeding snipe to use the naturally-rehabilitating bog;
- pre-construction project bird surveys for breeding snipe within suitable habitat commissioned by the appellant cannot be relied upon;
- it is not clear if the visibility limitations in 14m and 20m viewsheds impacted on the baseline ornithological data collated;
- an assessment has not been undertaken of the project impacts for breeding snipe arising from increased access to the lands or mitigation measures to protect access to the site where works are progressing elsewhere;
- following the operation of the Moanmore windfarm, Whooper Swans were only seen at a distance, having historically been regular visitors to the area, including a field at Moanmore.

Planning Authority

7.3.3. The response from the Planning Authority can be summarised as follows: -

- the rate of decline of breeding pairs of hen harrier in SPAs could lead to extinction of this species;
- all national hen harrier breeding and roosting sites need to be protected;
- previous submissions and reasons for refusal should be thoroughly assessed by An Bord Pleanála.

8.0 Assessments

8.1.1. The proceeding sections 9, 10 and 11 of this report comprise environmental impact, planning and appropriate assessments of the proposed development, with issues and themes common to each of these assessments. Having reviewed the Planning Authority's decision to refuse to grant planning permission, it is clear that while certain matters raised in the reasons for refusal refer to planning policy considerations, the primary rationale for each of the reasons for refusal arise from the asserted potential environmental impacts of the project. Accordingly, to provide for a cohesive, practical assessment of the proposed development, an EIA of the project is initially undertaken, followed by an appropriate assessment concluding on the effects of the proposed development for European sites and a planning assessment with respect to planning policy and the proper planning and sustainable development of the area.

9.0 Environmental Impact Assessment

9.1. Statutory Provisions

9.1.1. The development would provide for four wind turbines and associated development, including forestry felling, a grid-connection route and internal access roads, on a gross site area measuring 31.1ha in the Clare County Council area. Section 172(1)(a) of the Act of 2000 provides that an EIA is required for projects in Part 2 to Schedule 5 of the Planning and Development Regulations 2001, as revised, (hereinafter 'the Planning Regulations') that involve:

- agriculture, silviculture and aquaculture:

1(d)(iii) deforestation for the purpose of conversion to another type of land use, where the area to be deforested would be greater than 10 hectares of natural woodlands or 70 hectares of conifer forest.

- energy industry:

  3(i) installations for the harnessing of wind power for energy production (windfarms) with more than 5 turbines or having a total output greater than 5 megawatts.

- infrastructure:

  10(dd) all private roads which would exceed 2,000 metres in length.

9.1.2. I note that 17.6 hectares of conifer plantation would be felled as part of the project, therefore, the project would not come within a class of development described in item 1(d)(iii) of Part 2 to Schedule 5 of the Planning Regulations.

9.1.3. The stated estimated combined-power output of the turbines would be between 16MW and 20MW, therefore, the project alone is within a class of development described in item 3(i) of Part 2 to Schedule 5 of the Planning Regulations.

9.1.4. New site access tracks, as well as widened and upgraded access tracks measuring a stated 2,060m in length would be constructed, therefore, private roads exceeding 2,000m in length would be constructed and the project would come within a class of development described in item 10(dd) of Part 2 to Schedule 5 of the Planning Regulations.

9.1.5. On the basis of the above, the proposed development exceeds the limits set out in items (3)(i) and 10(dd) of Part 2 to Schedule 5 of the Planning Regulations, it is subject to EIA and an EIAR is required. An EIAR prepared by Jennings O'Donovan & Partners Limited, Consulting Engineers, was submitted with the application and the appellant's reasoning for submitting this was based on the same conclusions arrived at directly above. I am not aware of any associated projects or criteria that would result in the proposed development exceeding other thresholds under Schedule 5 of the Planning Regulations.

9.2. Compliance with the Requirements of Article 94 and Schedule 6 of the Planning Regulations

9.2.1. Compliance of the submitted EIAR with the requirements of Article 94 and Schedule 6 (paragraphs 1 and 2) of the Planning Regulations is assessed below.

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 of the site location, neighbouring developments and land uses, wind resource, project design, layout, turbine parameters and bases, arrangements for access, met mast, ancillary components, grid connection, borrow pit, drainage, construction, commissioning, operation and decommissioning details. In each technical chapter of the EIAR, details are provided regarding the use of natural resources and the production of emissions and / or waste where relevant. The proposals do not involve demolition works, but would comprise excavation works and forestry felling, which are described within the EIAR, including the appended CEMP and Forestry Plan. I am satisfied that the development description provided is adequate to enable a decision on the project.
A description of the likely significant effects on the environment of the proposed development, including the additional information referred to under section 94(b).
An assessment of the likely significant direct, indirect, and cumulative effects of the development is carried out for each of the technical chapters of the EIAR. I am satisfied that the assessment of significant effects is reasonably comprehensive and sufficiently robust to enable a decision on the project.
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 EIAR includes designed in or embedded mitigation measures and measures to address potential adverse effects identified in technical studies. These measures and arrangements for monitoring, are summarised in appendix 17.2 of the EIAR titled 'Summary of Mitigation Measures', and in appendix 2.1 to the CEMP. The mitigation measures comprise standard good practices and site-specific measures that are generally capable of offsetting significant adverse effects identified in the EIAR. Where any shortfalls arise regarding the measures required to address the impacts of the development on the environment, these are highlighted below.
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).
Chapter 3 of the EIAR provides a description of the range of alternatives considered, including alternative locations, technologies, routes and access, designs, layouts, turbine numbers and mitigation, as well as a 'do-nothing' alternative scenario. If the development were not to take place, the lands would remain in the present form featuring peatland and commercial forestry, with an opportunity lost to provide a renewable-energy project addressing wind-energy targets. Observers to the appeal refer to shortcomings in relation to the consideration of alternative sites and timelines for the project. As the appeal site lands are identified in the Development Plan as being 'open for consideration' for wind-energy developments in the Development Plan, and as the appellant has stated that on other sites considered difficulties were encountered in relation to peat depths and difficulties emerged in negotiations with landowners, I am satisfied that reasonable consideration of alternative locations was undertaken. The process in arriving at the subject proposals, including consultation with various parties is provided as part of section 5.2.2 to the appellant's EIAR. Table 1.7 of the appellant's EIAR addressing scoping responses from prescribed bodies,

outlines various environmental criteria considered in preparing and finalising of the subject proposed development. The appellant's Planning Statement also outlines the rationale for arriving at the subject proposals, including a response to the previous reasons for refusal of a similar development on the appeal site (CCC ref. P23/60219).

Sections 3.5 and 3.8 of the EIAR, detail the considerations and requirements informing selection of the subject site, including the opportunities and constraints in relation to the development of the site, cognisant of the environmental sensitivities of the surrounding area, in particular statutory and non-statutory planning provisions, wind resource, European sites, tourism, birds, grid connection, land use, terrain and housing density. Such factors are stated to have influenced the design and scale of the final presented project. In considering alternative renewable-energy technology for the site, the appellant provides a comparison of the environmental impacts of a wind-energy and a solar-photovoltaic project on the appeal site, asserting that a solar-photovoltaic project would require between 11 and 14 times more land than a wind-energy project in order to produce a similar renewable energy output. A comparison between the proposed development and a project featuring a greater number of turbines of less height than that proposed, also highlighted the impacts of increased land take on the environment, and potential for increased impacts from shadow flicker, loss of habitat, collision risk for birds, excavations, silt-laden runoff, emissions, visual impacts, traffic and risks to subterranean archaeology.

Appendices 2.2 and 3.1 of the EIAR comprise technical details and assessments of three alternative routes considered for the grid connection to serve the proposed windfarm, which is stated to have directed the subject project to feature a proposed grid connection with the Tullabrack 110kV electrical substation compound.

It is clear from the documents submitted as part of the application, including the EIAR and Planning Statement, that numerous reasonable alternatives needed to be considered in arriving at the finalised scheme.

I am satisfied that at the time of lodging the application, there were no alternative processes available in seeking planning permission for the proposed development

having regard to the nature of the proposed project relative to the legislative planning procedures. The proposed 35-year operational lifespan of the development is very much linked to the nature of the technology required to serve the development, in particular the turbine infrastructure, and in addressing climate change and associated matters it would appear reasonable that the development maximises the lifespan of such technology. I recognise that the recently refused neighbouring Moanmore Lower windfarm (CCC ref. P25/60257) sought permission for a 40-year operational lifespan. I am satisfied that the appellant has studied reasonable alternatives in assessing the proposed development and has outlined the main reasons in opting for the proposal before the Commission, and in doing so the appellant has taken into account the potential impacts of the project on the environment.
A description of the baseline environment and likely evolution in the absence of the development.
The baseline environment is addressed in each technical chapter within the EIAR, and the likely evolution of this environment in the absence of the proposed development is described, including references to a 'do-nothing scenario' with the existing uses continuing on site. Where any shortfalls arise with respect to describing the baseline environment, these are addressed 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. Throughout the EIAR chapter, the appellant has indicated where difficulties were encountered (technical or otherwise) in compiling the information used in the

preparation of the EIAR, including where vegetation overgrowth restricted access to specific survey locations, such as the water-quality sampling locations.

The observers refer to the information required to assess the effects of the project on the status of waterbodies, being distributed across a multitude of documents, however, I do not consider this to impede this assessment, with such an approach typical given the myriad of information required as part of an application of this nature.

I am satisfied that forecasting methods and evidence are generally adequate in respect of identification and assessment of the likely significant effects of the project on the environment. Where any shortfalls or uncertainties arise, these are addressed 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.

The vulnerability of the project is specifically dealt with in section 1.7.2.3 of the EIAR, including susceptibility to natural disasters, as well as the proximity of the project to major industrial sites and dangerous substances. Moneypoint Power Station at Killimer, located approximately 6.4km to the southeast of the site, is the closest Seveso establishment to the appeal site. Section 8.3.5 of the EIAR outlines the limited experience of seismic activity in Ireland, with low likelihood for such activity to trigger stability risks for the project. Only limited risk of a wind turbine fire is expected based on data collated by the appellant.

Potential for peat-slide is addressed in chapter 8 and appendix 8.1 of the EIAR, with the relatively flat terrain of the site asserted to largely reduce this risk. The risk of flooding impacting the development and the risk of the development resulting in flooding elsewhere is addressed as part of the development proposals, with a Flood Risk Assessment included as appendix 9.1 to the EIAR.

A windfarm project is not anticipated to form a substantive source of chemical pollution or require large-scale quantities of hazardous materials or fuels, with various measures to address risks from spills and potential pollution events within the EIAR, including the CEMP. Noting the potential for winds to damage turbines

during extreme-weather events, highly-vulnerable land uses, such as housing, are substantive distances beyond the height of the proposed turbines and it would not be expected that humans would be on the site during extreme-weather events. The proposed development is unlikely to present significant risk of major accidents or disasters. Having regard to the location and characteristics of the site, I am satisfied that there are unlikely to be any significant effects of the project deriving from major accidents and / or disasters. Only low risks have been identified in relation to the project's vulnerability to major accidents and / or disasters.
Article 94 (c) A summary of the information in non-technical language.
The EIAR submitted with the application comprises a non-technical summary (Volume I), a main report (Volume II), supporting figures and drawings (Volume III) and supporting appendices (Volume IV). I have read the Non-Technical Summary document, and I am satisfied that the document is concise, comprehensive and is written in a language that is easily understood by a lay member of the public.
Article 94 (d) Sources used for the description and the assessments used in the report.
The sources and references used to inform the description, and the assessment of the potential environmental impacts are set out at the end of each individual chapter in the EIAR. I consider the sources relied upon are generally appropriate and sufficient in this regard.
Article 94 (e) A list of the experts who contributed to the preparation of the report.
Within appendix 1.1 of the EIAR and the introductory section of each of the EIAR chapters, I am satisfied that the competency of the individuals who prepared each chapter of the EIAR is demonstrated, including details relating to expertise and qualifications.

9.3. Consultations

9.3.1. According to the Planning Authority, the application was advertised and submitted in accordance with the statutory requirements. Public participation and consultation are an integral part of the planning and development application process. When required, the EIAR was available for the public to view at the offices of Clare County Council and An Bord Pleanála, as well as on their respective websites and on a dedicated project webpage (https://ballykettgreenenergy.ie – accessed 30th January 2025). A link to the application and EIAR was available from the Department of Housing, Local Government and Heritage EIA portal webpage.

9.3.2. According to the appellant, the public was initially informed of the project through a newsletter released in 2022. Direct and formal public participation in the EIA process was undertaken through the statutory planning application process, including with various prescribed bodies. The EIAR lists 35 organisations, including prescribed bodies for the purposes of the statutory planning provisions, which were consulted in 2022 when scoping issues in the preparation of an EIAR for the initial application (CCC ref. P23/60219), with the responses from this consultation exercise received from 21 of the organisations and included as appendix 1.3 to the EIAR.

9.3.3. This EIA has had regard to the submissions received from the Planning Authority, the prescribed bodies and members of the public, which are summarised above in sections 4 and 6 of this report. Topics and substantive issues raised in the application and the appeal concerning environmental matters are addressed as part of the EIA.

9.3.4. I am satisfied that appropriate consultations have been carried out and that third parties have had reasonable opportunity to comment on the proposed development in advance of a recommendation and a decision being arrived at.

9.4. Compliance

9.4.1. Having regard to the foregoing, I am satisfied that the information contained in the EIAR, and the associated supplementary information provided with this by the developer (the appellant), is sufficient to comply with article 94 of the Planning Regulations. Matters of detail are considered in my assessment of the likely significant effects below.

9.5. Likely Significant Direct and Indirect Effects

9.5.1. The EIAR describes and assesses the direct and indirect significant effects of the project on the following factors; (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) soil, geology, hydrology, hydrogeology, noise, vibration, shadow flicker, EMI, air quality and climate; (d) material assets, cultural heritage and the landscape. It also describes and assesses the interactions between each of the factors (a) to (d). I have considered all potential effects listed in the EIAR, and in the tables below I outline those impacts that have greatest potential to be of significant effect on the environment.

9.6. Population and Human Health

Issues Raised

9.6.1. Issues were raised by the Planning Authority and observers during the course of the planning application and appeal referring to the potential impacts of the development on neighbouring residences as posing risks to human health, including via shadow flicker, noise and general disturbance. Concerns were also expressed regarding the limited extent of employment arising from the project, as well as the potential for damage to roads and houses impacting on the health and safety of local residents.

9.6.2. With respect to noise impacts for local residents, the Planning Authority did not conclude that undue significant impacts would arise from the operational windfarm, although they did raise concerns for the amenities of neighbouring residents arising from traffic movements during the construction phase of the project. According to the Planning Authority issues raised by third-party observers pertaining to EMI were accurately assessed in the EIAR as not being likely to have significant adverse effects for human health.

Context

9.6.3. Impacts of the project on population and human health are addressed in chapter 5 of the EIAR, with chapter 13 specifically addressing shadow flicker. The methodology and the receiving environment for the assessment are described, and the information sources are referenced. This part of the EIAR is asserted to have been undertaken

having regard to the requirements set out in Government and industry guidelines for EIA. The assessment methodology includes site surveys and a desk-top survey of human health and the baseline population, with reference to planning policy.

Baseline

9.6.4. The assessment considers attributes and characteristics associated with local land uses, employment and economic statistics, the tourism sector, health and safety standards, demographics and human health. The baseline environment with respect to these factors is described throughout my report, with the area generally featuring rural characteristics comprising peatland, forestry and grassland, supporting agricultural enterprises and a relatively low-population density. Similar characteristics prevail along the grid-connection and turbine-delivery routes. Tourism facilities in the neighbouring area are outlined, including an Irish whiskey tour and tasting facility located 1.2km to the northeast.

Potential Effects

Table 9.1 Summary of Potential Effects for Human Health and Population

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	Employment would not be created, the community-benefit fund would not be set up and commercial forestry operations would continue. Shadow flicker would not arise at sensitive receptors.
Construction	Direct, slight, temporary / short-term adverse effects for human health from nuisance associated with construction activity. Slight, short-term, direct and indirect positive impacts for employment and business. Slight, negative impacts to the local tourism sector. Short-term effects for the health and safety of those working and passing along the construction site, including the associated infrastructure and transport routes.
Operation	Direct impacts for residential properties from shadow flicker and noise during the operational phase.

	Direct effects for the local population and tourism sector arising from the introduction of the development into the landscape.
Decommissioning	As per the construction phase.
Cumulative	Noise and shadow flicker impacts alongside other existing and permitted wind farms.

Mitigation

9.6.5. Mitigation measures are set out in relation to each of the potential effects of the project, with reference to embedded elements of the project primarily addressing the potential impacts on tourism, human health and population at operational and decommissioning stages, and a project CEMP to address the construction phase. Where no negative impacts are considered to arise specific mitigation measures are not set out, including for population and settlement patterns, economic activity, employment, land use and topography.

9.6.6. Health and safety risks during the construction works for personnel and infrastructure would be managed in line with the relevant regulatory regimes and measures would be implemented to address the potential for accidents at the operational stage, including compliance with various health and safety standards. I am satisfied that the imposition of limits by conditions in any grant of permission, where necessary and reasonable, would further reinforce the preservation of human health during the operational phase.

Residual Effects

9.6.7. With the implementation of mitigation measures, including monitoring, residual effects of the project on human health and the population are stated to result in imperceptible long-term residual impacts, with no significant residual effects arising.

Direct and Indirect Effects Assessment

9.6.8. I have examined, analysed and evaluated chapters 5 and 13 of the EIAR, and all of the associated documentation and submissions on file in respect of human health and population. I am satisfied that the appellant's presented baseline environment, is comprehensive and that the key impacts in respect of likely effects on human health and population, as a consequence of the development, have been identified, and should be assessed under the following headings:

- shadow flicker;
- EMI;
- health and safety.

9.6.9. Other environmental topics with the potential to impact on population and human health, such as air quality, noise, traffic and transport, landscape and visual impacts, soils and water are addressed separately in the other relevant sections of this EIA.

Shadow Flicker

9.6.10. The Wind Energy Development Guidelines 2006 (hereinafter the '2006 Guidelines') recommend that shadow flicker at houses within 500m of a proposed turbine location should not exceed a total of 30 hours per year or 30 minutes per day, and where this is not achieved a windfarm may have undue adverse impacts on the amenities of the respective neighbouring residents. There would be no dwellings within 500m of the proposed turbines. The Draft Revised Wind Energy Development Guidelines 2019 (hereinafter the '2019 draft Guidelines') do not refer to strict time limits for shadow flicker impacts, but they do appear to be moving towards the elimination of shadow flicker from wind-energy developments. The 2006 Guidelines consider the risk of shadow flicker to be very low at distances greater than ten-rotor diameters from a respective turbine, which would equate to 1,370m for the subject proposals. Consequently, there is an absence of directly applicable current guidelines or best practice Irish standards in terms of the daily or annual receipt of shadow flicker for houses in the 500m to 1,370m distance range of the subject turbines.

9.6.11. In order to present a worst-case scenario, an assessment was undertaken and presented in the EIAR for all occupied properties located within 1.5km of the proposed turbines. A total of 89 residential receptors have been identified within this radius. I note that the stated Irish Transverse Mercator (502234, 659009) for the house identified as H13 does not appear to strictly correlate with an existing house. This may be the house referenced by third parties and the Planning Authority as being permitted under CCC ref. P21/482 and recently constructed.

9.6.12. The nearest receptor to a proposed turbine comprises the property identified as H2, which is located 532m from the closest turbine (3). The appellant refers to this receptor as being a former cottage that has been converted into a workshop. The

building identified as H1 is stated to be 560m from the closest of the proposed turbines (4), and the appellant states that this is an abandoned house with an intact roof. The closest occupied house to a proposed turbine is property H5, which would be located a minimum of 579m south of turbine 2. The appellant refers to this property as being financially involved in the project. Various letters of consent from the asserted owners of lands relating to the site were provided with the application, including a letter stated to be from an owner of a house that would be positioned within four times the tip height of a proposed turbine. The land registry folio number (CE7420F) provided in this letter corresponds with the house identified by the appellant as H5 in their EIAR and the stated owner accepts that the proposed turbines would fail to achieve the minimum setback distance under the stated Guidelines from their house.

9.6.13. To address the potential for shadow flicker, computer software was used by the appellant, with the results presented in both tabular and graphical format in appendix 13.1 of the EIAR. In addition, the following worst-case scenario conditions are initially assumed in this part of the assessment:

- an absence of clouds, with sunlight constant, bright and direct;
- the turbine rotor blades would be continually rotating;
- a complete absence of intervening screening;
- no limit to human perception of shadow flicker.

9.6.14. Table 13.1 of the EIAR details the properties that may be affected and the relevant respective turbines. Of the 89 potential receptors, the modelling predicts that 20 would not experience any shadow flicker as a result of the development, and they are excluded from further assessment. The shadow flicker from the existing Moanmore and Tullabrack windfarms on 22 receptors are detailed in graph 13.1 of the EIAR, indicating that the receptor identified as H87 could experience 45 minutes of shadow flicker on a daily basis from these turbines. Moanmore Lower windfarm (CCC ref. P25/60257) was recently refused permission by the Planning Authority and cumulative impacts with this project are not assessed in the submitted EIAR, which had been prepared prior to the lodging of the application for this neighbouring windfarm project.

9.6.15. Table 13.3 of the EIAR details the cumulative shadow flicker impacts for 89 receptors revealing that in a worst-case scenario 63 properties would be impacted to some degree by shadow flicker from the proposed turbines, with six of the receptors in the study only receiving shadow flicker from the existing turbines and not from the proposed development. Following the application of regional average sunshine criteria based on Met Éireann data, the proposed development alone would result in 36 receptors exceeding the 2006 Guidelines threshold of in excess of 30 minutes shadow flicker per day. When assessed cumulatively with the existing Moanmore and Tullabrack turbines, and noting Met Éireann regional average sunshine data, a total of 39 receptors would exceed the 30 minutes daily shadow flicker threshold. According to the appellant, the worst-affected receptor would be the workshop at H1, receiving 21 hours and 51 minutes of shadow flicker in a single year.

9.6.16. Potential for shadow flicker has been considered as part of the design process and the appellant outlines that this influenced the proposed layout. Taking into consideration the application of a worst-case scenario, meteorological data, the application of the shadow flicker thresholds in the 2006 Guidelines and the location of sensitive receptors, including those beyond a ten-rotor diameter separation distance from the proposed turbines, I consider the appellant's shadow flicker model and their description of the likely impacts of shadow flicker to be reasonably robust.

9.6.17. The appellant's modelling indicates that there is potential for shadow flicker to occur at occupied houses and the 2019 draft Guidelines require the appellant to explore the possibility of eliminating the occurrence of potential flicker. If shadow flicker is not eliminated for a house, then clearly specified measures providing for automated turbine shut down to eliminate shadow flicker should be required based on the provisions of the 2019 draft Guidelines, which I am satisfied to represent best practice in this regard.

9.6.18. The appellant states that they are committed to ceasing shadow flicker at occupied houses. Section 13.2.8 of the EIAR sets out the features to be employed to eliminate shadow flicker at any potentially-affected property, which entails real-time control systems measuring conditions such as wind speed, wind direction and sunlight, in order to identify the necessity for turbine shut down. The appellant does not outline specific times that the turbines would be programmed to shut down to eliminate shadow flicker to affected receptors. The proposed turbines would have

shadow-flicker detection systems and turbine-control software, which would allow the automated shutdown of turbines to prevent shadow flicker of neighbouring sensitive receptors. This system could also comprehensively account for the aforementioned recently-constructed house at Gowerhass townland (CCC ref. P21/482).

9.6.19. I am satisfied that the appellant has proposed and demonstrated that control mechanisms would be in place for the operational duration of the wind-energy development to eliminate shadow flicker. The potential impact arising from shadow flicker on properties in the vicinity would not be significant based on the 2006 Guidelines, with scope to further secure the elimination of shadow flicker at affected properties by a turbine-shutdown system. I consider that the issue can be adequately addressed by way of a condition comparable to that employed in other permissions for wind-energy developments, whereby provision is made for the implementation of a windfarm shadow flicker compliance and monitoring programme, details of which can be agreed with the Planning Authority. Accordingly, there would be no undue shadow flicker effects from the development that would substantially impact on the amenities enjoyed by residents of neighbouring housing.

EMI

9.6.20. With regard to potential impacts on human health via EMI, this is addressed within section 13.3 of the EIAR. The appellant asserts that there is a growing body of research that exposure to extremely low-frequency (ELF) or electro-magnetic fields (EMF) from powerlines or other electrical sources, has not been proven to be a cause of any long-term adverse effects on human health. Reference is made in the EIAR to limitations assigned in the International Commission on Non-Ionising Radiation Protection (ICNIRP) Guidelines for EMI. The appellant concludes that any impact in terms of EMI is unlikely to occur as a result of the proposed development, with any EMF arising being localised and having only imperceptible long-term effects.

9.6.21. I am aware of European and Irish law relating to minimum health and safety requirements for workers exposed to EMF and such laws would need to be complied with as part of the development, resulting in negligible impacts to human health. Significant adverse effects on human health arising from EMI would not be likely to arise.

Health and Safety

9.6.22. Section 5.7 of the 2006 Guidelines state that there are no specific safety considerations in relation to the operation of wind turbines and that people and animals can safely walk up to the base of turbines. Peat stability is addressed in section 8.3.8 of the EIAR and assessed further below under section 9.8 of this EIA. A low risk of peat slide is considered to arise. Peat stability, as well as fire hazard, spillages to soil and contamination are addressed in the appellant's emergency response plan forming appendix A to the CEMP (appendix 2.1 to the EIAR), which would be a live document that can be updated during construction of the project. The windfarm would include a system over-ride switch that could be operated at any time, to facilitate manual shutdown in case of an emergency. Fire safety and Building Regulations would need to be adhered to for ancillary structures. Matters pertaining to aviation are addressed in section 9.12 below, with lighting to the turbines to be installed as a precautionary measure. Two 17m-high monopoles would be installed at the substation compound to mitigate the potential for lightning strikes.

9.6.23. In relation to the potential for increased flood risk to impact on the safety and wellbeing of neighbouring residents, I am satisfied that these impacts have been addressed as part of the flood risk assessment undertaken for the project (appendix 9.1 to the EIAR) with a low risk of flooding identified and significant residual effects for the safety and wellbeing of neighbouring residents not anticipated to arise.

9.6.24. While a road safety audit was not considered to be necessary for the project (see EIAR section 16.5.13), the effects of the development on traffic in the area are addressed in section 9.12 below, with an acceptance that additional and more varied traffic would be attracted into the immediate local road network, in particular during the construction stage. Detailed methodologies to allow for the safe delivery of materials and undertaking the grid-connection route would be further enhanced following reviews at future stages in the development process, with the CEMP forming a live document mitigating against any substantive risks to human health arising from the works along the road network. The construction works would be limited to the hours, as set out in the decision.

9.6.25. While unplanned events and accidents can never be ruled out, these would generally be dealt with in their own right outside of the planning process, including adherence to health and safety requirements and emergency response planning.

Direct and Indirect Effects Conclusion

9.6.26. Having regard to the examination of environmental information in respect of human health and population, in particular the EIAR provided by the appellant and the submissions from the Planning Authority and observers during the course of the application and appeal, it is considered that the main significant direct and indirect effects on human health and population are, and will be mitigated as follows:

- significant direct negative effects arising for human health as a result of shadow flicker to residential properties in the vicinity during the operational phase, which would be mitigated by detailed shadow flicker curtailment strategies restricting wind turbine operations in certain environmental conditions, resulting in no residual impacts on human health.

9.7. **Biodiversity**

Issues Raised

9.7.1. The Planning Authority and observers raised concerns in relation to the lapse in time since ecological surveys for the project had been completed, which led to the Planning Authority deciding that it could not be concluded that there would not be significant environmental impacts from the project for hen harrier. Observers assert that there is a need for independent bird surveys to be undertaken to inform the project impacts, with reference to potential impacts for several bird species. The NPWS also raised an issue with the lapse in time since surveying had been undertaken for the project, with potential implications for the assessment of impacts on hen harrier and otter. Risks to water quality were also identified by the Planning Authority and observers, with potential for pollution of downstream receiving waters, impacting on aquatic ecology. Observers and the Planning Authority also refer to concerns regarding the impact of the development on habitats on site, such as peatlands, and the downstream impacts of the works along the turbine-delivery route.

9.7.2. In response to the Planning Authority's decision, as well as the submissions from third parties and prescribed bodies, within their EIAR the appellant referred to bird surveys as being ongoing on site and they asserted that the proposed development would not impact on hen harrier, particularly given the lack of change in land use, the results of bird surveying, the biodiversity enhancement proposals for 3.16ha of the site and the scope for post-construction monitoring.

Context

9.7.3. Chapter 6 of the EIAR addresses impacts on biodiversity with a plant list, a bat-survey report, a desktop bird-survey report, field-survey reports, a collision-risk modelling report and a Biodiversity Enhancement and Management Plan forming appendices to this chapter. Chapter 7 of the EIAR addresses aquatic ecology and includes details of a survey for freshwater pearl mussel forming appendix 7.1 to the EIAR. A description of the construction phases and the various elements of the proposed works, including works along the grid-connection route, construction-haul routes and watercourse crossings, are initially set out in this chapter of the EIAR. The methodology for the assessment incorporated consideration of the zone of influence for the project, identification of sensitive-ecological receptors, consultation with relevant bodies, a desktop survey and fieldwork, including surveys for habitats, flora, terrestrial fauna, bats (roosting, activity and detector surveys), birds and Marsh Fritillary.

9.7.4. It is noted that an NIS for the project was provided as a separate standalone document accompanying the application. Section 9 of my report assesses the proposed development in the context of the conservation objectives for designated European sites within the zone of influence of the project.

Baseline

9.7.5. I have visited the site and noted the condition and nature of the site, including conifer plantation and peatland. Habitats identified on site are listed and illustrated in figure 6.5 of the EIAR. The appellant states that the site is dominated by conifer plantation (WD4), while also featuring hedgerow (WL1), cutover bog (PB4), agricultural grassland (GA1) and depositing / lowland river (FW2) habitats. Fen or flush habitats were not recorded on the site. Natural and artificial drains run through the site, with the Moyasta river, including dredged sections, draining the site westwards as part of

the Shannon estuary north catchment. There are no watercourse crossings along the grid-connection route. Sections of the turbine-delivery route cross the Gowerhass stream, a tributary of the Moyasta, as well as the Tullagower river and Brisla East stream, which are tributaries of the Doonbeg river. Annex I habitat was not recorded on site.

9.7.6. The conifer plantation is stated to mainly feature Sitka Spruce tree species, interspersed with Lodgepole Pine, and with the plantation floor dominated by pine needles with intermittent clumps of moss. Turf cutting on the cutover bog appears to have ended with a result that bog flora has regenerated quite well, including mosses and lichens. Limited and typical plant species were recorded in the grassland, hedgerow and river habitats. The roads along the grid-connection and delivery routes feature grass verges and ditches covered by Willow, Hawthorn, Bramble, Bracken, Ash and Sycamore. Nationally-rare or legally-protected plant species were not recorded in the appeal site survey area. Invasive species were not recorded on the turbine site or along the grid-connection route, although Japanese Knotweed was recorded along a section of the Brisla East upstream of the turbine-delivery route.

9.7.7. A broad array of bird species was recorded during surveys at the site and in the hinterland, including the annex I species (hen harrier, merlin, peregrine falcon, kingfisher, little egret and golden plover), red-listed species (woodcock, kestrel, lapwing, oystercatcher, redshank, curlew, snipe, grey wagtail and meadow pipit) and amber-listed species (cormorant, herring gull, lesser black-headed gull, goldcrest, skylark, swallow, willow warbler, starling, mallard, Brent goose, common gull, mute swan, teal, tufted duck, wigeon and linnet).

9.7.8. Signs of pine marten, deer, fox and badgers using the turbine site were recorded, while otter was observed swimming within the Moyasta river channel. Common frog, as well as other small mammal species, would be expected to use the site. Freshwater pearl mussels or evidence of this species was not recorded in the watercourses along the turbine-delivery route feeding into the Doonbeg river, which is known to support this species. Bat roosts were not recorded within the site and the nearest known roost site is recorded as being located 7km from the turbine site, outside the core-sustenance zone from this roost. Potential roost sites in trees and structures were not observed on the site, although trees and structures with potential suitability for roosting bats were identified along the grid-connection and turbine-

delivery routes. Activity and movement associated with bat foraging and commuting was considered to be moderate and variable across the seasons, with important or significant-commuting routes not in evidence and with common pipistrelle and soprano pipistrelle the most frequent bat species recorded.

9.7.9. The Gowerhass and Moyasta rivers discharge to the Lower River Shannon SAC (site code: 002165), the River Shannon and River Fergus Estuaries SPA (site code:004077) and Poulnasherry Bay proposed Natural Heritage Area (pNHA) (site code: 000065). The tributaries of the Doonbeg river along the turbine-delivery route are hydrologically connected with Carrowmore Dunes SAC (site code: 002250) and Mid-Clare Coast SPA (site code: 004182). Other known ecological sites of national importance in the vicinity comprise St. Senan's Lough pNHA (site code: 001025) located 3.7km to the southeast of the turbine site, Scattery Island pNHA (site code: 001911) located 5.8km to the southwest of the turbine site, and Tullaher Lough and Bog SAC and pNHA (site codes: 002343 and 000070) located 5km to the northwest of the grid-connection route.

9.7.10. The bog areas and the stretch of Moyasta river within the turbine site, breeding and foraging habitat for bird species and protected mammal species, are rated as being of local importance (higher value) and form the key-ecological receptors for the biodiversity assessment of the EIAR. Due to the extent of siltation and macroinvertebrate diversity, the streams forming part of the immediate catchment to the proposed turbine site are considered to be of low-ecological value. Various impacts on downstream, hydrologically-connected sites require consideration according to the appellant.

Potential Effects

Table 9.2 Summary of Potential Effects for Biodiversity

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	The site would remain primarily in use for forestry purposes, with future harvesting and replanting according to the forestry cycle, as well as possible recommencement of turbary activity.
Construction	Direct loss, damage or fragmentation of habitat, with resulting harm and mortality effects for associated species.

	Direct effects for species habituating the site and environs arising from increased disturbance (noise, general activity and spread of invasive species). Direct effects for water via increase in pollutants or sedimentation, with implications for aquatic habitats connected with the site.
Operation	Loss of habitat for breeding birds, bats and small mammals, including 0.54ha of cutover bog. Disturbance, displacement and barrier effect for wildlife. Direct impacts for birds and bats via risk of collision with moving turbine blades. Direct effects for water via increase in pollutants or sedimentation, with implications for aquatic habitats connected with the site.
Decommissioning	Direct effects for species habituating the site and environs arising from increased disturbance (noise and general activity). Direct effects for water via increase in pollutants or sedimentation, with implications for aquatic habitats connected with the site.
Cumulative	Direct effects for species via creation of an extended barrier and / or increased loss of habitat alongside other windfarms.

Mitigation

9.7.11. The proposed development attempts to largely address the potential primary impacts on habitats, both on and off the site, via measures that are embedded in the overall design of the scheme, such as limitation of the land take, use of existing tracks and provision of buffers from watercourses.

9.7.12. To address potential impacts of the project on local ecology during the construction phase, the appellant sets out various avoidance, remedial and alleviation measures, including pre-construction surveys for breeding birds, bats, badgers, otters, frogs, lizards and invasive species. Other measures proposed include a restriction of work

zones, sensitive timing of works relative to night activity, nesting, breeding and spawning periods, fulfilling of derogation and other licences, if necessary, adherence to construction method statements for watercourse crossings and other elements, protection and safeguarding measures, noise and dust-control measures, surface-water management measures and monitoring by an ecological clerk of works. Biodiversity enhancement measures would be undertaken, incorporating restoration of 3.16ha of the site to bog habitat.

9.7.13. During the operational phase, the storage of potential pollutants would occur within a secure compound along with removal of wastewater to a licenced wastewater-treatment facility. Regular monitoring of habitats, vegetation, bats and birds would be undertaken to ensure the effectiveness of the stated mitigation measures. Mitigation measures during the decommissioning phase would broadly follow those in the construction phase.

Residual Effects

9.7.14. With the implementation of mitigation measures, including monitoring, the appellant does not consider the residual effects of the project to be significant.

Direct and Indirect Effects Assessment

9.7.15. I have examined, analysed and evaluated chapters 6 and 7 of the EIAR, and all of the associated documentation and submissions on file in respect of biodiversity. In assessing the proposed development, I have considered all aspects proposed, including the 82m-high met mast and the proposed biodiversity enhancement area replacing an area of conifer plantation. I am satisfied that the key impacts in respect of likely effects on biodiversity, can be addressed under the following issues:

- bird surveys;
- cutover bog;
- aquatic ecology;
- flora;
- invasive species;
- fauna (excluding birds);
- bats;

- birds;
- hen harrier.

Bird Surveys

9.7.16. According to the appellant surveying, analysis and reporting for the biodiversity section of the EIAR have been undertaken in accordance with various guidelines, including NatureScot guidelines 'Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms' (2017), and within the recommended seasonal time periods. In deciding to refuse to grant permission for the proposed development, the Planning Authority raised concerns in relation to the intervening period between bird survey results and the lodgement of the application, which they considered to have required a professional ecologist or an ornithologist to review the validity of the bird surveys. With reference to this intervening period, the NPWS drew attention to the provisions set out in the CIEEM 'Advice Note on the Lifespan of Ecological Reports and Surveys' (2019). From the outset I acknowledge that the CIEEM advice note is a guidance document, providing reasonable and coherent direction for planning authorities in relation to the lifespan of ecological assessments and their validity for the purposes of assessing planning and development proposals.

9.7.17. Detailed knowledge of bird distribution and flight activity is necessary in order to predict the potential effects of a windfarm on birds. The appellant's initial core data collated for the description of ornithology in the EIAR is based on a combination of distribution and abundance surveys, including field surveys of two full winter and two breeding seasons over the October 2020 to September 2022 period, and vantage point surveys to gather flight data for target species. The record of vantage point bird flight-path observations included in appendix 6.4.5 to the EIAR refers to dates starting from the 3rd of October, 2022. Walkover transect surveys for breeding and winter birds were undertaken in summer 2021 and winter 2021/22 within a study area extending 500m beyond the site boundaries. Hinterland surveys were undertaken during late spring, summer and winters months over an area extending 5km from the site. Wetland and waterbird counts were also undertaken in selected locations extending over 11km from the turbine site. Wildfowl and hen harrier roost surveys were undertaken during winter 2020/21 and 2021/22 at potential sites within 5km of the turbine site. During the summer months to 2021 and 2022, breeding

birds of prey surveys are stated to have been undertaken at the site and within a 2km radius of the site where suitable habitat may exist.

9.7.18. In their advice note, CIEEM highlights the importance of having up-to-date ecological reports and survey data when making planning decisions. In addition, the advice note sets out general advice with respect to valid timeframes for ecological surveys, albeit recognising the difficulty in setting specific timeframes. Reports or survey data that are less than a year are considered to be valid in most cases based on the CIEEM advice note, which also states that reports or survey data finalised between 12 and 18 months of the lodging of a planning application are most likely to be valid, with some exceptions. These exceptions include where a site may offer existing or new features that could be utilised by a mobile species within a short timeframe or where a mobile species is present on site or in the wider area and can create new features of relevance to the assessment. Where reports or survey data have been finalised between 18 months to three years in advance of the lodging of a planning application, an ecologist would need to undertake a site visit and potentially update desk study information and review the validity of the ecological reports based on factors, such as, the potential for the site to support mobile species and any significant changes to habitat or wider changes in a species in the wider area. According to the CIEEM advice note, reports or survey data greater than three years would be unlikely to be valid in most cases.

9.7.19. The subject application was lodged to the Planning Authority in March 2024, 18 months after the date of the initial bird survey results provided by the appellant, with the hen harrier roost and wintering wildfowl survey data respectively dating from 24 and 26 months prior to lodging the application. The application was refused a grant of permission in May 2024, which the appellant subsequently appealed to An Bord Pleanála in June 2024. Within a footnote to the EIAR, the appellant referred to field surveys for birds continuing on site since September 2022 to ensure up-to-date information is available, however, in line with the observation received from the NPWS, this more recent survey information was not made initially available as part of the planning application or the appeal.

9.7.20. In response to the Planning Authority and NPWS concerns regarding the validity of the project bird survey data, the appellant asserted that the data falls into the 18 months to three years category detailed in the CIEEM advice note and they

considered the advice note criteria as fully vindicating use of the collated survey data. It was also asserted by the appellant that the CIEEM advice note criteria addressing the validity of reports primarily has pertinence for bats, otters and badgers. The appellant accepted that the site could potentially support mobile bird species and that these bird species could be considered further in pre-construction surveys to establish if they have moved to the site in the interim or if their distribution changed.

9.7.21. The appellant did not outline if changes in the forestry on site arose since the results of initial bird surveys were completed in 2022, including changes in pre-thicket areas known to be suitable for mobile bird species, such as hen harrier. Despite highlighting a decline in breeding hen harrier over the 2015 to 2022 period in the West Clare Uplands IBA, the 2022 NPWS national survey of hen harrier, provided mapped information indicating an increase of four breeding hen harrier between 2015 and 2022 in the hectad ref. R05 (10km x 10km area) comprising the appeal site. This highlighted a significant change in the population of this rare bird species in the immediate and wider area to the appeal site. Based on the above and the provisions set out within the CIEEM advice note, more up-to-date survey data, specifically with respect to hen harrier, was required to inform the EIA. Following a request for further information under section 132 of the Act of 2000, the appellant submitted a response report and four bird-activity summary reports for the period extending from winter 2022 through to September 2024, as well as an updated collision-risk model report. Surveys for the winter months during 2022 / 2023 and 2023 / 2024 were focused to identify hen harrier roosts, wildfowl distribution and hinterland birds, with a winter woodcock survey occurring during the 2023/2024 period.

9.7.22. I am satisfied that the extent of breeding and wintering bird surveys, including those undertaken for hen harrier, at a minimum covering a 2km radius from the development boundary and surveying over a continuous period of two years, generally accords with the ‘Recommended bird survey methods to inform impact assessment of onshore windfarms’ (NatureScot, 2017). Bird surveys for the winter 2024 / 2025 season were not submitted with the further information request response and the appellant has not stated why information for this period was not submitted. Notwithstanding this, reports or survey data that are less than a year are

considered to be valid in most cases based on the CIEEM advice note, and scientific reason to seek survey findings for the winter 2024 / 2025 period has not been detailed by parties in response to the appellant's further information submission.

9.7.23. With regard to the observer's request that the appellant commission independent bird surveys by expert ornithologists for the project, I note that the details provided of those involved in undertaking the bird surveys and collision-risk modelling, including their expertise and qualifications. The additional surveys, including distribution, abundance, vantage point and target species surveys were undertaken in compliance with best practice, including aforementioned NatureScot 2017 guidelines. These bird survey guidelines do not refer to the need for dawn-chorus surveys, as asserted by observers to be required, although I note that surveys did account for both visible and audible records of birds, including the early morning period.

9.7.24. Observers refer to the restrictions in visibility from the two vantage points noted by the collision-risk modeller when revisiting the site in 2024. The viewshed from a height of 14m above ground level was noted in 2024 as showing limited visibility at both vantage points, while the viewshed from a height of 20m above ground level for vantage point 1 also featured limited visibility to an area of the site. I am satisfied that the model accounted for the limitations identified as part of the model presented and that it would be typical for changes in the environment to affect visibility, including growth in height of trees within a conifer plantation. The aforementioned NatureScot guidelines 2017 note that being able to view the potential collision risk area as being most important in vantage point surveys. The appellant has highlighted that full coverage was available at both vantage points to a height of 100m above ground and good coverage was available to a height of 50m above ground. Some restrictions of visibility would be inevitable and I am satisfied that the vast majority of bird flights within the potential collision-risk zone would have been visible from the vantage points used as part of the project bird surveys.

9.7.25. In conclusion, I do not concur with the observations that the appellant took a 'light-touch' approach to bird surveys, and I am satisfied that the bird surveys undertaken and the results submitted provide a reasonable baseline of information in appropriately informing this element of the EIA.

Cutover Bog

9.7.26. Observers raised concerns regarding the impact of the development for raised and blanket bogs, as well as other semi-natural habitats on site, while the Planning Authority accepted that the site and its immediate environs do not feature specific nature conservation designations. According to the appellant's EIAR, annex I habitats, including depressions on peat substrates (Rhynchosporian), were not recorded within the appeal site, however, in response to a scoping opinion from the NPWS, an investigation of potential links with annex I habitats, active-raised bog and degraded-raised bog was undertaken. The bog surveyed on the proposed turbine site is not considered by the appellant to be an intact raised bog, due to the loss of acrotelm and upper-peat layers during past turbary activities, the extensive drainage works and the afforestation. Restoration of the original hydrology would not be practical to achieve according to the appellant and they do not consider the site to feature degraded-raised bog capable of restoration when following criteria used by the NPWS to describe this habitat.

9.7.27. The appellant accepts that the proposed development would result in the loss of 0.54ha of cutover bog within the site in providing for turbine 4. This habitat was recorded as supporting a well-developed peatland flora and a limited number of other species, including meadow pipit, skylark, snipe and marsh fritillary. The flora identified, lacking in a density of three or more well-developed Devil's-bit Scabious plants per square metre, is asserted by the appellant not to provide sufficient food source for marsh fritillary. The appellant asserts that the loss of the existing area of cutover bog amounting to 5.6% of the total bog area on site, would be a significant, adverse, permanent impact, but that this would be readily offset through the provisions within the Biodiversity Enhancement and Management Plan (appendix 6.6 to the EIAR), restoring approximately 3.16ha of bog that is currently planted with conifer trees. Temporary measures would also be employed to mitigate disturbance to the cutover bog during the construction period, including restriction of access and revegetating of cut sod.

9.7.28. Notwithstanding the loss of cutover bog habitat of local ecological value, I am satisfied that the measures proposed by the appellant as part of the construction phase and in mitigating against the loss of this habitat, would provide for an extended bog habitat supportive of more extensive ecosystems than the

replacement conifer-planted bogland habitat. Significant risk to this cutover bogland habitat would be averted as part of the project.

Aquatic Ecology

9.7.29. Observers and the Planning Authority assert that the proposed development would present an unacceptable risk of pollution to watercourses in the area, with resulting negative impacts for downstream waters, including the water entering Poulnasherry bay and water supporting freshwater pearl mussel. The drainage regime has been described above. Two of the three watercourses (Tullagower and Brisla East) crossing the turbine-delivery route, drain into Doonbeg River, which is known to support Freshwater pearl mussel. The turbine site features various works proximate to watercourses, including a clear-span bridge crossing of the Moyasta river and five pre-cast bottomless drainage culverts.

9.7.30. A desktop study of aquatic habitats was initially undertaken by the appellant, as well as consideration of the results of other field surveys for aquatic ecology in the catchment area of the turbine-delivery route. Surveying for freshwater pearl mussel was undertaken in October 2023, details of which are included as appendix 7.1 to the EIAR, with three locations capable of being surveyed. As part of this surveying it was noted that the drainage regime north of the turbine-delivery route did not precisely follow the previously mapped water regime in the area.

9.7.31. According to the appellant, freshwater pearl mussel requires clean, fast-flowing water with depths of 0.3m to 0.4m, as well boulders and sand to burrow under. The condition of the watercourses proximate to the turbine-delivery route are not considered by the appellant to be conducive to habituating by freshwater pearl mussel, with limited to no flow in one of the watercourses (Tullagower) and an absence of fine sediment suitable for freshwater pearl mussel or spawning by salmonoids in these watercourses. Notwithstanding the absence of recordings or suitable habitat for freshwater pearl mussel, there are records of this mussel using downstream stretches of the Doonbeg river.

9.7.32. Works proposed along the L6132 local road section of the turbine-delivery route between the site entrance and the N68 national road includes the removal of vegetation, reprofiling of a 30m stretch of the road approximately 450m east of the turbine site entrance, road widening and verge strengthening at various locations.

Based on the information provided in the Traffic Management Plan (appendix 16.2 to the EIAR), the turbine construction elements, comprising a main crane and counterweights would be heavier than the individual turbine components, and geometry forms a critical issue in the delivery of the turbine elements.

9.7.33. The Road Design Office in the Planning Authority refer to the L6132 local road as featuring stretches of carriageway measuring a minimum of 3m in width and questioning whether the strengthening works would extend past the grass verge.

9.7.34. Potential road widening works along the L6132 local road would increase the road width in locations to 4m with 5.5m widths at suitable passing locations. Various sections of the EIAR (including sections 2.5.5, 9.4.3.1 and 16.4.2) set out that these road-widening works would involve excavating a trench in the verge, placing a geotextile and geogrid layer at the base of the trench and backfilling the trench with granular material compacted in layers. Following the construction of the turbines, approximately 150mm depth of the widened granular layer would be removed to be replaced with topsoil. The appellant refers to drawings 6777-JOD-XX-DR-C-HR-251 and 6777-JOD-XX-DR-C-HR-252 in Appendix 16.1 to the EIAR as providing details of the road widening works, however, I have not been able to locate these drawings. The unnumbered drawings titled 'Designated & Protected Areas Overview' and 'Sensitive Receptor Areas WF and GCR', included as part of appendix 16.1 to the EIAR, illustrate that the stretch of the turbine-delivery route intended to feature road widening works would measure approximately 450m in length along the western end of the L6132 local road. This section of the local road does not feature watercourse crossings.

9.7.35. As illustrated in the drawings and stated in section 2.5.4 and table 2.7 of the EIAR, verge strengthening works would take place along sections of the remaining eastern stretch of the L6132 local road. In relation to the details of the verge strengthening works, the appellant refers to drawings (no. 6777-JOD-XX-DR-C-HR-250 and 6777-JOD-XX-DR-C-HR-263 Revision P01.2), which I have also not been able to locate on the file. The L6132 road reprofiling drawing (no.6777-JOD-BKWF-XX-DR-C - 2001 Revision P02) provides an additional indication of the extent of verge strengthening closest to the reprofiling section. A variety of descriptions is given in the EIAR regarding the nature of the verge strengthening works. Sections 5.3.4, 9.4.4.3 and 9.4.3.11.3 of the EIAR state that these temporary verge strengthening

works would involve only minor surface-level earthworks at intervals where the paved road surface narrows to less than 2.5 metres in width, and in these locations compacted gravel would be applied inside the road verge. Sections 8.4.3.4.1 and 9.4.4.1 of the EIAR refer to the verge strengthening works as involving, digging out of road verges to approximately a depth of 0.4m below ground level, replacing the excavated areas with compact stone to support traffic, and dressing the compact stone aggregate with topsoil upon completion of the construction deliveries. Table 16.13 of the EIAR details that 3,800m^3 of material would be removed as part of the verge strengthening works along the stretch of the L6132 local road from the site entrance to the N68 national road, and the subsequent reinstatement of verge materials, including 1,260m^3 of topsoil.

9.7.36. The appellant states that there are three watercourse crossings along the L6132 local road. To avoid excavation and disturbance of the existing ground, sections 6.1.2.1 and 16.4.3 to the EIAR state that steel plates would be placed on the road verges 10m either side of the three watercourse crossings. Section 6.4.4.3 of the EIAR states that within 10m of the subject three watercourse crossings, steel beams would be placed resting against the existing carriageway and supported on the verge by sandbags. The steel plates would only be in use for the duration of the turbine delivery. Section 9.5.2.5 of the EIAR also refers to the use of sandbags and steel plates at the watercourse crossings.

9.7.37. In relation to the reinstatement details at watercourse crossings along the L6132 local road, section 16.4.3 of the EIAR refers to the details in drawing nos. 6777-JOD-XX-DR-C-HR-270 and 6777-JOD-XX-DR-C-HR-271. As with the other drawings referenced above, I have not been able to locate these drawings, and I note that they have not been referenced in the schedule of drawings submitted with the application. Notwithstanding this, the details provided indicate that excavation works associated with the verge strengthening works along the turbine-delivery route, would not take place within 10m of the three watercourse crossings.

9.7.38. A selection of typical turbine-delivery vehicles is identified in the Traffic Management Plan (p.19-20), which states that final road widening requirements would be determined by the turbine haulage contractor, due to the wide range of vehicles that can be selected to transport turbine components. The turbine-delivery vehicles shown in the Traffic Management Plan feature wheel-span widths of approximately

3m and the stated maximum widths of the turbine tower sections would be 4.3m, thereby overhanging the sides of the delivery vehicles. Removal of vegetation would only occur during the appropriate periods outside of bird nesting season.

9.7.39. Pollution of watercourses crossing the turbine-delivery route via loosening of debris along verges resulting in increased sedimentation of water would be the only likely means by which the delivery of turbine components could potentially impact on water and aquatic ecology along the turbine delivery route. To safeguard against loosening of such debris in sensitive locations, as noted above, steel-plates would be placed at the three watercourse crossings, with their use to be overseen by an ecological clerk of works. This approach would provide additional load bearing and structural support for the watercourse crossings along the L6132 local road, which I note to already facilitate the movement of HGVs and machinery, including those associated with quarrying, forestry and agricultural activity.

9.7.40. There is potential for the abnormal loads associated with the project to feature axle weights greater than the weights of traffic already using the local road, however, the extent of works along the L6132 local road have been clearly set out in the documentation submitted with the application, and the proposals with respect to abnormal loads using this road have been addressed in a substantive manner. The relatively straight and flat alignment of the L6132 section of the turbine-delivery route, with only long-sweeping moderate bends, would not be likely to necessitate extensive route modifications in manoeuvring abnormal loads for the project. There are no watercourses at the eastern and western ends of the turbine delivery route, where modifications would be required to facilitate abnormal loads entering and exiting the L6132 local road. A limited number of abnormal loads would be transported to the site, with scope to continually monitor and address the situation through the means listed in the application. In conclusion, the proposals set out for the abnormal-load deliveries along the L6132 local road, including the measures to address impacts on watercourses, would not be likely to have a significant impact on aquatic ecology and freshwater pearl mussel habitat within the Doonbeg river catchment. Furthermore, this part of the project would not be likely to significantly impact on water within the Gowerhass stream flowing under the L6132 local road to the Moyasta river.

9.7.41. A baseline for water-quality monitoring was established as part of the appellant's EIAR via surveys and the Environmental Protected Agency (EPA) water quality data. Four sampling locations with hydrological connections to the turbine site were used, with each of the associated watercourses featuring moderate water quality status for the purposes of the Water Framework Directive (WFD). These watercourses feature poor or bad ecological status under the third cycle of the river basin management plans (2022-2027). Due to the level of siltation and macroinvertebrate diversity, each of the watercourses sampled are considered by the appellant to be of low-ecological value.

9.7.42. Potential impacts on fish and aquatic biodiversity would be most likely to arise during the project construction phase, via release of pollutants or excess sediment impacting on water quality. The IFI has commented on the application and outlined various recommendations with regard to construction methods and phasing, tree-felling operations, crossings, water-quality monitoring, planting buffers and drainage. In addition to the potential effects on the turbine-delivery route, the appellant has addressed the potential impacts on water quality arising from the works within the turbine area of the appeal site. Potential for significant temporary adverse impacts on aquatic ecology during the construction and decommissioning phases at the turbine site are largely avoided by the absence of in-stream works. I assess these impacts in detail in section 9.10 below.

9.7.43. The Planning Authority do not consider the appellant to have provided sufficient information with respect to the proposed tree-felling element of the project to ensure that the development would not result in significant impacts on local hydrology and surface-water conditions, with implications for Poulnasherry Bay, a designated shellfish and estuarial waterbody reliant on good water quality for aquaculture production. I assess the forestry clear-felling element of the project in detail in section 9.9 below. The EIAR outlines that even without mitigation measures to address the quality of the watercourses traversing the site, the impact of the development could only have slight to moderate short-term significant effects, due to the estimated volume of Poulnasherry bay (50,000m^3), and the difference in the flow of the Moyasta (>0.29m^3/sec) and Shannon (300m^3/sec) rivers, with the flow in the Shannon a much more instrumental influence on the quality of water feeding Poulnasherry bay.

9.7.44. According to the appellant, a comprehensive suite of drainage measures has been developed to protect all receiving waters from potential significant effects during the construction of the development, with measures outlined in chapter 9 of the EIAR addressing hydrology and hydrogeology. The project CEMP and associated method statements, follow best construction practises, including those contained within the IFI 'Guidelines on Protection of Fisheries during Construction works in or adjacent to Waters' (2016). Implementation of a programme of water-quality monitoring to be agreed with the Planning Authority is proposed as part of the project. The suite of measures to be employed is extensive, following best practice guidelines in relation to the safeguarding of water quality, in particular the avoidance of in-stream works, the provision of buffers and the surface water management plans to address the potential for direct discharge or pollutant release to any natural watercourses during construction. The 'Forestry Report' appended to the EIAR provides detailed information regarding the intended area to be subject of clear felling, with mitigation measures outlined in undertaking this element of the project, including adherence to a harvesting plan outlining access points, setback areas, timber-extraction routes, fuelling and chemical-storage areas, log-stacking areas, drain-crossing points and a Hazard Identification and Risk Assessment. The broad principles that would guide the final details of the forestry harvesting plan are addressed in the application, including use of brash mats, buffers to drains, soil and water protection, health and safety, storage areas and methods to be employed in drain crossings. I am satisfied that there is sufficient clarity in relation to the extent of works that are proposed as part of the forestry-felling operations to facilitate the construction element of the project, including the extent of measures that would be employed to safeguard the quality and flow of receiving waters.

Flora

9.7.45. Field surveys were undertaken on the proposed turbine site in May and October of 2022, and species recorded in the various habitats are outlined within appendix 6.1 of the EIAR. The appellant states that consideration was given to the potential for protected or rare plant species (including bryophytes) potentially within 1km of the site boundaries and beyond this, should there be identified ecological or hydrological connectivity. Habitats Directive annex II flora species, flora listed in the Flora (Protection) Order 2022 or red-list species were not recorded on the turbine site or

along the immediate delivery and grid-connection routes. At the time of lodging the application, the vegetation surveys had been undertaken approximately 18 months previously, and based on the habitat details submitted, conditions on the site would have not substantially altered for flora. Accordingly, I do not consider there to be any concerns with respect to the lapse in time since the project surveys were conducted for flora.

9.7.46. Approximately 100m of a 6m to 7m-high hedgerow comprising willow, bramble and bracken, is to be removed for the purposes of the new access to the turbine site from the L6132 local road at Tullabrack East. Extensive hedgerows of similar quality existing in the environs and this hedgerow does not appear to be of particular substantive ecological value, with scope to replant areas following completion of construction. This element of the project is addressed further below with respect to the traffic impacts.

Invasive Species

9.7.47. During the survey for freshwater pearl mussel in October 2023, Japanese knotweed was recorded along the upstream channel of the Brisla East stream on the southside of the L6132 local road. The NPWS has previously referred to the presence of Giant Rhubarb in a location approximately 1km to the east of the site. The proposed turbine-delivery route works would not be expected to interfere with the known location of invasive species. Notwithstanding this, the appellant refers to pre-construction surveys to be carried out to reassess the situation with regard to invasive species within the study area, as well as best practice measures such as washing vehicles, screening soil and managing any identified invasive species in works areas. I am satisfied that this approach would be necessary and would reasonably address the risk of spreading invasive species as part of the project.

Fauna (excluding birds)

9.7.48. The likely key fauna receptors were anticipated to include otter, badger, pine marten and bats based on the initial desktop surveys. Faunal surveys of the turbine site area were undertaken in May and October 2022 and in November 2023, including targeted surveys for key fauna receptors. Notwithstanding the lapse in time since lodging the application, the final faunal survey date is within the 18-month window sought within the CIEEM advice note. Evidence of mammals, reptiles and

amphibians identified or potentially using the site and the immediate area, is provided by the appellant, including otter, badger, brown rat, pygmy shrew, red squirrel, fox, pine marten, fallow deer, common frog, common lizard and smooth newt.

9.7.49. The loss of the conifer plantation is not expected to result in significant impacts for terrestrial mammals, amphibians and reptiles, as there would be similar habitat in the wider area, and as various species would be expected to remain in such habitats. Construction activity would deter larger mammals from using the site, but this would be for a temporary duration and would not be likely to substantively impact nocturnal mammals, such as badger. Pre-construction surveys would be undertaken for badger presence and mitigation would be undertaken to avoid any active sett within 50m of the proposed works. Given the nature of the work and the loss of the cutover bog, measures would be put in place to minimise impacts on frogs and lizards, with only slight residual impacts on these species expected to arise.

9.7.50. Breeding sites or holts for otter were not observed during surveys, although an otter was recorded swimming within the Moyasta river, confirming that this watercourse forms suitable habitat for this species. Other than the Moyasta river, the feeding potential for otter using other connected watercourses is not anticipated to be high, given the condition of these watercourses and their stated ecological status. Notwithstanding this, in the absence of mitigation measures to maintain water quality and avoid disturbance or displacement of otter, the project could impact this species. Various measures are to be put in place as part of the project to address water quality, as expanded upon throughout this EIA.

9.7.51. To address the potential for disturbance of displacement of otter and should more than 36 months have elapsed since the May 2022 baseline survey, which has arisen, the appellant sets out that a pre-construction survey would be carried out for otter holts at the proposed Moyasta river crossing and at least 150m either side of this. The NPWS refer to the time that has elapsed since the results of surveying for otters was made available for the project, including the CIEEM advice note addressing this. Following the baseline surveys, additional surveys were conducted in October 2022 and November 2023, with evidence of otter using the river area. Accordingly, I am satisfied that the timeline of surveys for otter follow the approach provided for in the CIEEM advice note. Following pre-construction surveys, the appellant states that in

the unlikely event of an active holt being located, measures may be taken with necessary consents to evacuate otter to ensure that there is no disturbance to breeding animals. An application to the NPWS for a derogation licence to address an active holt being found on the site would not be necessary based on the information at present, but this application could be made by the developer should the need arise. This would provide further certainty that significant impacts on otter would not arise.

9.7.52. Consequent to the proposed mitigation measures presented as part of the application, including pre-construction surveys for species common to the area to safeguard against disturbance, I am satisfied that the impact of the development on terrestrial mammal species could only potentially affect a very low number of species common to the wider area and the project would not significantly affect their population.

Bats

9.7.53. An initial survey of the national bat database identified that five bat species have been recorded within a 10km radius of the site study area, which is considered to be within a landscape of moderate to high suitability for bats. Records did not reveal bats roosts within 4km of the proposed turbines and the NPWS did not refer to specific records of Lesser-Horseshoe Bat within the study area.

9.7.54. Bat surveys were conducted in the study area prior to August 2023 compliant with the aforementioned CIEEM advice note timelines, entailing a mix of roost, manual transects and ultrasonic-detector surveys, to identify potential bat roosting, commuting or foraging areas and the quality of same. The site was described by the appellant as featuring low-productivity habitat for commuting or foraging bats. Evidence of bats roosting within the site were not in evidence, including along the turbine-delivery and grid-connection routes.

9.7.55. At least nine bat species were identified during the various project surveys, with Common Pipistrelle and Soprano Pipistrelle most commonly recorded. As it is not possible to differentiate between specific bats using an ultrasonic detector survey, it was possible that ten bat species had been recorded. A moderate level of bat activity was recorded at the site with the greatest level of activity recorded closest to the location of proposed turbine 3 at the southern end of the site, and the highest

levels of activity recorded during the summer 2023 period. I am satisfied that the surveys undertaken allow for a comprehensive overview of bat activity at all proposed turbine locations and across the site and seasons.

9.7.56. Risks to bats arising from the project were assessed with respect to collision, loss or damage of habitat, and displacement. Slight impacts for bats are considered to arise from the construction activity and vegetation loss. The loss of trees and hedgerow is expected to reduce connectivity for bats across the turbine site, which the appellant asserts to have some desirable effects in reducing collision risk for bats with turbine blades rotating during the operational phase. Medium-collision risk for high collision-risk bat species across the three active seasons was calculated to arise.

9.7.57. To reduce risk of collision during the operational phase of the project, in adherence to the NatureScot (formerly Scottish Natural Heritage) guidelines titled 'Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation' (2021), a vegetation clearance buffer of 100m would be provided from the three turbines within the forestry area. Surveying for bat roosts would be undertaken prior to works along the final grid-connection route. Limited lighting is proposed, with construction activities to be concentrated to daylight hours, albeit with likelihood for nighttime working associated with turbine delivery and erection. Motion-sensitive lighting is proposed as part of the operational facility, with fixed lighting only to two of the turbines. Ten bat boxes would be installed at suitable locations, 4m above ground level. Standard post-construction mitigation measures are proposed, comprising bat activity monitoring and fatality searches.

9.7.58. On the basis of the details provided, I am satisfied that based on the surveyed use of the site by bats and the proposed measures to address works required to construct the development and reduce impacts on bat populations, the proposed development would not have significant adverse impacts on bats. The risk of collision with turbine blades during operation of the turbines would be mitigated by the restricted vegetation areas surrounding the turbines and a suite of mitigation measures are to be employed to ensure only slight impacts for bat populations.

Birds

9.7.59. Observers have raised concerns regarding the potential impacts of the development on birds, including hen harrier, snipe, whooper swan, kestrel, Canadian geese and

barn owls. The Planning Authority decided to refuse permission for the proposed development due to its potential impact on hen harrier, with reference to concerns arising from the lapse in time since bird surveys were undertaken.

9.7.60. According to the appellant, the area is not assigned any sensitivity to windfarms based on a BirdWatch Ireland sensitivity-mapping tool and the habitats on site are of relatively low value for birds. Desk-based surveys, including a review of atlases and sensitive areas for birds in the wider area, as well as consultation with various groups, including BirdWatch Ireland and the NPWS, was initially undertaken to inform the identification of target species. A precautionary approach to the assessment was stated by the appellant to be undertaken with the consideration of birds potentially sensitive to windfarms, albeit not recorded in the project field surveys. A total of 16 birds of varying conservation status were initially identified as target species by the appellant for this project, with black-headed gull, herring gull and mallard added to this list as part of the appellant's further information response submission comprising the results of more recent bird surveys.

9.7.61. Currently there is no existing formal guidance for the assessment of the impacts of windfarm developments on bird species in Ireland, but there are guidance documents available from a Scottish perspective, and these are frequently referenced when considering the impacts for birds from Irish wind energy projects.

9.7.62. To determine the collision risk for target species a model was prepared to estimate the number of birds potentially colliding with turbines over a period of time (see Appendix 6.6 to the EIAR). The model was only prepared for bird species observed flying within the collision-risk zone. In response to the further information request of An Bord Pleanála, this model was updated in a 'Collision Risk Modelling Report' dated August 2024, based on seven seasons of vantage-point survey data ending in March 2024. The areas covered by two fixed-point vantage surveys in Gowerhass and Ballykett townlands are identified in figure 6.1 of the EIAR and maps 3.3 to 3.5 of the 2024 'Collision Risk Modelling Report'. I am satisfied that the vantage point locations, including the overall-survey area and targeted surveys, could be utilised in a manner that would allow assessment of the potential collision risk for birds from the proposed turbines.

9.7.63. As supported by the data provided in appendix 6.4.10 and section 6.3.6.3 of the EIAR, as well as the further information submission, ten of the bird species recorded during vantage point surveys are either protected in 'Annex I' of the Birds Directive or red-listed as they are of high-conservation concern. Based on observations arising from the various field surveys and consideration of habitat suitability, between the EIAR (section 6.3.6.4) and the further information response, the appellant provides a summary of records of 20 key ornithological receptors observed within the study area. Meadow pipit and skylark are recorded as breeding over the cutover bog on site, and single sightings of woodcock and merlin were recorded during surveying. Kestrel, sparrowhawk and buzzard are known to hunt in the area and were regularly observed, with kestrel known to have used a location 250m from the site boundary for breeding in summer 2021. The conifer plantations are stated to be used by goldcrest, willow warbler and starling. Canada goose or barn owl were not recorded during the project bird surveys.

9.7.64. A range of impacts for birds are considered in the EIAR and the additional information submitted, including loss of habitat or disturbance at construction stage, while the operational effects of the turbines displacing, disturbing, creating a barrier and colliding with birds are assessed. The loss of habitat is not anticipated to be significant in the context of the wider provision of conifer plantation and the replacement additional cutover bog. Passerine bird species using the site, are not expected to be affected by the construction of the windfarm development based on guidance and information gathered from monitoring of operational windfarms.

9.7.65. To address potential impacts on species with a known presence in the area, the appellant refers to the need for focused pre-construction surveys to be undertaken for buzzard, sparrowhawk, kestrel, merlin and snipe, to establish if their breeding status has changed by the time of construction, with the creation of construction buffer zones during breeding seasons following best available guidance. Displacement of sparrowhawk, buzzard, merlin, kestrel, hen harrier and snipe as a result of the operation of the turbines is also assessed, with the appellant asserting that significant impacts would not arise for these target species. The reasons given for arriving at this conclusion relate to previously identified low-sensitivity of these birds to turbines, the limited visits of the bird species to the area, their typical flight zones and the widespread abundance of some species. Some displacement of

buzzards is expected based on their known avoidance rates to turbines, but this effect is predicted to dissipate with birds habituating to the altered context over time.

9.7.66. In considering the impact of turbine operational noise on bird species, the appellant refers to the ongoing background noise sources, and evidence that suggests passerine species using habitats in proximity to turbines may be affected by turbine noise, which could result in declines in the densities of such species. The appellant concludes that the significance of turbine noise for birds is likely to be slight at worst.

9.7.67. Observers refer to whooper swans as having previously been regular visitors to the area prior to the operation of the Moanmore windfarm. The appellant's surveys recorded this bird species in numerous locations during hinterland surveys. The appeal site was not identified as being on a migratory route for birds and given the limited number of turbines, the project is not expected to create a potential barrier effect for birds. There would be extensive space either side of the turbine complex for migrating birds to pass through the area.

9.7.68. The predicted number of bird strikes over the operational period of the turbines is expected to present greatest risk for buzzards and kestrels, with three buzzards and four kestrels calculated to potentially collide with a turbine blade every 30 years. Despite the red-list status of kestrel and their susceptibility to turbine-blade collision, the impact on kestrel populations is considered negligible in the context of the national population (13,500). A long-term adverse effect for buzzard is considered to arise, primarily given the tendency of this species to fly low within the collision-risk zone of the proposed turbines. The evidence presented would appear to suggest that significant impacts on bird populations are not expected to arise from collision risk with turbine blades.

9.7.69. A survey of the hinterland did not find any habitats of major significance, with incidental sightings of sparrowhawk, kestrel and peregrine falcon and records of various bird species of conservation importance in wetland locations between 1km and 11km from the turbine site. The appellant asserts that the project would not significantly affect species associated with these habitats or in the hinterland. A similar approach in safeguarding birds would be undertaken during the decommissioning phase of the project.

9.7.70. The appellant asserts that the presence of the proposed turbines would be unlikely to cause a significant displacement effect for most bird species, and that species would become habituated to the presence of the turbines in time, with only a slight significant short to medium-term residual effect for birds likely to arise.

9.7.71. Observers query the accuracy of surveying and the implications of this for snipe, referring to the change in observations of this bird when comparing the EIAR data and the further information data, and suggesting that additional surveys should have been initially undertaken. Counts of one and three snipe were initially recorded during transect surveys of the site in October and November 2021. An incidental sighting of 42 migrating snipe was recorded on the application site in winter 2022, with other sightings of snipe within 500m of the turbine site in October and November 2021 and sightings of between 27 to 75 snipe observed on three occasions at Poulnasherry bay and Moyasta creek over the winter months between 2020 and 2022. Further sightings of multiple snipe were recorded during waterbird surveys in the winter of 2023 / 2024 and the summer of 2024 at locations such as Doonbeg bay, coastal areas south of Kilrush and Poulnasherry bay. Further vantage point observations of this bird species were not recorded during the second set of bird surveys, and the appellant notes that the flight activity of snipe is not effectively sampled by standard vantage point survey methods, due to its high level of crepuscular and nocturnal flight activity.

9.7.72. Additional surveys for breeding waders were undertaken by the appellant on the site and during these surveys, a breeding pair of snipe was identified within the site in 2024, with at least one breeding territory recorded and a possible second based on displays. Observers refer to the potential for breeding snipe to avoid suitable habitat around turbines. The appellant states that preconstruction confirmatory breeding surveys would be required, with a buffer zone of 400m to be established around any confirmed snipe nest location and all works restricted within this zone until it can be confirmed by an ornithologist that the breeding cycle has completed. The 400m buffer was chosen based on papers referenced in section 6.5.7.1.2 of the EIAR. This mitigation measure would be applied from March to August inclusive. Observers assert that this should not be relied on in addressing impacts on snipe. Based on NatureScot guidance, avoidance rates of 98% are applied by the appellant for the snipe collision risk at the windfarm and coupled with the limited observations

of snipe flight in the blade-swing height band, negligible risk to this species would arise from the collision with turbine blades. The information presented and available indicates limited observations of snipe, albeit with snipe confirmed to be breeding on the site in summer 2024. I am satisfied that the confirmatory surveys prior to construction and the implementation of work buffer zones based on the referenced scientific papers (Pearce-Higgins et al), if necessary, would provide a reasonable means of preventing disturbance to the breeding snipe population.

9.7.73. While there would have to be some negative impacts for some bird species as a result of the proposed development, I am satisfied that the information presented and available indicates that habitat loss or fragmentation, disturbance, displacement, collision risk or a barrier effect for birds would not be significant. Notwithstanding this, in reaching any conclusions on the overall impact of the project for birds and given the specific issues raised by parties to the appeal and application, it is necessary to specifically assess impacts of the development for hen harrier.

Hen Harrier

9.7.74. The Hen Harrier is a protected raptor, included in Annex I of the Birds Directive (2009/147/EEC) and classed as amber-listed in the 'Birds of Conservation Concern in Ireland' (BOCCI; Colhoun & Cummins, 2013). A 2022 national survey by the NPWS of breeding hen harrier in Ireland (Irish Wildlife Manuals No.147) referenced by the Planning Authority and in the grounds of appeal, provided a composite national population estimate of 85 to 106 breeding hen harrier pairs. As such, and in contrast to the vast majority of bird species observed in the appellant's bird surveys, the magnitude of project impacts for such a rare bird species would be considerably different than for a species of substantial local, regional and national abundance. According to the NPWS, the development site is located 8.7km from the West Clare Uplands Important Bird Area (IBA), a non-designated regionally-important area for breeding hen harrier. Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (site code: 004161) located 17km to the south of the turbine site is the closest European site featuring hen harrier as a qualifying interest species.

9.7.75. The NPWS 2022 national survey of hen harrier states that this bird species breeds mainly in upland areas, within localised, fragmented areas of suitable heath and blanket bog, and afforested (pre-thicket) habitats. The NatureScot document

'Assessing Connectivity with Special Protection Areas (SPAs) Guidance' (2016) indicates a core-foraging range of 2km for hen harrier during the breeding season, with a maximum range of 10km. According to the NPWS survey, hen harriers are known to forage over open heath or grasslands, scrub and farmland habitats. During the non-breeding season (mid-August to mid-March) hen harrier gather at communal or solitary roost sites at night with suitable cover, low-ambient levels of disturbance and suitable, proximate foraging areas. The NPWS survey states that hen harriers in Ireland are known to spend winter in coastal and lowland areas. The proposed turbine site generally consists of unplanted blanket bog and commercial coniferous forests, including what appear to be first and second rotation plantations, with both pre-thicket and post-thicket stands present.

9.7.76. The subject site is in a low-lying context, less than 5km from the coast, and features habitats known to be suitable for hen harrier. Hen harriers alternate the use of traditional sites for breeding and wintering, and I am satisfied that this factor, i.e. the mobility of this species, is a factor to be considered in an assessment of the impacts of the project on this bird species.

9.7.77. The appellant's initial bird surveying undertaken to assess the impact on hen harrier comprised recce walkovers in October 2020, followed by field surveys ending in September 2022. In addition to this, hen harrier roost surveys were carried out over the winter seasons (2020-2021 and 2021-2022) at known roost sites within 5km of the appeal site. The appellant asserts that the results of this surveying are fully valid. According to appendix 6.3 of the EIAR, transect surveys for breeding birds were completed in summer 2021 and for wintering birds they were completed in March 2022. Additional bird survey results for April 2022 to August 2022 are detailed in appendix 6.4.10 to the EIAR. The results of wintering wildfowl surveys dating from January 2022 (see appendix 6.4.9) and hen harrier roost surveys dating from March 2022 are also included. A single hen harrier flightline was observed during initial vantage point surveys, involving an immature male bird hunting over grassland to the east of the site in April 2021. According to the temporal patterns of flight activity detailed in table 3.1 of the collision risk-modelling report forming appendix 6.5 to the EIAR, in addition to the April 2021 flight, there was an additional record of hen harrier in October 2021, but this is not referenced in the remainder of the EIAR or illustrated in the flight-path maps (appendix 6.4.5).

9.7.78. According to the appellant, the baseline surveys carried out from 2020 to 2022 did not indicate wintering hen harrier sites within a distance of at least 2km from the subject site, while the Irish Hen Harrier Winter Roost Survey indicated two established winter roosts between 5km to 8km of the site and another roost on an island in the Shannon estuary. Surveys were carried out at the two mainland roosts where a single male bird was recorded flying into one of the roosts on two occasions in 2021.

9.7.79. An increase in sightings of hen harrier was recorded in the second set of bird surveys submitted in response to the further information request, with single sightings of hen harrier outside the site boundaries during vantage point surveys in winter 2022 / 2023 and summer 2023. Further single sightings of hen harrier hunting were observed during breeding surveys in the summer of 2023 and 2024 at locations 3km to the north and 6.5km to the northwest of the turbine site. In response to the further information request response submission, neighbouring residents of the area refer to sightings of hen harrier on land bordering the proposed electricity substation compound and in the immediate area. Additional observations of hen harrier were recorded by the appellant in winter 2022 / 2023 on 13 occasions at a known roost site location 7.5km to the northwest of the appeal site, with a separate observation of two hen harriers at another known roost site 7km to the south of the site. Nine further winter roost observations of hen harrier at Tullaher Lough 7.8km from the turbine site were also recorded by the appellant in winter 2023 / 2024.

9.7.80. The NPWS advised that some of the forestry within the project area contains potentially suitable nesting habitat for hen harriers. The appellant accepts that the conifer forestry, in particular the open canopy areas, provide suitable habitat for hen harrier, although they do not consider this species or others to be dependent on this habitat for breeding or wintering.

9.7.81. As part of the Planning Authority's reason for refusal relating to impacts of the development on hen harrier, concerns were raised with respect to the close proximity of the site to known breeding pairs of hen harrier and the potential habitat disturbance arising from the proposed development, as well as other concerns with respect to the broader decline of this species, windfarm distribution and the limited monitoring information available from other wind-energy developments.

Consequently, the Planning Authority concluded that significant environmental effects could not be ruled out for hen harrier.

9.7.82. The closest known breeding population of hen harrier are stated to use an area 7km from the site, as well as an area in the West Clare Uplands IBA. Based on the survey information, the appeal site would appear to be on the periphery of the maximum foraging range for breeding hen harrier associated with the known breeding sites referenced above.

9.7.83. According to pre-application correspondence from the NPWS included with the EIAR, the vast majority of the proposed turbine site comprises habitat potentially suitable for foraging by hen harrier, including the bog habitat, and the displacement effects of the windfarm would result in the loss of the majority of this foraging resource for hen harrier, as they would avoid areas close to the turbines. The appellant accepts that the site provides suitable foraging habitat for hen harrier and that hen harrier would be less likely to pass through the area, but that based on survey results indicating limited use of the site by hen harrier, the level of disturbance to this bird would be low. Furthermore, based on the data collated, the appellant suggests that the rate of potential collision risk for hen harrier with a proposed operational turbine blade would be exceptionally low at 0.00097 times per annum. The appellant acknowledges the potential for displacement of hen harrier nesting within 200m to 300m of turbines, and as highlighted by the Planning Authority, all hen harrier breeding and roosting sites need to be protected.

9.7.84. In conclusion, while there have been sightings of hen harrier in the area, only limited observations of hen harrier within the immediate environs of the site are stated to have occurred. It is accepted that the site does feature suitable foraging, breeding and roosting habitat for hen harrier, and that this bird species would be deterred from using areas immediate to the proposed turbines, however, the closest known hen harrier roosting and breeding sites are at substantive distances from the appeal site, and in the outer limit for hen harrier foraging from these known locations. The information presented establishes that hen harriers are not highly dependent on this site and that the proposed development would not be likely to have significant impacts for hen harrier.

Direct and Indirect Effects Conclusion

9.7.85. Having regard to the examination of environmental information in respect of biodiversity, in particular the EIAR provided by the appellant and the submissions from the Planning Authority and observers during the course of the application and appeal, it is considered that the main significant direct and indirect effects on biodiversity are:

- direct negative effects arising for aquatic ecology during the construction phase, which would be mitigated by a suite of appropriate construction phase surface-water management measures, including sediment and pollution control measures, avoidance of in-stream works and pre-construction surveys, resulting in no residual impacts on aquatic ecology;
- direct negative effects arising for flora and fauna during the construction phase, which would be mitigated by a suite of appropriate construction phase management measures, including construction-zone buffers, restricting the timing of works, appointment of an ecological clerk of works and the undertaking of further pre-construction surveys, resulting in no residual impacts on flora and fauna.

9.8. Land, Soil & Geology

Issues Raised

9.8.1. The Planning Authority raised specific issues in relation to reliance on post-consent site investigations and the limited details of materials within the proposed borrow pit. Third-party observers raised concerns regarding the implications of the project for surrounding land uses, including their development potential. Various other concerns were raised by the third parties, including the methods to be used in assessing soils and geology, the potential for peat slides and the methods to be used in extracting and storing materials.

Context

9.8.2. Chapter 8 of the EIAR addresses soils and geology, with the appellant initially setting out the assessment methodology, sources of information and the surveyed baseline conditions. In accordance with the 2019 draft Guidelines, a peat stability

assessment should be undertaken where the thickness of peat exceeds 0.5m. A report titled 'Site Investigation by Peat Probing and Peat Stability Risk Assessment' is included as appendix 8.1 to the EIAR.

Baseline

9.8.3. Land use on the site and the immediate area is set out within the EIAR, as part of the various chapters, including by reference to various maps and aerial imagery. The appellant refers to the Corine land-use maps as indicating the turbine site to be comprised of transitional woodland scrub with pasture areas, the grid-connection route passes through pastures and coniferous forest, while the turbine-delivery route passes through pastures, mixed forests and land principally occupied by agriculture, with significant areas of natural vegetation.

9.8.4. The Geological Survey of Ireland (GSI) indicates that the site bedrock geology features Gull Island Formation, a grey siltstone and sandstone underlying the locations of proposed turbines 2, 3 and 4, as well as underlying the turbine-delivery route to the N68 national road. The Central Clare Group, an interbedded sandstone, siltstone and mudstone of variable thicknesses, underlies the location of turbine 1 and the southeastern stretch of the grid-connection route. Karst features were not in evidence on the site or the immediate vicinity. Teagasc soil mapping indicates that the turbine site is dominated by cutover-peat soils, with areas of acid shallow and deep, poorly-drained mineral soils. Along the grid-connection route, the site features similar soils to the turbine site area, as well as acid-shallow, well-drained mineral soils. The turbine-delivery route traverses similar soils to the remainder of the site, as well as acid-shallow, peaty, poorly-drained mineral and acid, poorly-drained mineral soils with peaty topsoil. Subsoils across the site include cutover peat, with shales and sandstones till and bedrock at the surface of the proposed borrow pit. In addition to the two former subsoils, the grid-connection route traverses shales, sandstones, sands and gravels, as well as acidic-esker sands and gravels. The turbine-delivery route leading to the N68 national road, features similar subsoils to the remainder of the site, although it does not feature acidic-esker sands and gravels or shales and sandstone till subsoils.

9.8.5. Groundwater-aquifer vulnerability across the site varies, with the vast majority of the site within the moderate-vulnerability category. High, extreme and 'rock at surface'

vulnerability is detailed in the EPA maps for the southern area of the turbine site, including the borrow pit, and the eastern junction of the turbine-delivery route with N68 national road, with areas of high groundwater vulnerability along central sections of the turbine-delivery and grid-connection routes.

9.8.6. The closest geological heritage areas include Doohona coastal zone located 13km to the southwest and Foohagh Point located 14km to the west. Local quarries are listed in table 2.5 of the EIAR. The majority of the site has low susceptibility to landslides with the nearest known landslide event having occurred 21km to the southeast in 1997. The appellant refers to a report of a peat slide in the area prior to 2000, associated with the Moyasta river, however, the location of this slide is unknown. Moderate risk of landslides for several sections of the turbine-delivery route is noted and a moderately-low to moderately-high landslide-risk susceptibility is recorded by the GSI for the area immediate to the proposed borrow pit, which the appellant states as being possibly linked to historical quarrying activity.

Potential Effects

Table 9.3 Summary of Potential Effects for Land, Soils and Geology

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	The site would remain in use for commercial forestry and agricultural purposes, with areas of cutover bog remaining.
Construction	Clear felling of forestry to allow for an altered land use. Compaction and contamination of soils and bedrock. Slippage (peat stability and slope failure). Excess waste materials and a requirement to import materials.
Operation	Revised use of land. Slippage (peat slide), increasing sedimentation / pollution to watercourses.
Decommissioning	Similar to construction phase effects, with additional restoration works.

Cumulative	Expansion of wind-energy developments, altering the land-use character of the area.

Mitigation

9.8.7. Embedded-design elements of the project, generally conforming to impact avoidance measures are outlined by the appellant, including consideration of geotechnical constraints, limiting the need for the movement of materials, construction of floating roads where possible, following best practice management guidance and locating of turbines in areas where there is shallow peat and topography is favourable. According to the appellant, other avoidance measures to be employed in the project comprise engineered cut and fill extents, managed handling of saturated peat, reuse of materials on site, importing of suitable rock for access track toppings, undertaking intrusive pre-construction ground investigations, applying precautionary measures in managing stockpiles and excavations, reinstating peat where feasible and following measures outlined in the Peat and Spoil Management Plan (EIAR appendix 8.1).

9.8.8. Construction phase mitigation measures would comprise various measures set out in the project CEMP, with reference to limitation of works during unsuitable weather conditions, sealing of soils with geotextile membranes, following measures for clear felling detailed in the appended Forestry Report, restricting vehicular movements to the development footprint, waste management and undertaking various good practice measures to avoid release of contaminants to ground.

9.8.9. Along the grid-connection route, the heights of stockpiled material would be limited to 2m and these materials would be backfilled into trenches, and any surplus material would be treated as a by-product or transported to a licenced facility. A terram cover and stone aggregate would be applied to the area around the edge of a cable joint bay to reduce damage to the ground.

9.8.10. Notwithstanding the low-risk probability with respect to peat slippage and slope failure, mitigation measures are set out, including supervision by a geotechnical engineer / engineering geologist, adherence to construction methods, attention to assessed risk and meteorological conditions, as well as sensitive management of groundwater levels, peat and surface water features.

9.8.11. Various assessments would continue to be undertaken as part of the construction-phase monitoring measures to address risks to stability and identify hazardous materials, with an emergency response plan to be put in place in the unlikely event that any issue might arise.

9.8.12. Monitoring measures for land, soils and geology during the operational phase of the development would comprise routine inspection, in particular after storm events. Relevant measures outlined with respect to the construction phase would continue to be followed at operational and decommissioning stages, such as addressing the risk of spills to soil. Peat and the drainage regime would be reinstated in a manner as close to the pre-construction situation as part of the decommissioning phase.

Residual Effects

9.8.13. With the implementation of mitigation measures, including embedded and additional measures, residual effects of the project for land, soils and geology are set out in section 8.6 of the EIAR. The appellant asserts that these provide that no significant residual effects on land, soils and geology would arise for the environment during any stage of the project, with direct, localised, adverse, moderate-significance impacts due to the change in ground conditions and materials on the site.

Direct and Indirect Effects Assessment

9.8.14. I have examined, analysed and evaluated chapter 5 of the EIAR, all of the associated documentation and submissions on file in respect of land, soil and geology. I am satisfied that the appellant's presented baseline environment is reasonably comprehensive and that the key impacts in respect of likely effects on land, soil and geology, as a consequence of the development have been identified. The following issues with respect to land, soils and geology require further assessment:

- ground investigations;
- peat stability;
- borrow pit.

Ground Investigations

9.8.15. The Planning Authority's Environmental Assessment Officer has raised concerns regarding the need for post-consent, intrusive, ground investigations to enable the

final design of the turbine foundations to be arrived at, a matter that is also raised by observers to the appeal and application. The concerns raised assert that alternative rock-anchor turbine foundations to the proposed gravity-base foundations, could potentially lead to reduced environmental impacts from the project.

9.8.16. According to the appellant the mapped findings generally follow those findings encountered during site investigations. The appellant states that in addition to the preliminary geo-technical assessments and peat probes, detailed post-consent ground investigations would be undertaken prior to construction of the development to identify the quality and strength of the bedrock at the turbine locations, which would then allow for the final turbine foundation details to be arrived at. Furthermore, the appellant states that the type of foundation would be dependent on the final turbine specification. The appellant asserts that as a worst-case scenario from an environmental perspective, traditional gravity-base foundations for the turbines have been assessed within the EIAR. As part of the construction of these gravity-base foundations, piles may be installed in the formation and / or supporting structures. A drawing (no.6777 1402 Revision P02) of this foundation type is included with the application, including a sloped reinforced-concrete base with a diameter of almost 26m and a depth of 3.4m. It is stated that each gravity-base foundation would require 600m^3 of concrete and 50 tonnes of steel. The alternative rock-anchor foundation put forward by the appellant as a potential solution, would also require excavation works, however, this type of foundation would require less concrete than the gravity foundations.

9.8.17. The appellant has provided details allowing a comparison to be made between the construction methods for gravity-base and rock-anchor foundations, revealing that very similar steps would be followed with the exception of the rock-anchor foundation requiring a temporary, coring / drilling platform, the drilling of cores and the insertion of rock anchors, whereas the gravity-base foundation would require a fixed platform and supporting structures.

9.8.18. As mentioned above, various standard construction management practices would be employed as part of the project to contain and control release of sediment and potentially-polluting materials, such as cement, and these management practices would be common for both the turbine foundations considered suitable for this project. Measures are also to be employed to address excavation works leading to

dewatering and the need to remove water from excavations. While it would be more preferable to have finalised ground investigation details that would allow for the precise turbine foundation type to be set out in the application and assessed as part of the EIAR, I do not consider the approach undertaken by the appellant, alongside a host of mitigation measures that would address the likely impacts for a range of turbine foundations, as resulting in a level of ambiguity that would not enable the impacts of the development on lands, soil and geology to be comprehensively assessed with reasonable certainty.

9.8.19. A worst-case scenario in terms of excavation and turbine foundation works has been set out as a precautionary approach in assessing the impacts of the scheme. The parameters involved in installing a gravity-base or rock-anchor foundation have been set out, revealing limited difference in the processes involved, and limited potential for the less-intrusive, rock-anchor foundation to have substantially greater environmental benefits when compared with a gravity-based foundation. Accordingly, I am satisfied that any further ground investigations and other criteria influencing the final turbine foundation type, would be unlikely to result in impacts other than those considered in the EIAR, and which I am satisfied would not be likely to result in significant impact for the environment.

Peat Stability

9.8.20. Observers to the application raise numerous concerns regarding the potential for the project to result in peat instability on site, which could then lead to peat slides or landslides and the pollution of watercourses.

9.8.21. The 314 peat-depth probes undertaken for the project (see appendix 8.1 - app A peat map) accounted for the location of the turbines, anemometry mast, substation, construction compound, borrow pit and new access tracks. Blanket peat depths on the turbine site are considered shallow to moderately deep, measuring up to 5m, with peat depths at 77% of the sampling points between 0.5m and 3.5m. The deepest peats were noted to be in the vicinity of the proposed site entrance, at turbines 3 and 4, and at the met mast. Very deep peat depths of greater than 5m were not encountered, which would generally allow for the peat to be excavated and replaced for major infrastructural projects. Peat depths in the area closest to the watercourse traversing the site were noted to be shallow. Peat probes along the

grid-connection or turbine-delivery routes were not undertaken, with the appellant referring to works along the grid-connection route only being undertaken along the road and being of relatively minor scale.

9.8.22. An assumed conservative shear strength of 3.5kPa (kiloPascals) was used to calculate the Factor of Safety (FoS) associated with the peat, which is the degree of stability of a peat slope resulting from the interaction between the weight of the soil / peat and the shear resistance of the peat to the downslope weight (strength of peat). An FoS minimum of 1.3 is taken as acceptable for the project, which is based on BS6031:2009: Code of Practice for Earthworks. Undrained analysis, which applies in the short term during construction, would be considered the most critical condition for peat slopes. As detailed in app B(a) of appendix 8.1 to the EIAR, the undrained analysis for two load conditions was assessed; where there would be no surcharge and where a surcharge of 3m applies. The appellant mapped the locations where highest risks of instability would arise, noting the moderately deep peat and gentle slope to the southeast of the location for proposed turbine 3 and the moderate slope in the borrow pit.

9.8.23. Detailed methodologies have been provided for all aspects of construction. A risk of geo-hazard was calculated using criteria including distances to receptors, such as the Moyasta river, as well as the construction elements. As illustrated in app C(a) of Appendix 8.1 to the EIAR, all of the proposed primary infrastructure locations would have an acceptable adjusted FoS of greater than 1.3, indicating a very low to low risk of peat failure. Notwithstanding this, the Peat and Spoil Management Plan includes contingency design features and mitigation measures to address excessive movement and peat slide during the construction and dewatering stage, which is when peat stability and failure would be most critical. Supervision and monitoring by a civil or geotechnical engineer would also take place.

9.8.24. While it would be preferable for the character of the peat, including individual logs of peat shear strength properties to have been provided, I am satisfied that the information collated, including drainage, topography, vegetation, peat thickness and land use details, and the approach undertaken, including the extensive peat probes on a relatively flat site with due regard for watercourse locations and with a precautionary approach taken in relation to peat shear strength, provides reasonable certainty that there would be low risk of peat instability and with precautionary

measures to be undertaken as part of the development to further prevent potential for significant impacts from peat slide. Furthermore, the extent of works envisaged along the grid-connection and turbine-delivery routes would not be of a substantive nature, with metals plates to be placed over watercourses crossings along the turbine-delivery route and no watercourses along the grid-connection route. The potential for peat slippage to impact on hydrology and aquatic ecology downstream of these routes would be unlikely.

9.8.25. Observers to the appeal assert that the impacts of the verge strengthening works along the turbine-delivery route, have not been assessed for their impacts on peat subsoils. As noted above, the works entailed in undertaking these verge strengthening proposals would not be intrusive, with a 0.4m deep channel to be excavated and backfilled, which I am satisfied would not be a significant risk to underlying peat, with various measures detailed in relation to the removal of excavated materials and the control of potential pollutants.

Borrow Pit

9.8.26. The Planning Authority and observers raise concerns regarding the information provided with respect to the rock to be extracted from the proposed borrow pit, as well as the processes and materials that would be involved in this. Section 2.5.12 of the EIAR details that approximately 32,280m^3 of stone would be extracted from the borrow pit measuring 100m by 120m in area and with a depth of 2.69m and a maximum slope of 5.3 degrees. Extracted materials would be used in the site access tracks and turbine hardstands, with soil and peat materials amounting to 6,000m^3 temporarily stockpiled at heights of no more than 2m in an adjacent area during construction operations. Rock-breaking and crushing would be undertaken as part of the excavation activity. An additional 11,590m^3 of rock would be imported from off-site quarries to facilitate construction of the top aggregate layer for the access tracks, turbine hardstandings, the temporary construction compound and the roadworks along the connection and delivery routes.

9.8.27. Observers assert that some local quarries referenced in the application may not be capable of serving the development. The final construction traffic management plan would address traffic movements associated with this element of the construction phase to the project, and I satisfied that finalising the source of quarry materials

would not be a substantive element of the project that would lead to any significant uncertainty in assessing the impacts of the proposals.

9.8.28. The nearest watercourse would be situated over 500m to the north of the proposed borrow pit. Soil depths at the borrow pit are stated by the appellant to be very shallow in the order of 0.01m and 0.5m, with peat depths of 0.1 to 0.2m, as well as 'bedrock at surface' and 'shales and sandstones till (Namurian)' subsoils. Grey siltstone and sandstone are detailed on GSI maps for the area as underlying soils in the proposed borrow pit, as well as in Ballykett quarry adjacent to the southwest of the turbine site. An inspection of Ballykett quarry indicated an underlying bedrock of interbedded sandstone, siltstone and mudstones of variable thicknesses, with several beds laminated. Records of intrusive ground investigations below the subsoil levels into bedrock have not been included as part of the information collated for the EIAR, however, information collated and available provides detail of the depth to bedrock and the likely type of bedrock in situ below the borrow pit, which would not be excavated to significant depths. A borrow pit drawing (no.6777-BKWF-JOD-DR-XX-C-1), with cross section details, indicates the extent of material to be excavated and replaced with existing and proposed site topography.

9.8.29. Arising from the above, I am satisfied that sufficient information to clearly indicate the means of extracting materials from the proposed borrow pit have been provided to enable assessment of this element of the project on the environment, including the volume and type of materials to be extracted, the intended use for the materials and the reinstatement of the borrow pit. Various measures have been incorporated into the design of the borrow pit and the works involved in forming and refilling this feature would adequately mitigate the risks arising from this element of the project.

Direct and Indirect Effects Conclusion

9.8.30. In relation to the potential for the project to impact on land, soils and geology, I am satisfied that these impacts would be mitigated by a suite of appropriate construction phase management measures, including implementation of measures within the CEMP, the EIAR and associated appendices, resulting in no significant residual effects for land, soils and geology.

9.8.31. Having regard to the examination of environmental information in respect of land, soils and geology, in particular the EIAR provided by the appellant, and the

submissions from the Planning Authority and observers in the course of the application and appeal, it is considered that the main significant direct and indirect effects on land, soils and geology are, and will be mitigated as follows:

- direct negative effects arising for land, soils and geology during the construction, operation and decommissioning of the project as a result of the increased risk of peat slide and failure, which would be mitigated by a suite of appropriate management measures during the during the construction, operation and decommissioning phases, including measures to address the known deposits of peat and their storage, continued monitoring of ground conditions and taking remedial actions, if necessary.

9.9. **Water**

Issues Raised

9.9.1. The Planning Authority decided to refuse to grant permission, partly on the basis of the fact that the project would be reliant on post-consent site investigations, with potential implications for water quality. The investigations referenced in the relevant reason for refusal appear to primarily relate to the forestry clear-felling element of the project. The observers to the appeal raise numerous concerns with respect to the impact of the proposed development on receiving waters, including surface waterbodies and groundwater bodies, with reference to the requirements of the WFD and surface-water regulations.

Context

9.9.2. Impacts of the project on hydrology and hydrogeology are addressed in chapter 9 of the EIAR, as well as the associated addendum reports and figures. The assessment methodology, relevant guidance, legislation and sources of information are initially detailed in this chapter, prior to setting out the study area baseline conditions. The assessment relies on mapping, aerial images and various investigations, including walkover, lidar, field and laboratory surveys. A flood-risk assessment forms appendix 9.1 to the EIAR. The WFD Directive focuses on ensuring good qualitative and quantitative water health and on ensuring that there is enough water to support wildlife and human needs, with four main obligations under the article 4 environmental objectives.

Baseline

9.9.3. The turbine site and the grid-connection route are situated within the Shannon Estuary North catchment. The surface-water runoff from the turbine site drains into the Moyasta river, which flows in a westerly direction traversing the northern side of the turbine site. An array of drains feed into this river from across the remainder of the turbine site (as per figure 9.2a of the EIAR). The turbine-delivery route overlays the Shannon Estuary North and Mal Bay catchments.

9.9.4. Under the latest review for the purposes of the river basin management plans, the Moyasta river and its tributaries feature 'moderate' water quality status and they are categorised as being under review for the purposes understanding their potential to achieve good water-quality status in 2027. The upper section of the Doonbeg river, including tributaries traversing the proposed turbine-delivery route, features 'poor' water quality status and is categorised as being 'at risk' of not achieving good water quality status in 2027 for the purposes of the WFD. The mid-section of this river waterbody features 'good' water quality status and is categorised as being 'not at risk' of not achieving good water quality status in 2027. The lower section of the Doonbeg river also features 'good' water quality status and is under review for the purposes of understanding its potential to achieve good water-quality status in 2027. The Mouth of the Shannon coastal waterbody, which includes Poulnasherry bay, is assigned a 'good' water quality status, with this waterbody 'not at risk' of not achieving good water quality status in 2027. Poulnasherry Bay is a designated-shellfish waterbody under the EU Shellfish Waters Directive, supporting the life and growth of shellfish, including oysters, through the protection and improvement of water quality.

9.9.5. Between 2016 and 2021, the overall water quality status of the Milltown Malbay groundwater body underlying the eastern side of the turbine-delivery route and the Kilrush groundwater body underlying the turbine site, the grid-connection route and the western side of the turbine-delivery route, was assessed by the EPA as being 'good', with this status under review for the purposes of achieving good water quality in 2027. Hydrological connections with sensitive-ecological sites are noted in the EIAR and section 9.8 above addressing biodiversity.

9.9.6. Water-quality sampling primarily revealed slightly acidic pH concentrations within the Moyasta river, indicative of the peat soils and conifer forestry within the catchment. With reference to elevated electrical conductivity in water samples, potentially indicating the presence of pollution, the appellant points to the direct access available for cattle to the subject waters. Dissolved oxygen levels in the water are stated by the appellant to have been dictated by the speed of flow at the sampling points, while air temperature was considered the primary factor influencing the temperature of the water samples. Results of testing of water samples (appendix 9.3) recorded suspended-solid concentrations above laboratory limits of detection in five of the seven sample locations across two monitoring rounds. In one sample the suspended-solid concentration exceeded the limit needed to support fish life. During one monitoring round, ammonia levels in the water samples were recorded as being below the quality required to achieve good status under the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended. Zinc and phosphorous levels in the water samples are asserted by the appellant to be below the standard required to achieve good status level in the 2009 Regulations.

9.9.7. Groundwater flows are asserted to primarily follow topography at relatively slow flow rates with depths to groundwater surveyed as part of the peat probes. Groundwater vulnerability for the project areas is detailed in section 9.9 above, with the vast majority of the turbine site overlying an aquifer with moderate vulnerability category. Very low recharge coefficients are expected for the peat soils on site, contrasting with a very high recharge where bedrock is at or near the surface.

Potential Effects

Table 9.4 Summary of Potential Effects for Water

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	The baseline water environment would be unlikely to change, including the quality and flow of water.
Construction	Direct effects for protected areas, ground and surface waterbodies via release of sediment, hydrocarbons, wastewater and cementitious materials.

	Direct effects for the bedrock aquifer from changes in groundwater levels and flow regimes. Direct effects to surface water drainage leading to increased flood risk or reduced flows. Direct effects to drinking water in local supplies.
Operation	Direct effects to water via increased runoff to surface water with impacts for hydromorphology.
Decommissioning	Direct, short-term effects for protected areas, ground and surface waterbodies as per the construction phase.
Cumulative	Changes to water quality and drainage alongside operational windfarms in sub-catchments of the site.

Mitigation

9.9.8. Embedded measures forming part of the overall development are initially set out as primarily mitigating the potential effects of the project on water, including provision of various buffers from watercourses and avoidance of instream works with bottomless culverts and clear-span elements for the project watercourse crossings. The specific mitigation measures are quite extensive and include those proposed in relation to safeguarding impacts on lands, soil and geology, as well as adherence to best practice construction management guidelines. Mitigation measures set out by the appellant to address the potential for impacts on key receptors, the Moyasta river, the Doonbeg river catchment and groundwater, include designed drainage, attenuation features, check dams, stilling ponds, temporary bunds, silt bags and fences, as well as various monitoring measures.

9.9.9. The measures supported within the CEMP, including the surface water management plan, are generally intended to prevent release of hydrocarbons, sediment and other potential pollutants to water, as well as maintaining of the existing drainage regime as closely as possible. Nature-based solutions to surface water management would be employed to mitigate downstream flood risk, with supervision by an ecological clerk of works.

Residual Effects

9.9.10. With the implementation of mitigation measures, residual effects from the construction phase of the project are set out in section 9.5.3 of the EIAR, where it is asserted that any temporary decrease in water quality via release of suspended solids or other pollutants would be at levels where no significant residual effects on water quality would arise, with only neutral to slight adverse temporary impacts on water and some potential for positive impacts. Considering the baseline conditions, the appellant asserts that direct, neutral to beneficial effects for water would arise from the operational phase of the project.

Direct and Indirect Effects Assessment

9.9.11. I have examined, analysed and evaluated chapter 9 of the EIAR, all of the associated documentation and the submissions on file in respect of water. I am satisfied that the appellant's presented baseline environment is reasonably comprehensive and that the key impacts in respect of likely effects on water, as a consequence of the development have been identified. The substantive environmental issues raised in respect of the impact of the project on water can be addressed under the following headings:

- forestry clear felling;
- flood risk;
- water quality.

Forestry Clear Felling

9.9.12. The Environmental Assessment Officer from the Planning Authority considered that the absence of tree felling maps and management details for clear fell areas, resulted in the impacts of the forestry clearance element of the project not being capable of being appropriately assessed. The Environmental Assessment Officer from the Planning Authority refers to the lack of detail regarding extraction routes, fuelling areas, stacking areas, turning areas and crossings, as having potential to impact on hydrology and surface water. The appellant states that the potential impacts arising from clear felling are assessed in the EIAR, including increased runoff and any release of suspended solids or nutrients. The appellant also refers to

it being common practice to consult with key stakeholders when preparing planning compliance documents.

9.9.13. Within the application documentation the drainage regime associated with the forestry area is detailed with a 'constraints map' (figure 9.13a of the EIAR), detailing the drainage features, including soil berm, observed and inferred drainage ditches, oversaturated zones and areas featuring typical commercial conifer-forestry drainage. The appellant states that the inability to access deep undergrowth within areas of the conifer forestry, led to an element of estimation in relation to the existing drainage regime in these areas. Much of the drainage network in the forestry area would have been artificially arrived at as part of the initial and ongoing afforestation process. Notwithstanding this, the confluence points of drainage from the forestry areas to the wider drainage network, including the Moyasta river, are known and identified by the appellant.

9.9.14. The 'Forestry Report' appended to the EIAR provides detailed information regarding the intended area to be subject of clear felling, including maps of same, felling operations and the methodology to be employed, potential impacts arising, mitigation measures to address impacts and other associated forestry matters that are primarily addressed under the provisions of the Forestry Act 2014. The mitigation measures for the forestry felling element of the project are clearly set out, including minimising of the area to be clear felled with associated benefits for noise and traffic impacts, adherence to best practice standards and guidelines, following conditions of the felling licence, following safety, contingency and harvesting plans and specific measures to protect water, soil, habitat, services and archaeology.

9.9.15. According to the appellant, the harvest plans for the forestry clearance element of the project would further detail access points, setback areas, timber extraction routes, fuelling and chemical-storage areas, log-stacking areas, drain-crossing points and a Hazard Identification and Risk Assessment. To avoid machines entering watercourses as part of the clear-felling operations, it is proposed to minimise crossing of drains and streams, but where necessary temporary structures comprising logs lined lengthwise would be used and these would be overlaid with a geotextile membrane and brash to capture falling soil from machinery wheels. There is scope for the forestry to be cleared without traversing the Moyasta river, given the vehicular access routes available from the L2038 and L6132 local roads.

9.9.16. I am satisfied that sufficient details have been provided with the application to adequately identify and describe the direct and indirect effects of the forestry felling element of the proposed development on the environment, including effects on water quality. By implementing an array of measures listed by the appellant with regard to forestry clear felling, I am satisfied that it is reasonable to conclude that excess pollution or sedimentation to receiving waters would not be likely to arise. There is clearly scope to further refine these measures as part of undertaking this element of the project, and I am satisfied that the approach set out provides reasonable certainty that significant impacts on water discharging from the site would not arise. This matter is addressed further below in section 11.4 of the planning assessment to this report.

Flood Risk

9.9.17. The Planning Authority are satisfied that the development would not exacerbate a known pluvial flood risk area along the N67 national road, located approximately 3.4km from the site. Observers assert that the development would increase the risk of flooding to neighbouring lands. From the outset the appellant recognises the need for the proposed water crossings and associated infrastructure to potentially lead to significant impacts to river hydromorphology and increase flood risk.

9.9.18. Historical flood events are not recorded for the site or its adjacent area, although early edition Ordnance Survey maps indicate ponding in the northern lowest part of the turbine site and the preliminary Office of Public Works (OPW) maps for the area identified an area of low to medium probability of fluvial flood risk along the Moyasta river on the turbine site. The appellant states that sections of the Moyasta river running through the site have been dredged in the recent past. The more recent Catchment Flood Risk Assessment and Management (CFRAM) programme indicate that fluvial, pluvial and tidal flood extents do not extend into the site. Notwithstanding this, based on the surveyed ground and water levels, as well as climate change factor, using Lidar imagery the appellant noted potential flood zones on the site close to the river below 29.5m ordnance datum (OD) level. According to the appellant, the probability of groundwater flooding within the site or in its vicinity is not expected to arise, with reference to the surveyed conditions and GSI groundwater maps.

9.9.19. No instream works are proposed and environmental management measures are outlined in the CEMP where works would be adjacent to watercourses. The proposed clear-span crossing of Moyasta river (see drawing no. 6777-JOD-BKWF-XX-DR-C-1206) has been designed with a freeboard to address 1 in 100-year flood risk levels, to maintain overland flow in the identified flood plain and to address climate change. This crossing would also be subject to a Section 50 'arterial drainage' application to the OPW.

9.9.20. The increase in run-off arising from the construction of hardstanding areas and buildings has been calculated by the appellant (table 7b of the Flood Risk Assessment). Amounting to a net increase of 0.024m^3/sec of runoff, it is asserted that this would have negligible impacts, in particular considering the site context surrounded by undeveloped areas. Notwithstanding this, various storage and control measures are proposed to address the replacement of natural surfaces with lower permeability surfaces, including settlement ponds that would be installed considerate of the greenfield run-off to address the risk of flooding. The attenuation capacity in the constructed drainage network serving the proposed development would have capacity to attenuate the calculated net increase during a 1 in 100-year flood event. Surface water management would be refined further as part of the monitoring of the development works. With the exception of the access routes, the development would not feature elements within the potential flood zone identified by the appellant and all hardstandings supporting windfarm infrastructure, including turbines, would be constructed above the identified flood-risk level.

9.9.21. I am satisfied that the proposed development can be constructed and has been designed to alleviate the risk of flooding to appropriate levels, with substantive risk of flooding to other lands averted, and noting the flood plain areas calculated to arise within the turbine site. The development has also been adequately designed, to account for potential future flood-risk scenarios.

Water Quality

9.9.22. The observers refer to an extensive array of effects from the proposed development, which they assert to impact on water quality in receiving waters, thereby impacting achievement of objectives under the WFD. Observers also assert that the information submitted with the application does not provide adequate certainty in

relation to the impacts of the project for water quality in Poulnasherry bay, receiving waters and ecological sites.

9.9.23. The status of waterbodies within the catchment of the project is set out in the EIAR, as well as the pressures facing the achievement of good water quality status in these waterbodies, with the observed pressure on the Moyasta River primarily arising from agricultural activity and pastureland. Without the implementation of mitigation measures to address the potential impacts of the development on receiving waters, there would be scope for a change in the status of the immediate waterbodies during various phases of the project, including the Moyasta river, the Doonbeg river and the Kilrush groundwater body. As part of the assessment in section 9.8 above, given the stated mitigation measures and the limited extent of minor works along public roads forming the turbine-delivery route, deterioration of water quality in the Milltown Malbay groundwater body and Doonbeg river would not be likely.

9.9.24. Project design features proposed include water treatment and controls, limited work times and areas, containment measures and the management of run-off and staff-welfare facilities. Buffer zones from turbines and access roads to the Moyasta river are proposed, with the exception of a stretch of the new access track at the northern entrance to the site. Each watercourse crossing would entail either a clear-span bridge or bottomless culvert, to be installed in line with work methodologies outlined in the project CEMP (Appendix 2.1 to the EIAR), including consultation with the IFI, who have not objected to the project.

9.9.25. Comprehensive surface water mitigation measures and controls are proposed as part of the development to protect receiving waters downstream, including avoidance, source, in-line, water treatment and outfall controls. Site drainage would mimic as closely as possible the existing hydrological regime in order to avoid changes to the flow volumes leaving the site.

9.9.26. The efficacy of the mitigation measures set out, including monitoring of environmental conditions and fuel storage, all managed as part of a final CEMP, are well established in practice. Telemetric monitoring of water samples for suspended solids during the construction phase and temporary stoppage of works and / or emergency response to take remedial actions would be undertaken, alongside agreement of monitoring parameters with IFI and the Planning Authority.

9.9.27. As part of the preparation of the proposals for the biodiversity enhancement area allowing for regeneration of the underlying bog, it was noted that some drain channels in this area did not appear to be functioning. The blocking of drains as part of the enhancement measures, would have inconsequential impacts on flow rates in the Moyasta river catchment, given the context and size of the biodiversity enhancement area (3.4ha) relative to the associated catchment (2,612ha) i.e. 0.1% of the total catchment.

9.9.28. During the operation phase, inspection and maintenance of measures to address drainage would be undertaken, as well as water sampling at locations for various criteria, including total suspended solids, electrical conductivity and acidity. Audits of the performance of surface water drainage would also be undertaken for the operational phase of the development to ensure the effectiveness of this infrastructure.

9.9.29. Given the 5km minimum separation distance between the site and the Mouth of the Shannon coastal waterbody at Poulnasherry bay, and the large volume of water within this saline waterbody, with a comparatively limited freshwater discharge from the connecting Moyasta and other rivers, and a host of measures to safeguard water quality, I am satisfied that the project would not be likely to result in a deterioration in the quality status of this estuarine waterbody or the protection of water quality to support shellfish cultivation.

9.9.30. According to the appellant, groundwater levels are anticipated to be primarily in the upper-overburdened saturated zone characterised by peat, although isolated pockets of deeper groundwater levels may also arise. The appellant asserts that the poor-permeability peaty conditions on site suggest that during seasonally-wet or extreme meteorological conditions, the majority of precipitation at the site would drain rapidly off the site as surface water.

9.9.31. The primary risk to groundwater would be during the construction phase arising from release of cementitious materials, hydrocarbon spillages and leakages. Insignificant volumes of groundwater seepage are anticipated based on conditions observed. During the construction phase portable-wash facilities with integrated waste-holding tanks would be used at the site compound and maintained by a contractor. No water would be sourced or discharged on site during the construction phase. Potential to

impact on groundwater would be reduced by various precautionary measures, with an emergency response plan to deal with spillages. Horizontal-directional drilling is not proposed as part of the excavation works at the borrow pit site, which would be limited to depths of between 2m and 3m below existing ground level and would feature a series of settlement ponds sized and positioned to control surface water flows draining north towards the Moyasta river.

9.9.32. The closest wells and boreholes to the turbine site and grid-connection route are listed in tables 9.19 and 9.20 respectively of the EIAR, which the appellant assert to serve domestic or agricultural purposes. In common with other parts of the country, underlying groundwater may serve drinking water supplies. The application of best practice measures and the management of potential contamination sources, as outlined in the CEMP and EIAR, the distance to the closest wells from the proposed works, including excavation works of limited depths, would suitably address the potential risk to water supplies during the various phases of the project.

9.9.33. There are a number of components and activities associated with the project that represent a risk to WFD waterbody status and objectives. Embedded elements included as part of the project design and the application of a comprehensive suite of management and control measures would ensure that there will be no significant effects on the WFD status of the water bodies within the study area. The overall conclusion following this assessment is that there will be no risk of deterioration in water quality status arising from the project, nor would the project prevent the achievement of the objectives for the relevant water bodies including the Poulnasherry bay protected area objectives. The proposed development would not compromise the objectives of Article 4(1) of the WFD with respect to the waterbodies identified in this assessment.

Direct and Indirect Effects Conclusion

9.9.34. Having regard to the examination of environmental information in respect of water, in particular the EIAR provided by the appellant and the submissions from the Planning Authority and observers during the course of the application and appeal, it is considered that the main significant direct and indirect effects on water are, and will be mitigated as follows:

- direct negative effects arising for water during the construction phase, which would be mitigated by a suite of appropriate construction phase management measures, including sediment and pollution-control measures, resulting in no residual impacts on water;
- direct negative effects arising for water as a result of flooding during the operation phase, which would be mitigated by the design of the watercourse crossings, construction levels and layout, and the surface water management proposals accounting for medium and high-risk flood events, as well as factoring in climate-change, resulting in no residual impacts on water.

9.10. Air and Climate

Issues Raised

9.10.1. The Planning Authority state that air-quality sampling was not undertaken for this element of the EIAR, although they considered the air-quality mitigation measures for the construction and decommissioning phases set out in the EIAR to be adequate. The appellant asserts that the proposals would contribute to the achievement of NSOs, as well as targets in the Climate Action Plan 2024 and the Climate Action Low Carbon Development Act 2015, as amended. Observers assert that the proposals are contrary to the climate-action targets, with limitations in the appellant's modelling of the climate change impacts of the project.

Context

9.10.2. Chapter 12 of the EIAR addresses air quality and climate. The appellant initially describes the site context before setting out the legislative and policy context for the air-quality and climate-change assessments. The air-quality section of the EIAR details the relevant legislation and guidance, including ambient air-quality standards and dust-deposition guidelines. The most critical greenhouse-gas emissions are noted, as well as the method of calculating CO_2 gains and losses from the project. Within the carbon calculator forming appendix 12.1 to the EIAR, estimates and quantities of potential CO_2 to be avoided via other forms of electricity generation are detailed for the operation phase of the project, as well as the expected CO_2 losses and gains. This allows for the CO_2 payback to be calculated.

9.10.3. I acknowledge the provisions set out in section 15(1) of the Climate Action and Low Carbon Development Act 2015, as amended, requiring the Commission in so far as practicable, to perform its functions in a manner consistent with the climate action plan, the national long-term climate action strategy, the national adaptation framework and approved sectoral adaptation plans, the furtherance of the national climate objective, and the objective of mitigating greenhouse-gas emissions and adapting to the effects of climate change in the State.

Baseline

9.10.4. The baseline environment is described using historical air-quality details from the EPA and weather conditions recorded by Met Éireann. Air-quality data is referenced in section 12.2.5 of the EIAR, with data from the closest monitoring site at Askeaton in County Limerick. Prevailing southerly and westerly winds are noted, as well as average monthly air temperatures and rainfall typical for Shannon Airport Meteorological Data (1991-2021). The site is considered to fall into air-quality zone D, referring to those areas of the country outside of urban centres greater than a population of 15,000 persons. Wind speeds are accounted for, with the proposed met mast intended to monitor such speeds. Sensitive receptors from dust emissions are noted to be substantive distances from the proposed turbine locations.

Potential Effects

Table 9.5 Summary of Potential Effects for Air and Climate

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	No change in air quality would arise and the climate would evolve in line with identified trends.
Construction	Release of particulate matter via vehicle movements, excavation and earthworks. Increased release of pollutants, including greenhouse gases from plant and machinery, and the sourcing of materials. Loss of stored carbon in peat.
Operation	Reduced CO_2 emissions by offsetting the need to use non-renewable energy sources.

Decommissioning	Release of particulate matter via vehicle movements. Increased release of pollutants, including greenhouse gases from plant and machinery, and the sourcing of materials.
Cumulative	Positive impacts alongside other wind-energy developments in offsetting the need to use non-renewable energy sources.

Mitigation

9.10.5. Mitigation measures are set out in section 12.2.8.1 of the EIAR to minimise dust emissions, including use of graded aggregate for tracks, monitoring and cleaning of approach roads, use of wheel-wash and concrete wash-out facilities, dust-suppression measures, covering stored materials, monitoring by a geo-technical engineer and use of a complaints procedure. Similar air-quality control measures would apply at operation and construction phases, in particular with respect to traffic movements. Revegetation of stabilising surfaces would occur during the operational phase. The associated project vehicles and plant would be maintained in good operational order to minimise emissions during the construction and decommissioning phases.

Residual Effects

9.10.6. With the implementation of mitigation measures, including the embedded and additional measures, residual effects of the project on air quality and climate are set out respectively in sections 12.2.10 and 12.3.9 of the EIAR. The operational phase is asserted to result in long-term, moderate positive impacts for air quality and climate, with short-term, imperceptible negative impacts over the construction and decommissioning phases.

Direct and Indirect Effects Assessment

9.10.7. I have examined, analysed and evaluated chapter 12 of the EIAR, and all of the associated documentation and submissions on file in respect of air quality and climate. I am satisfied that the appellant's presented baseline environment, is comprehensive and that the key impacts in respect of likely effects on air quality and climate, as a consequence of the development, have been identified. Parties to the application and appeal have raised the following issues in respect of air quality and climate, which I address below:

- air-quality sampling;
- climate change modelling.

Air Quality Sampling

9.10.8. The Planning Authority noted that air quality sampling on the site was not undertaken in guiding the EIAR. I am satisfied that use of existing air quality information based on similar locations sourced from EPA data in order to allow for modelling of future scenarios would allow for the impacts of the project on air quality to be predicted in a reasonable manner, comparable with developments of a similar scale and nature.

9.10.9. There is potential for dust emissions to sensitive receptors and the atmosphere in the vicinity to occur from earthworks, construction works and vehicular movements during the construction phase. I am satisfied that such impacts would be mitigated by a suite of appropriate construction phase management measures, including implementation of the dust management measures detailed in the EIAR and CEMP.

Climate

9.10.10. Chapter 17 of the Climate Action Plan 2024 addresses 'Land Use, Land Use Change, and Forestry' noting the capacity of differing land uses to sequester and store vast amounts of carbon, including peatlands and forestry. The 2024 Action Plan and Chapter 11 of the Climate Action Plan 2025 details a target of 9GW in energy from onshore wind resources. The windfarm development footprint is located in an area of commercial forestry and agricultural land, with pockets of bog and variable depths of peat. Appendix 12.1 to the appellant's EIAR calculating the payback time for a windfarm situated on peatlands based on a Scottish template, estimates the extent to which the change in land use (forestry felling), the removal of peat and soil, the draining of peat and the loss of peat would lead to a reduction in carbon fixation. Observers query the reliability of the calculated carbon savings. The CO_2 lost to facilitate the development is estimated as a maximum of 64,013 tonnes CO_2 equivalent, with the energy output from the proposed windfarm over its lifetime expected to amount to 1,388,285 megawatt hours, which is expected to displace between 358,177 tonnes and 447,721 tonnes of CO_2 over the proposed 35-year operational span of the windfarm. According to the appellant, the peat proposed to be excavated equates to a carbon sequestration asset amounting to 8,000 tonnes of CO_2 emissions. The development would have potential output of

16MW to 20MW of renewable energy. In doing so, the appellant asserts that the project would contribute to the achievement of the national renewable energy target for onshore wind. I am satisfied that information has not been presented that would substantially undermine the calculations provided by the appellant as part of their assessment of the carbon payback associated with the project and the conclusions that can be made with respect to same. The proposed development would contribute to meeting the objectives of the Climate Action Plan 2024 and the Climate Action Plan 2025.

Direct and Indirect Effects Conclusion

9.10.11. Having regard to the examination of environmental information in respect of air quality and climate, in particular the EIAR, CEMP and the carbon calculations provided by the appellant, and the submissions from the Planning Authority and observers in the course of the application and appeal, it is considered that the main significant direct and indirect effects on air quality and climate will be mitigated as follows:

- direct negative effects arising for air quality during the construction and decommissioning phases, which would be mitigated by a suite of appropriate management measures, including dust minimisation and suppression measures;
- indirect positive effects for air quality and the climate during the operational phase by displacing the necessity for fossil-fuel dependent energy sources.

9.11. Noise and Vibration

Issues Raised

9.11.1. In response to construction phase noise concerns raised by the Planning Authority in their decision, the appellant asserts that the associated noise emissions from the project would comply with the provisions of the NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004), the Noise Directive 2002/49/EC and BS 5228: 2009-1A; 2014 Code of Practice for Noise and Vibration on Construction and Open Sites. Observers assert that negative impacts on residential amenities would arise via excess noise levels from the project, including from the construction activity.

Context

9.11.2. Chapter 10 of the appellant's EIAR deals with noise and vibration. Noise monitoring from four locations is stated to have been undertaken over a four-week period during June and July of 2022, and this is asserted by the appellant to provide appropriate conditions in interpreting the baseline noise environment.

Baseline

9.11.3. Potential noise-sensitive receptors from the project are noted and to identify any exceedances at receptors relative to noise limits, a comparison was undertaken between the predicted levels and the lowest surveyed background levels. The lowest background noise level was measured at receptor H3, a house located a stated 635m from the nearest proposed turbine (4). This noise level was used as conservative means of modelling noise impacts in the immediate environment. Background noise levels are calculated as being below 30 dB $L_{A90,10min}$ during daytime and nighttime periods, therefore, the area could be considered a low-noise environment. Road traffic dominates background noise sources in this area. Predicted daytime noise levels surrounding the development are provided in the EIAR based on the appellant's modelling. At a separation distance of 532m, the workshop receptor (H2) in Moyadda More townland is the closest occupied building from the proposed turbine construction works area.

Potential Effects

Table 9.6 Summary of Potential Effects for Noise and Vibration

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	No new noise or vibration sources would arise.
Construction	Increased noise during the excavation and construction works, in particular from machinery operation and the traffic movements. Increased vibration during the excavation and construction works, including rock-breaking at the borrow pit and the piling of foundations.

Operation	Direct effects on the amenities of residents of the area via excessive noise levels to living areas, arising from the rotation of wind-turbine blades.
Decommissioning	Increased noise during the reinstatement and removal works, in particular from machinery operation and traffic movements.
Cumulative	Cumulative impacts from noise alongside the existing neighbouring operational windfarms.

Mitigation

9.11.4. To address potential construction phase impacts of the project on noise and vibration, the appellant sets out various avoidance, remedial and alleviation measures, including the use of an on-site borrow pit to reduce traffic movements on the local road network, the finalising of a traffic management plan, control and monitoring of noise sources, restriction of construction hours, liaison with the public and monitoring. Similar measures would apply to the decommissioning phase.

9.11.5. Significant noise effects during the operation phase of the development are not expected to exceed standard limits for neighbouring residences. Notwithstanding this, the appellant asserts that the provision of a serrated extension to the trailing edge of the rotor blades of the preferred turbine model would further reduce noise levels by 2 to 3dBA (A-weighted decibel – an expression of the relative loudness of sounds, as perceived by the human ear), and it is the intention to provide this feature as part of this project. Sound-power level outputs could further be addressed through a noise mitigation strategy.

Residual Effects

9.11.6. As significant construction, operation or decommission phase noise and vibration impacts have not been predicted to arise, residual effects of the project on noise and vibration are considered by the appellant to match the predicted effects.

Direct and Indirect Effects Assessment

9.11.7. I have examined, analysed and evaluated chapter 10 of the EIAR, all of the associated documentation and the submissions on file in respect of noise and vibration. I am satisfied that the appellant's presented baseline environment is reasonably comprehensive and that the key impacts in respect of likely effects on

noise and vibration as a consequence of the development have been identified. Parties to the application and appeal have primarily raised issues with respect to noise arising during the construction phase of the project, although an assessment of the operational phase noise impacts is also necessary for a project of this nature and scale.

Noise & Vibration – Construction Phase

9.11.8. During the ten-month construction phase, this project would result in increased noise and vibration levels at the appeal site and surrounding area, including along the grid connection and haul routes. The greatest potential impacts from construction activities would be associated with excavation, piling and pouring of the turbine and met-mast bases, and the extraction of materials from the borrow pit. In addition to this, the grid-connection route would feature an underground cable of approximately 1.84km in length, following roads and extending to the existing Tullabrack electricity substation, which is situated to the west of the proposed turbine site. Widening works are proposed along the section of the L6132 local road west of the turbine site entrance and further strengthening and vertical realignment of this local road would be required to the east of the turbine site to facilitate the delivery of abnormal loads.

9.11.9. The appellant's assessment notes the typical noise levels for various construction activities and sources, such as excavation and plant operations, as well as the various standard practice measures used to control construction noise at source. Construction hours for the project are proposed to take place Monday to Friday between 0700 and 1900 hours and on Saturdays between 0800 and 1630 hours. It is standard practice for construction hours to be limited to between 0800 and 1400 hours on Saturdays to safeguard the amenities of property in the vicinity, and a condition to clarify this should be attached in the event of a grant of planning permission. The delivery of turbines and other large components is expected to take place outside of these hours. The flow of traffic transporting staff, equipment and material to and from the turbine locations, the haul routes and the grid-connection route, would also be likely to be a potential source of increased noise in the neighbouring areas.

9.11.10. Based on the worst-case scenario as well as various activities taking place for a full hour, including rock breaking, the operation of mobile-crush plant and vibratory

rollers, material tipping and loading, the cumulative noise levels arising from the proposed construction works are predicted to be within 38 and 58dB LAeq, (1h) at the workshop receptor H2, which would be within the standard noise-limit levels of 70dB LAeq, (1h) and LAmax 80dB at residential façades, as outlined in the NRA 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes' during 0700 to 1900 hours, Monday to Friday. A more stringent noise-limit threshold of 65dB LAeq, (1h) for Saturdays between 0800 and 1630 hours is required in the NRA Guidelines. Based on the assessment, significant noise impacts from the proposed construction works on the turbine site are not predicted to arise at the closest noise-sensitive properties.

9.11.11. A prediction of the noise levels between 20m and 80m from the grid-connection works is also estimated, accounting for a tracked excavator, pneumatic breaker, roller and tractor. This indicates noise levels of between 52 and 68dB LAeq, (1h), which would also be within the limits set within the aforementioned NRA Guidelines. Dependent upon the final precise alignment of the underground cables to serve as the project grid connection, I note that there would be potential for properties, including those referenced as receptors H17, H18, H26, H76 and H97, to be positioned within 20m of the grid-connection works. This would have potential for noise levels arising from the project at these properties to exceed the thresholds set within the NRA Guidelines. The grid-connection works are expected to require trenching and cable laying over a five-month period, which would be undertaken in sections, therefore, maximum noise levels at any single receiver would only be expected to occur over a very short period, with plant only operating intermittently and not in unison.

9.11.12. The Planning Authority refer to the increased traffic movements associated with the construction phase of the development as contributing to undue impacts on the amenities enjoyed by residents of neighbouring properties. A traffic management plan (EIAR appendix 16.2) has been prepared for the project, including detailed measures regarding how traffic would be operated along the construction-haul, grid-connection and turbine-delivery routes, as well as setting out the estimated period and volume of construction personnel, HGV movements and abnormal-load deliveries expected for the project. To address the volume of traffic movements, the appellant refers to the development of an on-site borrow pit as potentially reducing

disturbance along the local road network. Table 16.13 of the EIAR details that the project construction phase would require approximately 2,472 loads of materials and building supplies to be delivered and removed from the site, with a maximum of approximately 113 loads expected in any one day associated with the turbine base / foundation concrete pour and for a limited period of four days. The grid connection works to remove spoil material to a licenced facility, would result in 220 truck movements, which the appellant asserts to necessitate three movements per hour based on the predicted timeframe for this element of the project. At a distance of 10m from the roadside, the appellant asserts that noise levels associated with the busiest predicted days for HGV movements would equate to 56dB LAeq 1hr, which would not exceed the noise limit thresholds typically deemed acceptable within the NRA 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes'.

9.11.13. In relation to vibration impacts, excavation of the borrow pit site would comprise rock breaking and crushing, and it is estimated that these excavations would occur over a 12-week period during daytime hours. Piling may be required as part of the construction of the turbine hardstands. According to the appellant, the predicted excavation-activity vibration levels relative to the nearest residential property arising from the operation of a rock breaker and a mobile crusher as part of the project, would be within best practice vibration limits outlined in the 'Code of Practice for Noise and Vibration Control on Construction and Open Sites'. The closest properties to the borrow pit site, are identified by the appellant as receptors H2 and H5, which are both located in Moyadda More townland approximately 470m and 430m respectively to the east of the proposed borrow pit. The NRA Guidelines state that in the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes. The appellant asserts that ground vibration from rock breaking would be below the threshold of sensitivity to humans of 0.2mm/s peak-particle velocity at all neighbouring sensitive receptors. Given the separation distances to the nearest neighbouring receptors and the expected typical vibrations from works such as ground-breaking, excavation and crushing, I am satisfied that it is highly unlikely that vibrations from the activity proposed in the borrow pit, would have significant impacts on the amenities of neighbouring residents to the project.

9.11.14. Specific measures to address construction-phase noise impacts are not outlined by the appellant, as they are satisfied that the modelling undertaken highlights that noise levels would not exceed relevant noise limit levels at sensitive receptors. They do state that construction noise levels would also be controlled through the use of good practice outlined in the BS 5228 Code of Practice. Notwithstanding this, if necessary, the appellant refers to the potential to install an acoustic barrier along the grid connection works areas, while the appellant's Emergency Response Plan includes proposals for a monthly record of noise monitoring results to be kept, and the project CEMP includes a Decommissioning and Restoration Plan with noise mitigation measures listed in section 5.4.

9.11.15. Based on surveys, modelling and the standards outlined in the aforementioned NRA Guidelines, the Noise Directive and BS 5228 Code of Practice, significant noise and vibration effects at the nearest sensitive properties are not expected to arise from the construction activities. In relation to the overall project, including houses potentially within 20m of the grid-connection works, the type of activity and equipment that would generate noise and vibration for this element of the project would be similar to those used during other infrastructural works in the countryside, such as road upgrade works, and, as such, it would not be expected to result in significant or long-term noise and vibration impacts for neighbouring properties. Any noise and vibration impacts would be of a temporary nature and their impacts would vary in magnitude over the course of the construction and decommissioning project phases.

Noise & Vibration – Operation Phase

9.11.16. The assumed sound power levels of a candidate turbine are used by the appellant in their EIAR, based on manufacturer's details and an uncertainty value of 2dBA. Maximum noise emission data for the two neighbouring windfarms were also presented based on the turbine models. Modelling details for the turbines at differing wind speeds and measured from differing heights would be available to allow a reasonably accurate noise assessment to be undertaken. A noise descriptor of $L_{90, 10min}$ (the noise level exceeded for 90% of a ten-minute period), is typically used to describe background noise levels. The derived $L_{A90, 10min}$ daytime and nighttime background noise levels for the area, as indicated in table 10.12 of the EIAR can be considered typical for a rural area with low noise levels, particularly during periods of low wind speeds (4 to 5m/s). The nighttime background noise levels at the

measured locations are less than 33.4dB $L_{A90, 10min}$ for wind speeds up to 9m/s, whilst there are no daytime levels over 40dB $L_{A90, 10min}$ at wind speeds up to 9m/s.

9.11.17. The 2006 Guidelines, which were informed by the UK Energy Technology Support Unit (ETSU) standards for 'The Assessment and Rating of Noise from Windfarms', provide for a maximum fixed limit of 45dB in relation to noise emissions at sensitive locations. The ETSU standards were the subject of an Institute of Acoustics good practice guide published in 2013. To identify potential exceedance of noise limitations arising from the proposed development, in their EIAR the appellant uses an ETSU-derived noise criterion of 43dB $L_{A90,10min}$ or a maximum increase of 5dB(A) above background noise, whichever is higher, for day and nighttime periods at all wind speeds of 5m/s and above. A more stringent noise-criterion limit of 40dBA for day and nighttime periods at wind speeds of less than 5m/s is applied by the appellant in their assessment.

9.11.18. As set out within section 5.7.4 of the 2019 draft Guidelines, the preferred approach for noise restriction limits is consistent with the World Health Organisation Environmental Noise Guidelines for the European Region (2018) allowing for a 5dB(A) increase above existing background noise within a range of 35dB to 43dB(A), and with 43dB(A) being the maximum fixed noise limit permitted during day and night. The 2019 draft Guidelines are more restrictive in terms of noise limitations than those allowed for in the 2006 Guidelines. The noise criterion applied by the appellant within their EIAR to identify exceedances in noise emissions at sensitive receptors would generally align with those outlined under the 2019 draft Guidelines.

9.11.19. Noise levels were modelled for 146 receptors at wind speeds of up to 12m/s, the results of which are set out in table 10.16 of the EIAR. Observers assert that the potential receptors considered by the appellant in their EIAR does not account for a permitted house at Gowerhass townland on the L6134 local road to the northeast of the turbine site (CCC ref. P21/482), which has since been constructed. The locations of receptors identified in figure 10.1 of the EIAR, titled 'SoundPlan noise output of Ballykett Windfarm' and figure 1.3 titled 'Dwellings within 2km of Proposed Turbines' do not precisely match. While it is unclear if the permitted house has been specifically considered in the appellant's noise impact assessment, I am satisfied that the juxtaposition of this permitted house relative to the proposed turbines would be very similar to that arising for the adjacent houses, which have been assessed in

the appellant's noise impact assessment. Consequently, a reasonable approach in predicting noise impacts for this house can be arrived at based on the results for the adjacent houses.

9.11.20. A noise contour for the rated power wind speed 7m/s (the highest noise emission) during daytime and nighttime hours is provided in charts 10.1 and 10.2 of the EIAR. To address the worst-case scenario, the appellant's testing predicts the noise levels at all receptors based on these receptors being downwind of the turbines. Of the four potentially worst-impacted receptors, the appellant notes that receptor H1 is an abandoned house with an intact roof, and receptor H2 is a workshop, which is less sensitive in terms of protection of amenities. The results of the testing indicated that exceedances in noise level standards would not arise at sensitive neighbouring receptors as a result of the proposed development.

9.11.21. To further test the potential impact on the 146 receptors, the appellant also assessed the potential cumulative noise impact alongside the Tullabrack and Moanmore windfarms. All neighbouring receptors were assumed to be positioned downwind of all the turbines in the tests undertaken. Based on the ETSU-R-97 standards, the additional noise contribution with the neighbouring windfarms is expected to be marginal, with greatest additional impacts for those receptors situated between the existing and proposed windfarms in the Tullabrack and Ballykett townlands. The results of the testing again indicated that exceedances of the 43dB(A) limit would not arise at sensitive neighbouring receptors as a result of the proposed development operating alongside the neighbouring windfarms.

9.11.22. As no exceedances of noise limits have been identified, specific noise mitigation measures have not been proposed, although it is noted that the rotor blades to the final turbines would be fitted with serrated-trailing edges. The appellant states that a noise mitigation strategy to incorporate a reduction in sound-power level outputs with respect to directionality can be put in place to comply with any specific variation in noise-limit levels, should more restrictive requirements be incorporated into planning policy. It is further noted that all turbines feature software incorporated to monitor sound-power levels, which can be reduced by revised direction and energy output to the turbines.

9.11.23. The 2019 draft Guidelines recognise that noise from wind turbines and ancillary equipment can include special audible characteristics such as tonal noise, amplitude modulation and low-frequency components, but that there is no evidence that wind turbines generate perceptible infrasound. The appellant has stated that should tonal-noise components be exhibited at any receptor as a result of the development, the turbine would be turned down or stopped until such tonality is ameliorated. The appellant accepts that aerodynamic noise from the rotation of the proposed wind turbine blades, known as amplitude modulation, may arise, and this can prove an annoyance. According to the appellant, normal amplitude modulation, recognised as a blade-swish sound, can occur over long-periods of turbine operation, but this sound disappears over three to four turbine-rotor lengths, with the exception of crosswinds. Other forms of amplitude modulation arising from wind turbines are less frequent, although it is difficult to reliably predict in advance if a turbine would result in other amplitude modulation.

9.11.24. I am satisfied that a condition requiring the developer to submit a noise compliance monitoring programme prior to the commencement of the development, including any mitigation measures such as the curtailment of particular turbines in certain wind speeds and directions, as well as the consequent operational results of the initial noise compliance monitoring, should be attached in the event of a grant of permission.

9.11.25. I am satisfied that a comprehensive description of the noise impacts of the proposed development was undertaken by the appellant, including the identification of an appropriate project study area and the extent of noise modelling is in accordance with best practice, recommended within the 2019 draft Guidelines, the ETSU standards and 'Guidance Note on Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3)', which require a two-week minimum monitoring duration. Consequently, an assessment of the noise impacts of the proposed development was not inhibited.

9.11.26. I have no reason to doubt the veracity of the information contained in the EIAR in respect of the noise and vibration analysis undertaken and I am satisfied that noise impacts arising from the operation of the proposed development would not be likely to have undue impacts on sensitive receptors within the environs of the project, including the recently constructed house at Gowerhass townland. Notwithstanding

this, there will be an onus on the appellant to comply with best practice as per the Guidelines in relation to noise generation and control. Should any limited exceedances arise, these can be addressed by way of restrictions attached as conditions to a permission.

Direct and Indirect Effects Conclusion

9.11.27. Having regard to the examination of environmental information in respect of noise and vibration, in particular the EIAR provided by the appellant and the submissions from the Planning Authority and observers during the course of the application and appeal, it is considered that the main significant direct and indirect effects on noise and vibration are, and will be mitigated as follows:

- direct negative effects arising for noise and vibration during the construction and decommissioning phases, which would be mitigated by a suite of appropriate construction phase management measures, including the control of construction hours, a construction traffic management plan and noise minimisation measures;
- direct negative effects arising for noise during the operation phase, which would be mitigated by the separation distances to the nearest sensitive receptors, as well as the final turbine model featuring a serrated-trail edge or similar feature, and a noise-compliance monitoring programme with noise-level exceedance amelioration measures.

9.12. Material Assets

Issues Raised

9.12.1. Matters have been raised by observers to the application and appeal with respect to the potential impact of the development on telecommunications and aviation. The Planning Authority flagged concerns regarding the treatment of wastewater arising from the development and the details submitted relating to the disposal of wastewater. Both the Planning Authority and the observers to the application and appeal cite concerns with respect to the impact of the turbines on local property prices, traffic, road capacity and road safety. The Planning Authority's concerns raised with respect to roads and traffic matters primarily arose from the report of the Municipal District Engineer and the Roads Design Office.

Context

9.12.2. Impacts on material assets specifically in relation to traffic and transport are dealt with in chapter 16 of the EIAR. A Traffic Management Plan was also provided as part of the EIAR, including details of the various means of addressing the traffic that would arise from the proposed development and the means of facilitating the continued and safe operation of the associated road network. The appellant estimates that the total number of HGV trips and abnormal-load deliveries over the construction phase of the project would amount to 2,472 traffic movements, with an estimated daily peak of 113 HGV and 40 light-goods vehicle movements between weeks 12 and 16, primarily arising from the concrete-pouring operations. In comparison the number of traffic movements during the operational period would be much lower comprising scheduled visits using vans, as part of site monitoring, servicing, cleaning and maintenance operations. The various guidance documents, consultations and surveying undertaken for the traffic impact assessment are initially outlined in chapter 16 of the EIAR.

9.12.3. Impacts on material assets specifically in relation to service infrastructure, utilities and forestry are dealt with in chapter 15 of the EIAR. An EIAR addendum report (appendix 15.1) provides an assessment of the impact of the development on telecommunications and EMI. Appendix 15.2 to the EIAR provides details of the means of managing forestry on the site, including the clear-felling operations to facilitate the construction of the turbines and associated infrastructure.

Baseline

9.12.4. The road network to be used to enable the project to be constructed, operated and decommissioned, consists of a mix of local, regional and national roads. The primary means of accessing the site would be from the N68 national road connecting Ennis with Kilrush. Abnormal loads would be directed off this national road onto the L6132 local road for a distance of 5.6km towards the turbine site. The grid-connection route would use the western end of the L6132 local road, before traversing the R483 regional road at Tullabrack crossroads and following the L2036-15 local road leading west towards Tullabrack 110kV electricity-substation compound. Local roads in the vicinity primarily comprise a single carriageway with intermittent passing bays or pull-in areas generally fronting homesteads and at road

junctions. Outside of the urban speed-limit zones, the N68 national road, and the R483 regional road feature two traffic lanes with soft verges either side.

9.12.5. Telecommunications and engineering services in the area are typically aligned under or along existing roads, while overhead electricity powerlines (110kV) traverse the site. Based on consultation, telecommunications services operating in the area are listed in table 15.2 and appendix 15.1 to the EIAR. Shannon airport, located 35km to the east, is the closest airport to the appeal site, with Kerry airport located 52km to the south of the appeal site. The appellant lists 11 quarries in the Clare, Limerick and Galway areas with potential to provide the 11,590m^3 crushed rock for the various surface-topping elements of the project. Gas or water-supply networks do not exist within the turbine site.

Potential Effects

Table 9.7 Summary of Potential Effects for Materials Assets

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	Commercial forestry operations would continue, traffic would follow similar patterns, there would be no interference with local services and utilities, and the additional renewable-energy supplies would not be provided on site.
Construction	Increased traffic, delays and road safety risks due to the vehicular movements associated with the site clearance, excavation, roadworks, construction works and delivery of abnormal loads. Damage to existing services and infrastructure. Loss of forestry and agricultural lands.
Operation	Increased provision of renewable-energy supplies. Interference with a telecommunication radio link. Medium to long-term, imperceptible impacts on property values.

Decommissioning	Increased traffic and road safety risks due to the vehicular movements associated with the site clearance and removal of abnormal loads. Damage to existing services and infrastructure.
Cumulative	Minor, short-term negative impacts on traffic during the construction phase should this occur alongside other neighbouring developments, such as upgrade of Tullabrack substation and the Sceirde Rocks project (ABP ref. 321697-25).

Mitigation

9.12.6. Mitigation measures to address the impacts of traffic and transport during the construction phase relate to the adherence to measures within a final construction traffic management plan as part of the project CEMP, including use of assigned haul routes, control of delivery times and the provision of advanced signage. Various bodies would be engaged as part of the abnormal-load deliveries. Road-widening and verge-strengthening works along the L6132 local road have been described above. Operational phase mitigation measures are not envisaged due to the low traffic volumes associated with the development.

9.12.7. Engagement with utility operators would serve as a mitigation measure for the project, by identifying and protecting existing services, as well as providing for continued operation of services. Compliance with legal Directives and licencing requirements, including tree felling and road-opening licences, would occur in parallel with the project. Safety measures would be undertaken to address potential risks from the storage of materials, connections to services and general work practices. Waste management services would be employed as part of the construction phase, with the proposed development provided with suitable facilities for the regular collection of waste and recycling of materials.

Residual Effects

9.12.8. With the implementation of mitigation measures, including management plans, and the measures to manage construction waste and traffic, residual effects of the project are set out in in chapter 15 and in section 16.8 of the EIAR. Traffic volumes arising on the local road network are not considered to have a significant negative

impact and the mitigation measures provide that no significant residual effects on material assets would arise.

Direct and Indirect Effects Assessment

9.12.9. I have examined, analysed and evaluated chapters 15 and 16 of the EIAR, all of the associated documentation and submissions on file in respect of material assets. I am satisfied that the appellant's presented baseline environment is comprehensive and that the key impacts in respect of likely effects on materials assets, as a consequence of the development have been identified. The following issues with respect to the impact of the development on material assets require further assessment:

- aviation;
- telecommunications;
- wastewater treatment;
- traffic and transport;
- site access;
- depreciation in property values.

Aviation

9.12.10. Section 15.8 of the EIAR addresses impacts on air navigation. The appeal site, including the locations of the proposed turbines, would be outside the various safety and communication zones required as part of the operation of airports, as well as the various air-traffic approaches to the nearest airports. During consultation on the application, the Irish Aviation Authority (IAA) noted the need for an aeronautical-obstacle, warning-light scheme, details of the turbine positions and heights, as well as the need for notification of the IAA in advance of any associated crane operations. It is standard practice for the constructed tip heights and co-ordinates of turbines to be submitted to the IAA and the Department of Defence prior to the commissioning of turbines, and this can be requested as a condition of the permission.

Telecommunications

9.12.11. As part of the scoping exercise in advance of preparing the EIAR, the appellant states that they contacted a wide range of agencies involved in the communications

industry, including broadcasters and companies providing phone and broadband telecommunications services, with details of responses outlined in the EMI Impact Assessment Report forming appendix 15.1 to the EIAR. The appellant states that the proposed turbines would be positioned well outside the telecom links or clearance zones identified and cited by the majority of telecommunications operators. Potential interference with telecommunications services was flagged with respect to two licenced point-to-point microwave-radio links, as detailed in the EMI impact assessment. To address this, the appellant asserts that repositioning of turbine 4 to the southeast, brought this turbine outside of the 'Fresnel' communication zone situated between the two fixed-radio links.

9.12.12. The observers to the appeal assert that the information collated to inform this element of the EIAR cannot be relied due to the lapse in time since 2022 when the appellant contacted telecoms operators regarding the potential for their services to be impacted by the proposals. The likelihood of substantive alterations in telecommunication network links in the interim traversing the site would be very limited, with increased scope for triangulation of links via new links likely to improve telecommunication network operations and coverage. I am satisfied that significant interference with telecommunications and broadcaster signals would be unlikely and the proposed development, including mitigation measures, has been designed and set out to suitably address known telecoms services. To further address the potential for the development to interfere with telecommunications, a condition can be attached to require the developer to submit actions to address interference should this arise.

Wastewater Treatment

9.12.13. According to the Planning Authority, both Kilmihil and Kilkee wastewater treatment plants have capacity issues, therefore, they may not have the capacity to accommodate the wastewater loading arising from the proposed development during the construction phase. During the construction phase portable-wash facilities with integrated waste-holding tanks would be used at the site compound and maintained by a contractor. No water would be sourced or discharged on site during this phase. The proposed temporary construction compound drawing (no. 6777-JOD-BKWF-XX-DR-C-1505 Revision P02) provides a plan of this element of the proposed

development, with reference to a welfare block with toilet facilities connecting to an underground effluent storage tank controlled with a high-level alarm.

9.12.14. The Planning Authority state that an assessment of welfare facilities to be provided for visiting staff during the operational phase is not provided. The observers assert that the welfare facilities for the operational phase would not comply with Building Regulations or the relevant EPA Code of Practice. During the operational phase, wastewater from the toilet facilities would be limited and would be held in a sealed tank on-site, which would feature volume sensors and would be routinely emptied by a contractor. Wastewater arising would be removed by a licenced wastewater collector to Kilrush treatment plant, which I note was subject to extensive completed upgrades by Uisce Éireann in July 2024. In their consultation response, Uisce Éireann did not object to the proposed development. The issue of compliance with Building Regulations will be evaluated under a separate legal code.

9.12.15. I am satisfied that the approach set out in the application to manage wastewater during each phase of the project would be very much the standard approach for a development of this nature and scale, with significant impacts on the environment not likely to arise from this approach.

Traffic and Transport

9.12.16. The greatest potential for an adverse impact of significance arising from traffic generation would be during the construction phase of the proposed development, particularly arising from the requirements to facilitate the transport of abnormal-size loads.

9.12.17. The appellant's traffic management plan (EIAR appendix 16.2) provides details relating to the proposed means of access to the site during the differing phases of the project. This outlines that abnormal-size turbine plant would be delivered by sea to Foynes, where they would be transferred to extended articulated vehicles before following the national road network leading to Limerick and onwards to Ennis. Following a bypass of Ennis, the deliveries would head southwest along the N68 towards Kilrush. Turbine-delivery traffic would take a right turn at the junction of the L6132 and N68 junction at Derreen townland, approximately 8.5km northeast of Kilrush. The delivery truck return route would follow the same route with the exception of using the R510, R527 and R445 regional roads in bypassing Limerick

city. Abnormal deliveries would be transported for a distance of approximately 5.6km along the L6132 local road, to the site of the proposed turbines. The majority of the construction haul traffic is expected to be routed along the R483 regional road before exiting onto the L6132 local road leading to the appeal site.

9.12.18. Works would be necessary at the intersection of the junction of the L6132 local road and the N68 national road, generally comprising road widening and relocation of traffic signs. Road widening and strengthening would also be undertaken at Tullabrack crossroads on the western end of the L6132 local road to facilitate grid-connection works. Where necessary, the appellant states that verge widening and strengthening, as well as vegetation removal, would take place along the L6132 local road to facilitate the delivery of abnormal loads. Road reprofiling would be required at one location on the L6132 local road to remove a short, steep dip in the carriageway.

9.12.19. The construction phase for the works on the turbine site would occur over 40 weeks with the construction of the site entrance taking place at an early stage over a week to two-week timeframe. Road widening along the L6132 local road would take place following this, followed by the described verge strengthening works. The installing of the grid connection would take place over weeks 20 to 28, alongside the delivery of the turbines. The pouring of concrete for turbine foundations is expected to take place between weeks 12 and 20, with an estimated 75 concrete loads to be delivered to the turbine site daily, as well as other associated traffic movements. The turbine delivery phase would feature three abnormal loads per day. Other traffic generated by the development would comprise visits by construction staff, who would be facilitated by an expected peak of 35 to 40 on-site parking spaces. Similar vehicular movements would occur over the 20-week decommissioning phase. Measures to reduce the impacts on traffic would include a delivery programme, restriction of delivery times, finalising the construction management plan, restricting the length of works along the public roads, provision of advance notifications and provision of signage. The proposed on-site borrow pit would reduce the need for deliveries from neighbouring quarries.

9.12.20. Observers assert that the local road network would not have capacity to cater for the additional associated project traffic movements. According to the appellant, the additional traffic arising from the proposed development, including HGVs, would not

impact on the operational capacity of neighbouring roads, with a 6% increase in HGV traffic on the N68, 11% increase on the R483 regional road and a 45% increase on the L6132 local road. Junction-analysis data is provided with the EIAR based on the expected traffic flows to and from the proposed development, and with the various temporary traffic management measures in place. Some delays would arise for traffic over periods of the construction and delivery works, and the local road network would be capable of accommodating the increased traffic arising over the construction period. According to the appellant's Forestry Report (EIAR appendix 15.2) the effects of the clear-felling element of the project on traffic would be negligible given the limited volume of additional traffic movements that would arise. Operational phase traffic serving the windfarm is estimated to amount to less than a trip per day, which would have negligible impacts on traffic in the area. The appellant referred to the project potentially requiring upgrades to the Tullabrack substation. Should this occur concurrently with the proposed development there would be scope to access the substation from the west side of the L2034, avoiding the proposed grid-connection route.

9.12.21. The observers' concerns regarding the capacity of local roads extend to the structural ability to facilitate construction traffic, including abnormal loads. The Planning Authority noted the need for pre and post-condition road surveys prior to the commencement of the development. The appellant has stated that a road condition survey would be undertaken by an independent contractor along the local road L6132, comprising road-surface and pavement condition surveys. This would then be followed by a post-construction condition survey in consultation with the Planning Authority.

9.12.22. The Planning Authority sought various details with respect to abnormal-load deliveries serving the project, as well as bonds for any damage caused by the project along roads on the turbine-delivery route. I acknowledge that the Planning Authority did not decide to refuse to grant permission relating to these matters, I also acknowledge that the appellant did not raise any issues with respect to the attachment of conditions to address the Planning Authority's concerns in this regard. The attachment of a condition requiring a bond of security, as well as various details with respect to the turbine-delivery route, including temporary removal of overhead cables, addressing structural constraints, weight loadings and swept-path analysis,

would be standard details to be agreed and provided as a permission in the event of a grant of planning permission. I note that the Municipal District Engineer has asserted that the 5.6km-long turbine delivery route along the L6132 local road would require full reconstruction. This road has capacity typical for a rural local road, in already accommodating agricultural, quarry, forestry and other HGVs. Various roads in the vicinity, in similar contexts and of similar width, have been used to facilitate other windfarm developments in the area.

9.12.23. The construction and decommissioning phases of the project would give rise to additional traffic and inconvenience, with delays particularly associated with abnormal-load deliveries and along the grid-connection and haul routes. These trafficking issues would be temporary and short-term in duration, as well as being punctuated by brief busy periods of activity associated with turbine deliveries and turbine-base construction, and I do not consider that the development would generate significant inconvenience for local residents or visitors on the basis of traffic. Adherence to standard health and safety measures would be a pre-requisite, including the various measures outlined as part of the project EIAR and accompanying documentation. Should other projects occur in tandem with the subject proposals, such as the roadworks associated with the Sceirde Rocks project (ABP ref. 321697-25), traffic impacts could reasonably be addressed as part of a live adaptable construction traffic management plan.

9.12.24. Having regard to the above, I am satisfied that the proposed development would not give rise to a traffic hazard or endanger the safety of other road users, subject to the full implementation of the design elements outlined within the EIAR and compliance with necessary planning conditions. The proposed development, as well as any associated upgrades of the Tullabrack substation, would not give rise to any significant adverse cumulative traffic impacts in-combination with the ongoing commercial forestry or projects in the area.

Site Access

9.12.25. Based on DN-GEO-03060 ‘Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions)’ and a speed limit of 80km/h applying on the L6132 local road, the Planning Authority concluded that 160m sightline visibility is required in both directions at the entrance

to the site. The Planning Authority considered requesting additional information in this regard, while observers to the appeal noted the inability to achieve sightline visibility on the western side of the proposed entrance. In the interim period since the Planning Authority considered this scheme, the speed limit of the L6132 local road has reduced to 60km/h and based on aforementioned design guidance, DN-GEO-03060 (table 5.5), sightline visibility of 90m in both directions would be necessary. Based on the proposed site layout plan (sheet 3 of 6 - drawing no. 6777-JOD-BK-DR-XX-C-1103 Revision P03), this visibility is achievable along the L6132 local road frontage to the site, within the lands in control of the appellant and with scope to replant part of the roadside hedgerow needed for abnormal-load deliveries following the construction phase.

Depreciation in Property Values

9.12.26. It is asserted by the Planning Authority and in the observations to the appeal that the proposed development would result in a depreciation in property values in the area. Section 5.3.7 of the EIAR addressing property values asserts that there have been no empirical studies undertaken of the effects of wind turbines on property values in Ireland. With reference to a number of American and British studies, the appellant asserts that it is reasonable to assume that the development would not impact on property values. The appellant asserts that the development would have positive impacts, such as providing energy security, community benefits and employment, and, as such, would contribute to sustainable growth in property values. In response to this, the observers refer to a Working Paper dated from 2023 and prepared by two authors from the University of Galway, which they consider to highlight that the subject development would lead to a depreciation in the value of property based on Irish research, with the appellant's references to international case studies considered to be irrelevant.

9.12.27. The subject University of Galway working paper investigates the effects of proximity to wind turbines on house prices in counties along the west coast of Ireland, excluding Clare, using a cross-sectional approach with spatial and temporal fixed analysis. The paper concludes that there is a significant and robust discount in property values in the order of 14.7% for properties within 1km of a wind turbine, but that there is inconclusive evidence of reductions in property values beyond 1km of a turbine. The authors found that the reduction in property values is dependent on a

number of factors, including the height of the turbines and proximity to an urban centre.

9.12.28. Based on table 13.1 of the EIAR, there would be 35 houses within 1km of the proposed turbines, experiencing the development to differing extents and with several of these houses associated with the project. Despite the potential for wind turbines to influence property values, the analysis undertaken in the University of Galway research revealed that the property devaluation effects of wind turbines attenuate over time, becoming insignificant beyond ten years post-connection.

9.12.29. Many other factors, including market trends, buyer demand and the overall economic climate, influence property values. I am satisfied that it is reasonable to conclude that the operation of the proposed development may become a factor that could influence residential property prices in the immediate area to the wind turbines, with evidence of this emerging from the stated University of Galway working paper. The 2006 Guidelines do not refer to the impact on property values as being a consideration with respect to wind-energy developments, but they do set standards in terms of appropriate setback distances between properties and turbines. As highlighted above, standards required under the 2006 Guidelines with respect to shadow flicker, noise and vibration would be addressed as part of the proposals and in any permission arising, therefore, adverse impacts on the residential amenities of the neighbouring houses would not reasonably arise. It would only be the actual presence of the wind turbines in the landscape that could potentially influence property prices within 1km of the proposed turbines, and the presence of the turbines would vary considerably within this radius. Any influence on property values arising from the project would be likely to dissipate over time and would be dependent on a variety of factors that would be a matter for expert valuers to adjudicate upon.

Direct and Indirect Effects Conclusion

9.12.30. Having regard to the examination of environmental information in respect of material assets, in particular the EIAR provided by the appellant and the submissions from the Planning Authority and observers in the course of the application and appeal, it is considered that the main significant direct and indirect effects on material assets are, and will be mitigated as follows:

- direct negative short-term effects arising from traffic generated during the construction phase, which would be mitigated by a suite of appropriate construction phase traffic management measures.

9.13. Archaeological, Architectural and Cultural Heritage

Issue Raised

9.13.1. The Minister for Housing, Local Government & Heritage recommended the attachment of conditions addressing the need for further detailed archaeological assessment to be undertaken prior to commencement of the development and this assessment should be based on geophysical surveys and test excavations in the area of proposed turbine 4 and the borrow pit. The Planning Authority state that issues pertaining to the protection of archaeological heritage from any potential direct impacts could be appropriately managed by a condition of planning permission.

Context

9.13.2. Chapter 14 of the EIAR describes and assesses the impact of the development on cultural heritage, including archaeological and architectural heritage. This section of the EIAR is supported by a photographic record (EIAR appendix 14.1). The legislative and planning policy context for this part of the assessment is set out, including reference to the National Monuments Act and Department of Arts, Heritage, Gaeltacht and the Islands 'Framework and Principles for the Protection of the Archaeological Heritage' (1999). In terms of archaeological potential, the appellant initially undertook a desk-based study of an area within 2km of the turbine site and within 100m of the grid-connection and turbine-delivery routes. This was followed up by field surveys in May 2022 and January 2023. Details of the placenames relating to the area and a chronological description of the historical background to the surrounding area is provided, including cartographic analysis and remote sensing using aerial and lidar imagery.

Baseline

9.13.3. The sites and monuments record (SMRs) compiled by the National Monuments Service relating to the study area are identified in figure 14.1 of the EIAR. This revealed an earthwork site (ref. CL057-058--) located approximately 250m to the

southwestern side of the proposed borrow pit location. Other sites to the south of the proposed borrow pit in Ballykett townland include an enclosure (ref. CL057-069-) and a fulacht fia (ref. CL057-0371). A ringfort site (ref. CL057-030--) is situated along the local road (L6132) forming part of the proposed turbine-delivery route at Gowerhass townland. There is numerous other ringfort or 'rath' sites situated adjacent to this route corridor (refs. CL057-033-- and CL057-034--). An extensive array of other earthwork, enclosure and ringfort sites are identified in the study area, the vast majority of which are not visible overground. Previous archaeological investigations as part of the windfarm projects in Moanmore South and Tullabrack townlands did not uncover archaeological remains.

9.13.4. Brew's House located in Ballykett townland, 250m from the turbine site boundary and 500m from the nearest proposed turbine (2), described as a detached three-bay, two-storey house constructed in 1892, is the closest structure included in the Record of Protected Structures (ref. 593) attached to the Development Plan. Gower Hall in Gower townland 2km to the north of the turbine site is also recorded as a Protected Structure. The appeal site does not have status as an architectural conservation area. The townland boundary dividing Tullabrack East and Ballykett follows the Moyasta river on the northern side of the turbine site. The closest national monument in State care is located on Scattery Island, approximately 6.8km to the southwest of the turbine site. There are no sites listed in the National Inventory of Architectural Heritage within the project study area. The lidar survey commissioned for the project, included as figure 14.4 to the EIAR, is stated to not identify areas or features of archaeological potential on site. Field survey notes with respect to the archaeological remains closest to the development footprint are included as part of table 14.10 to the EIAR.

Potential Effects

Table 9.8 Summary of Potential Effects for Archaeological, Architectural and Cultural Heritage

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	The site would continue use as rotational commercial forestry and agricultural pastureland and any archaeological remains

	would not be likely to be salvaged should they be situated on site.
Construction	Direct effects for archaeological heritage given the potential for significant undiscovered archaeological material, in particular in the area extending into the cutover bog, at the borrow pit and along the turbine-delivery route close to the ringfort site (CL057-030--).
Operation	Direct effects for features of archaeological significance should they be identified during construction. Indirect effects on the setting of sites of cultural significance.
Decommissioning	None arising.
Cumulative	Other windfarm developments within 18km of the site, both proposed and operational, are considered with respect to their cumulative visual impacts for cultural heritage sites.

Mitigation

9.13.5. The appellant asserts that monitoring of the proposed forestry felling and groundworks would be undertaken, including topsoil stripping close to the ringfort site (CL057-030--) on the turbine-delivery route, and if any archaeological features are identified agreement and approval from the National Monuments Service would be sought to identify a course of action.

Residual Effects

9.13.6. With the implementation of mitigation measures, the appellant asserts that residual effects from the construction phase of the project would not arise for archaeological, architectural and cultural heritage. Slight / moderate adverse residual effects for unrecorded archaeological resources could arise. The visual nature of the project would result in long-term, slight-adverse, indirect residual effects for the setting of archaeological, architectural and cultural heritage sites in the wider area, but this effect would be reversed by the decommissioning phase of the project.

Direct and Indirect Effects Assessment

9.13.7. I have examined, analysed and evaluated chapter 14 of the EIAR, all of the associated documentation and submissions on file in respect of archaeological, architectural and cultural heritage. I am satisfied that the appellant's presented baseline environment, is reasonably comprehensive and that the key impacts in respect of likely effects on archaeological, architectural and cultural heritage as a consequence of the development have been identified.

9.13.8. The development would be a substantive distance from known features of cultural heritage significance and the separation distances involved would not result in direct impacts on such features, with screening elements in the intervening landscape, negating the impact of the development on the setting or character of the closest known neighbouring cultural heritage features. During the construction phase, the appellant has set out standard measures with respect to archaeological monitoring and recording, which can be further clarified in line with the National Monuments Service and the Planning Authority requirements, as a condition in the event of a grant of planning permission for the development.

Direct and Indirect Effects Conclusion

9.13.9. Having regard to the examination of environmental information in respect of archaeological, architectural and cultural heritage, in particular the EIAR provided by the appellant and the submissions from the Planning Authority, the Minister for Housing, Local Government & Heritage and observers in the course of the application and appeal, it is considered that the main significant direct and indirect effects on archaeological, architectural and cultural heritage are, and will be mitigated as follows:

- direct negative effects arising for undiscovered archaeological remains during the construction phase, which would be mitigated by a planning condition requiring monitoring and recording by a suitably qualified archaeologist under an appropriate licence.

9.14. Landscape and Visual Impacts

Issues Raised

9.14.1. In recommending refusal of planning permission for the proposed development, the Planning Authority refer to the visual impact of the development from short and long-range vantage points, and the resultant cumulative visual impacts of windfarms in the area on the Kilrush, Loop Head and Shannon estuary farmlands LCAs in west Clare. The appellant refutes the arguments presented by the Planning Authority and refers to the information provided as part of the EIAR and appeal as illustrating how the proposals can be readily absorbed into the landscape. In response, third-party observers assert that the appeal site would not have capacity to absorb wind turbines at the scale proposed and that the proposed development has significant potential to impact on the visual amenities of the area, particularly in conjunction with the other existing neighbouring windfarms.

Context

9.14.2. Chapter 11 of the EIAR addresses the landscape and visual impacts of the proposed development, with the appellant initially setting out how the appraisal was undertaken, the guidance used for the assessment, including the Guidelines for Landscape and Visual Impact Assessment, and subsequently clarifying how the landscape impact assessment criteria was arrived at. This section of the EIAR was supported by a 'Photomontages' booklet, including a total of 26 short, medium and long-range viewpoints illustrating the appearance of the proposed development in the landscape.

Baseline

9.14.3. The proposed turbines would be positioned between 29.5m and 32.6m OD level on ground falling gradually southwest towards the Shannon Estuary. The nearest existing wind-energy development to the site, Moanmore windfarm, is situated 1.8km to the northwest of the proposed turbines, within a pocket of peatland and on slightly lower ground levels of between approximately 20m to 25m OD. This windfarm comprises seven turbines with maximum tip heights of approximately 102m. The Tullabrack windfarm is also proximate to the appeal site, and this features six turbines adjacent to the Moanmore windfarm, with maximum turbine tip heights of 119.3m, situated on ground between approximately 18m and 30m OD level.

9.14.4. While the site and immediate areas are predominated by commercial forestry and peatlands, the immediate areas extending out from the site are generally characterised by pastoral farmlands, interspersed with housing and farmsteads along a network of local roads. Overhead electrical powerlines cut through the site in an east-west direction. The closest pNHA is St. Senan's Lough (site code: 001025), which is situated 3.7km to the southeast of the turbine site.

9.14.5. The proposed turbines would be distributed evenly and centrally within the subject land parcel, with separation distances of between 400m and 500m between the turbines and at distances of approximately 580m to 1km from the nearest roads. The turbines would feature blade-tip heights of 150m with a rotor diameter of 136m and a hub height of 82m. A host of ancillary development elements are proposed, including a substation located approximately 230m to the south of the L6132 local road and a temporary construction compound with security fencing and a blade set-down area adjacent to the north of this on ground levels 2m to 3m below the closest section of the L6132 local road. The proposed borrow pit would be 600m west of the L6134 local road and situated on ground between 35m and 41m OD, while an anemometry mast with a height of 82m is proposed to be positioned between turbines 2 and 3 on the south side of the site approximately 900m west of the L6134 local road. Other substantial visual elements of the proposed development comprise, the felling of commercial forestry, crane / turbine hardstandings, temporary and permanent spoil storage areas, the construction and upgrade of access tracks, the removal of hedgerows and trees to facilitate access along the L6132 local road and vertical realignment of an existing crest curve on the L6132.

9.14.6. Map 14A of the Development Plan indicates the scenic routes within the County, including sections of the N67 national road and Coast Road (L2060) running along the Shannon estuary, approximately 4.3km to 5.8km south of the proposed turbines. This forms part of the Wild Atlantic Way tourism route. There is another scenic route along the L2024 / L20243 local roads, approximately 10.5km to 12.5km east of the proposed turbines.

Potential Effects

Table 9.9 Summary of Potential Effects for Landscape and Visual Impacts

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	The use of the site as commercial forestry and agricultural pastureland would continue with the appearance of the site and immediate area to largely remain unaltered.
Construction	Change in the appearance of the site with clear-felling forestry, various groundworks and other works.
Operation	Slight to moderate, negative, long-term impacts, from the wider and immediate area to the site due to the appearance of the turbine structures and associated development within the landscape.
Decommissioning	The site would be reinstated and would largely appear similar to the current appearance with the visual effects reversed.
Cumulative	Moderate impacts on the landscape owing to the presence of existing turbines. Medium to low impacts of turbines being viewed as part of a broader cluster of windfarms.

Mitigation

9.14.7. Specific visual or landscape mitigation measures for the project are not identified, although I note reference to the landscaping measures proposed as part of the development, including the sensitive reinstatement of peat.

Residual Effects

9.14.8. Given the absence of mitigation measures, the residual effects of the impact of the development on the landscape and the visual amenities of the area are asserted to be as per the predicted impacts of the development.

Direct and Indirect Effects Assessment

9.14.9. 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 impacts. I am satisfied that the appellant's presented baseline environment, is comprehensive and that the key visual impacts in respect of likely effects on landscape, as a consequence of the development have been identified. Issues raised with respect to the visual impact of the development, can be addressed under the following headings:

- construction phase;
- visual change;
- cumulative visual impacts;
- tourism.

Construction Phase

9.14.10. In addition to the operational phase, the EIAR considers the visual impact of the proposed development during the construction phase, including the felling of 17.6ha of commercial forestry and the excavation of the borrow pit. The area of excavation works at the borrow pit (1.2ha) would be substantial, but this pit would be largely backfilled with peat from the other site excavation works and the ground would be reinstated following the completion of the construction phase. Views of the borrow pit would be primarily limited to the windfarm access tracks adjacent to this element of the project, due to tree cover, topography, including higher ground immediately to the south, and the separation distances to neighbouring receptors, including the closest local road (L6134) 600m to the east. Tree felling would occur on site with or without the project in the short to medium term.

9.14.11. A new access road would be required for the construction phase of the development along the L6132 local road, and this would remain in situ following the construction phase to enable access where necessary. The new access to facilitate abnormal loads would require removal of approximately 100m of hedgerows and trees. Given the temporary necessity for the new access road, and its limited use for operational access, the roadside boundaries would be allowed to revegetate to feature similar planting to the present bramble, bracken and willow in this area.

9.14.12. Short-term, imperceptible negative impacts would be expected to arise from the construction works, including the development tracks and compounds, however, no significant visual impacts are anticipated over the construction phase, with much of

the proposed works comparable with works undertaken in the countryside as part of agricultural, commercial forestry and roadworks activities. The landscape effects of the turbines would only be fully evident during the operational phase.

Visual Change

9.14.13. Observers assert that the appellant's visual impact assessment does not follow the principle steps in assessing landscape and visual effects as detailed in the Landscape Institute and the Institute of Environmental Management and Assessment 'Guidelines for Landscape and Visual Impact Assessment' (2013), with reference to a flowchart addressing how the significance of effects should be arrived at and the elements to be considered in landscape character assessment. No specific details as to how the appellant's assessment does not follow the 2013 Guidelines approach are detailed and, as noted in section 5 above, the landscape character has been assessed and defined by the Planning Authority, as provided in their Development Plan. I am satisfied that the details provided clearly reveal that the landscape and visual impact assessment in the EIAR follows a well-established methodology guided by best practice guidelines, including the NatureScot guidelines for 'Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments' and the aforementioned 2013 Guidelines.

9.14.14. The Zone of Theoretical Visibility (ZTV) shown in Figure 11.7 of the EIAR, illustrates the overall potential for the proposed turbines to be visible from the surrounding areas within a radius of 20km. I consider that the visuals submitted demonstrate the extent of the most relevant geographical areas likely to be impacted, including the most critical areas of influence that are of relevance in the assessment of the proposal. Whilst it is possible that the development may be visible from further afield, distance would play a significant role in abating the impact. Asides from those areas on site and immediate to the site infrastructure, due to the wider topographical features and lie of the land, there would be a greater propensity for the proposed development to be visible from the northwest, west and southwest.

9.14.15. The 26 photomontage viewpoints portray the predicted views from the local community, the neighbouring settlements, the main transport and scenic routes, and the wider rural environment, with a number of photomontages taken from vantage points where the nearest existing windfarms are in view. The turbines used in the

photomontages would appear to replicate the turbine type proposed for the development, as detailed in the planning application wind turbine-generator detail drawing (no.6777-JOD-BKWF-XX-DR-C-1403 Revision P02). The appellant's documentation, including the photomontages, refer to 'in-development turbines' proposed at Moanmore Lower townland, approximately 2.7km to the west of the appeal site. A planning application for a windfarm was recently refused permission by the Planning Authority on these neighbouring lands (CCC ref. P25/60257). The following table 9.10 provides a summary assessment of the likely visual change from the appellant's 26 selected viewpoints arising from the completed proposed development.

Table 9.10 Viewpoint Changes

No.	Location	Description of Change
1	Doonbeg Road, Kilrush – 3.1km southwest	Blades for each proposed turbine and part of the tower for turbine 1 would be visible, with the undulating topography and intervening field boundary vegetation screening lower elements of the turbines. Coupled with the separation distance, this would not lead to any substantive visual impacts when the proposed turbines are viewed alongside the existing turbines. I consider the magnitude of visual change from this medium-range viewpoint to be low in the context of the receiving gently-sloping, farmland landscape.
2	Cooraclare village – 4.5km north	Blade-rotation zones and upper-tower sections for each proposed turbine would be visible, with the undulating topography and intervening field-boundary vegetation screening lower elements of the turbines. The proposed turbines would not read as an extension to the existing windfarms, while the rotating blades would have greatest visual impact. I consider the magnitude of visual change from this medium-range viewpoint to be moderate in the context of the receiving gently-sloping, farmland landscape.
3	R483 Tullabrack Cross – 1.1km west	Blade-rotation zones and upper-tower sections for all four proposed turbines would be visible, with screening of lower-turbine elements via commercial forestry. I consider

		the magnitude of visual change from this short-range viewpoint to be substantive with a high magnitude of impact.
4	N68, Moyadda – 1.2km southeast	Blade-rotation zones and upper-tower sections for each proposed turbine would be visible across low-lying topography and with commercial forestry screening lower elements of the turbines. The proposed turbines could read as an extension to the existing windfarms. I consider the magnitude of visual change from this short-range viewpoint to be substantive, with a medium to high magnitude of impact in the context of Moanmore and Tullabrack windfarms.
5	L6134 Gowerhass– 0.7km east	Blade-rotation zones and upper-tower sections for each proposed turbine would be visible, with the relatively-flat topography and intervening field-boundary vegetation partially screening lower elements of the turbines. The proposed turbines would not read as an extension to the existing windfarms given the perspective offered with a difference in turbine scales. I consider the magnitude of visual change from this short-range viewpoint to be substantive, with a high magnitude of impact.
6	R473 Knockerra Lower – 3.2km southeast	Upper-tower sections and the majority of the blade-rotation zones for each proposed turbine would be visible across this gently-undulating farmland, with intervening field-boundary vegetation and sloping ground partially screening lower elements of the turbines. The proposed turbines would not read as an extension to the existing windfarms given the perspective offered, with a difference in turbine scales. I consider the magnitude of visual change from this medium-range viewpoint to be slight, with a low magnitude of impact.
7	L2038 Ballykett – 1.2km southwest	Blade-rotation zones and upper-tower parts for each proposed turbine would be visible, with the rolling topography and intervening field-boundary vegetation partially screening lower elements of the turbines. I consider the magnitude of visual change from this short-

		range viewpoint to be substantive, with a high magnitude of impact.
8	L6132 Gower South – 0.8km north	Blade-rotation zones and upper-tower sections for turbines 1, 2 and 4 would be visible with the hilly farmland and intervening field-boundary vegetation, including trees, partially screening lower elements of the turbines. I consider the magnitude of visual change from this short-range viewpoint to be substantive, with a medium to high magnitude of impact.
9	N67 Moyasta – 5.2km west	Part of the blade-rotation zones and upper-tower sections for each proposed turbine would be visible, with the relatively-flat topography and intervening field-boundary vegetation partially screening lower elements of the turbines. The proposed turbines would read as an extension to the existing windfarms. I consider the magnitude of visual change from this medium-range viewpoint to be moderate, with a low magnitude of impact.
10	Tullaher Loop Walk – 5.6km northwest	Part of the blade-rotation zones and upper-tower sections for each proposed turbine would be visible, with the relatively-flat topography only partially screening lower elements of the turbines. The proposed turbines would read as an infill extension to the existing windfarms. I consider the magnitude of visual change from this medium-range viewpoint to be slight, with a low magnitude of impact.
11	N67 Killimer – 6km southeast	Upper-tower parts and the majority of the blade-rotation zones for each proposed turbine would be visible across this low-lying farmland, with sloping ground partially screening lower elements of the turbines. The proposed turbines would not read as an extension to the existing windfarms given the separation distances. I consider the magnitude of visual change from this medium-range viewpoint to be slight, with a low magnitude of impact.
12	N68 Knockaderreen, 5.2km east	Turbines would be screened from view by the sloping ground and intervening field-boundary vegetation. I

		consider the magnitude of visual change from this medium-range viewpoint to be negligible.
13	Carrowbane - 9.5km southeast	Turbines would be screened from view by the sloping ground and intervening field-boundary vegetation. I consider the magnitude of visual change from this long-range viewpoint to be negligible.
14	Moanmore - 4.3km northwest	Turbines would be screened from view by the intervening roadside-boundary vegetation. I consider the magnitude of visual change from this medium-range viewpoint to be negligible.
15	Moyasta, 5.5km west	Upper blade-rotation zones for each proposed turbine may be intermittently visible, with sloping ground and vegetation partially screening lower elements of the turbines. The proposed turbines would read as part of the existing windfarms. I consider the magnitude of visual change from this medium-range viewpoint to be slight, with a very low magnitude of impact.
16	Poulnasherry bay - 9km west	Upper blades for each proposed turbine may be intermittently visible, with sloping ground and vegetation largely screening views of the turbines. I consider the magnitude of visual change from this long-range viewpoint to be negligible, with a very low magnitude of impact.
17	Doonbeg village – 8.3km northwest	Upper blades for each proposed turbine may be intermittently visible, with sloping ground and vegetation largely screening views of the turbines, which could read as part of the wider windfarms. I consider the magnitude of visual change from this long-range viewpoint to be negligible, with a very low magnitude of impact.
18	N67 Craggaknock – 10.9km north	Upper blades for each proposed turbine may be intermittently visible, with sloping ground and vegetation largely screening views of the turbines. I consider the magnitude of visual change from this long-range viewpoint to be negligible, with a very low magnitude of impact.
19	Kilkee bay – 13.6km west	Upper blades for each proposed turbine may be intermittently visible, with buildings and sloping ground screening views of the turbines. I consider the magnitude

		of visual change from this long-range viewpoint to be negligible, with a very low magnitude of impact.
20	L2006 Doonaha – 13.7km southwest	Turbines would be screened from view by the intervening sloping ground. I consider the magnitude of visual change from this long-range viewpoint to be negligible.
21	L1000, Corcas & Sandhills, County Kerry – 15.1km southwest	Upper blades for each proposed turbine may be intermittently visible, with sloping ground screening views of the turbines. I consider the magnitude of visual change from this long-range viewpoint to be negligible, with a very low magnitude of impact.
22	L1010 Ballylongford, County Kerry – 12.8km south	Upper blades for each proposed turbine may be intermittently visible, with sloping ground screening views of the turbines. I consider the magnitude of visual change from this long-range viewpoint to be negligible, with a very low magnitude of impact.
23	N69, Glin, County Limerick – 14.5km southeast	With the exception of the blade tips, the turbines would be screened from view by the intervening sloping ground and vegetation. I consider the magnitude of visual change from this medium-range viewpoint to be negligible.
24	N68 Crag -15.2km northeast	Turbines would be screened from view by the intervening sloping ground and vegetation. I consider the magnitude of visual change from this long-range viewpoint to be negligible.
25	Cahermurphy – 12.4km northeast	Turbines would be screened from view by the intervening sloping ground and vegetation. I consider the magnitude of visual change from this long-range viewpoint to be negligible.
26	R473 Labasheeda – 14.3km southeast	Turbines would be screened from view by the intervening sloping ground and vegetation. I consider the magnitude of visual change from this long-range viewpoint to be negligible.

9.14.16. Observers assert that the photomontages provided for the project are inadequate and misrepresent the development, with additional photomontages required during morning or evening light against a dark-sky background. The preparation of

photomontages involves a degree of selectivity and artificiality, and they are not regarded as definitive, but provide for a useful tool to assist in the assessment.

9.14.17. I have viewed the site from a variety of locations in the surrounding area, and I am satisfied that the photomontages are taken from locations, contexts, distances and angles, which provide a reasonably comprehensive representation of the likely visual impacts of the development from key reference points. The photomontages submitted provide visual representations, which I am satisfied would be likely to provide a reasonably accurate portrayal of the completed development with scope for field and roadside boundary vegetation to grow and further screen the development during summer months.

9.14.18. The photomontage viewpoints are taken from publicly accessible locations in line with the Guidelines for Landscape and Visual Impact Assessment. I have reviewed each of the photomontages in the field and, as a guide to visualising the subject proposals close up, I have also visited and observed the appearance of the neighbouring Moanmore and Tullabrack windfarms. Legibility of the turbines would vary across the seasons, weather and lighting conditions, which has a material impact on visibility. It would have been preferable for a photomontage viewpoint of the development to have been presented with respect to the Protected Structure, Brew's House, within Ballykett townland, 500m from the nearest proposed turbine. I accept that the conifer forestry surrounding the turbine bases would continually alter the visual appearance of the area, with changes in screening of lower base elements to the turbines, given the temporal nature of this plantation.

9.14.19. The photomontages indicate that the impact and extent of visual dominance of the proposed turbines alongside the existing turbines depends on the location from where the windfarm is viewed and the extent of local screening or vegetation. I would also accept that as the proposed turbines feature moving elements, the photomontages only offer a snapshot of the predicted appearance of the development, including the blades positioned below full-tip height. I have visited and considered the impact of the proposed development from various other locations, therefore, the absence of photomontage viewpoints, including locations proximate to the turbines, is not detrimental to the submitted assessment.

9.14.20. From locations along the local and regional road network that surrounds the site, the windfarm would form a dominant element in the landscape. By reason of the open nature of the landscape I submit that the magnitude of change would range from medium to very high owing to the height and proximity of the turbines, as they appear from neighbouring roadside locations and given the intermittent sections of roadside screening. Where screening occurs and leading away from the turbines, the impact is generally considered medium to slight. From many viewpoints and within the turbine site, the proposed development would form a substantive dominant element in the landscape, although this would be viewed amongst an already altered landscape, by virtue of the commercial forestry and cutover bog.

9.14.21. Nine of the viewpoints are within 5km of the turbine site, which I consider to be the local environment. The appellant considers that from three locations (viewpoints 3, 5 and 8) the proposed development would have a high visual impact, with a further two viewpoints (4 and 7) experiencing a medium or high to medium visual impact. The remainder of the viewpoints are considered to experience results ranging from negligible to medium-low impacts. Table 9.10 above concurs with the appellant's assertion that it is the visual impact from viewpoints 3, 4, 5, 7 and 8 that would be most impacted by the proposed development. The significance of the impact arises from both the visual sensitivity of the receptors and the magnitude of the impact. I would consider the sensitivity or significance of the effect of the proposed development from a visual perspective from locations within the site and immediate to the site to be high, although this would be largely experienced from isolated access tracks and local roads. I am satisfied that the magnitude of change would result in a high impact, from the residential receptors within 1km of the proposed turbines.

9.14.22. As with many impacts, the visual impact of the turbines would dissipate moving away from the site. Intermittent and partial views of the proposed turbines from neighbouring roads would primarily arise between 1km to 5km of the proposed turbines, due to the screening offered by topography, field and roadside boundaries, and the commercial-forestry plantation.

9.14.23. Moving out from the immediate turbine site, the viewpoints reveal the appearance of the proposals from neighbouring settlements, including Cooraclare, Doonbeg and Kilrush. I am satisfied that the magnitude of change, arising from the proposed

development would result in negligible to medium impacts from these settlements. Progressing out from the local environment into the wider environment, panoramic views of the turbine development area would be available from across hilly farmland and low-lying peatland landscapes. The significance of the impact on these areas would reduce with distance primarily due to the perceived magnitude of change. Long-distance panoramic views from coastal areas in the wider environment (viewpoints 11, 19, 20 and 26) are also considered, as are the potential visual impacts from across the Shannon estuary (viewpoints 21, 22 and 23), with negligible to low magnitudes of impact arising.

Cumulative Visual Impacts

9.14.24. Many of the concerns raised by observers and the Planning Authority refer to the increased height of the proposed turbines when compared with the closest existing turbines, and the cumulative impact of the four proposed turbines on the landscape, with an excessive concentration of windfarms in the immediate and wider west Clare area. From the outset I acknowledge that from certain viewpoints closest to the proposed turbines, in particular locations situated between and at the existing and proposed turbines, the subject turbines would read as a completely separate development to the existing turbines, while in some wider viewpoints there would be potential for the turbines to appear as a single windfarm development alongside the existing turbines. Further to this, the windfarm at Moanmore Lower (CCC ref. P25/60257) is not a permitted development.

9.14.25. In common with the Moanmore and Tullabrack windfarms, the proposed windfarm would also comprise a relatively small cluster of turbines, although the maximum tip height of the proposed turbines would be 48m higher than the Moanmore wind turbines and 30.7m higher than the Tullabrack wind turbines. The general design of the proposed and existing turbines would be comparable by the typical three blades and the similarity of the hub heights for the Tullabrack turbines (78.3m) and the proposed turbines (85m). Moanmore windfarm features a much lower hub height of approximately 67m. The radii of the rotating turbine blades would vary substantially when comparing the 68m blade radius in the proposed scheme and the 35m and 38.8m blade radii in the Moanmore and Tullabrack turbines. The proposed turbines would be situated on ground approximately 4m to 13m above the height of the existing neighbouring turbines.

9.14.26. According to the appellant, justification for the variation in heights is provided for by the provisions set out within the 2006 Guidelines when recognising that turbine height categories will change over time due to technological advances, and as the 2019 draft Guidelines do not refer to the turbine categories listed in the 2006 guidelines. The appellant also refers to the separation distance and variation in scale of the existing and proposed turbines, as allowing the turbines to tie with and complement each other.

9.14.27. In the context of the existing turbines located between 1.8km to 3.8km to the northwest from the proposed turbines, the development would not introduce a new form of development into the wider landscape. Furthermore, the immediate hilly and flat landscape has already been substantially altered by commercial forestry activities, as well as farming and one-off housing. The existing windfarms are well established in the immediate area to the proposed windfarm and in visual terms they have resulted in moderate change in the rural setting. The rolling farmland landscape dominating the immediate surroundings to the turbine site, as well as the pocket of cutover peatland on site, are not particularly sensitive rural landscapes, with extensive other landscapes of similar characteristics in the wider area.

9.14.28. The height and design of the proposed turbines does not replicate that of the established turbines and introduces a greater scale of turbine to the area, which the appellant asserts to be modest when compared with taller modern turbines. I accept that there would be locations where the existing and proposed turbines would read as a single windfarm development, however, the difference in the scale and height of the turbines would not be overly apparent, primarily due to the separation distances between the existing and proposed turbines, and the extent of screening that would substantially mitigate against the potential for visual confusion to arise. I do not consider the proposed development to create a particularly confusing image in the landscapes surrounding the site, including in locations where the proposed development would read as part of the existing windfarms and where it would appear as a distinct separate wind-energy development to the existing wind-energy developments.

9.14.29. In addition to this, I understand the Moanmore windfarm (ABP ref. 123292) became operational in 2004, although I am not aware of the operational lifespan for this

windfarm project. It was generally assumed in planning applications from the early 2000s that wind turbines would have an average operation lifespan of 20 to 25 years, although greater lifespans are known to occur. The Tullabrack windfarm became operational in 2017, with the parent application (CCC ref. 10/64) providing a 25-year operational period for the windfarm following commissioning of the turbines. Arising from this, it is important to acknowledge that views across the landscape are constantly changing and not fixed, with the introduction of the proposed and neighbouring windfarms assessed above as having a negligible to high magnitude of visual impact from viewpoints in the immediate and wider area.

9.14.30. In conclusion, the landscape surrounding the subject site has changed and will evolve further over time, and it has revealed capacity for windfarms of a similar scale to be accommodated in this landscape without unduly impacting or dominating the setting. I do not consider the subject proposals create an unnecessary visual complexity in the landscape when viewed alongside the existing windfarms and the cumulative visual impact of the proposed windfarm alongside the other existing windfarms would be acceptable.

Tourism

9.14.31. Sections 5.3.5 and 11.3.6.3 of the EIAR address the potential impacts of the development on tourism with reference to the closest tourist attractions in the area and public perceptions of wind energy based on surveys undertaken in Ireland and Scotland. Observers to the appeal and application assert that the visual impact of the development would have an adverse impact for the local-tourism sector, which is noted in the EIAR to form a key economic driver in the area.

9.14.32. Figure 11.6 of the EIAR identifies amenity routes within 20km of the appeal site in the Clare, Limerick and Kerry areas, with the route of the Wild Atlantic Way illustrated in figure 11.8 of the EIAR. The appeal site is not a significant tourism destination and the proposed development would not introduce turbines into this landscape, given the presence of Moanmore and Tullabrack windfarms.

9.14.33. The Tullaher Loop walk south of Doonbeg village running along local roads, is situated 6km to the northwest of the proposed turbine site and the Kilrush Forest walk is situated southeast of Kilrush, approximately 3.2km south of the proposed turbine site. There are other more distant walkways and trails, as well as informal

routes. Asides from the amenity routes and the landscape, the most important tourist attractions proximate to the turbine site comprise the neighbouring settlements, tourist accommodation and the facilities listed in section 5.3.5.1 of the EIAR.

9.14.34. During the construction phase for the grid connection, there is potential for restricted access along the assigned delivery and connection routes. The likely impacts for tourism would not be significant given the short-term schedule for the works involved over a ten-month period, the intention for nighttime turbine delivery and the potential for alternative routing to be provided to facilitate movement along the delivery and connection routes.

9.14.35. The turbines and associated development would be visible intermittently from amenity routes in the wider area, including the Wild Atlantic Way, and from neighbouring tourism facilities, such as JJ Corry Irish Whiskey Experience, Kilrush golf course and Scattery Island Visitor Centre. I acknowledge that the wider area features semi-enclosed and open lowland-working landscapes and the development would be visible from local accommodation providers and amenity routes, including along sections of the Tullaher loop walk.

9.14.36. Where visible, the proposed development would have a negligible to low visual impact from recreational / tourism routes and tourist facilities, given the separation distances, topography and screening elements in the landscape, and the existence of other established turbines in the wider area. Views of the development would dissipate with distance and would be limited from the nearest urban areas, particularly due to the screening offered by buildings and vegetation. Arising from this, I am satisfied that the proposed development would have an imperceptible impact on tourist attractions in the neighbouring area and the local-tourism sector.

Direct and Indirect Effects Conclusion

9.14.37. In conclusion, the proposal would have a medium to high magnitude of visual impact from locations in the immediate vicinity, including residential receptors, and from within the site, particularly in locations where screening is not available. The established commercial forestry operations present a moderated working landscape for the development and the existing windfarms ensure that the proposed development would not introduce a new element into the wider landscape. The

visual character of the wider landscape has changed and would change further consequent to the proposals. I am therefore satisfied that the potential for significant direct or indirect impacts on the landscape and the visual amenities of the area can be ruled out, and that significant cumulative visual impacts, in the context of existing wind-energy developments in the surrounding area, are not likely to arise.

9.14.38. Having regard to the examination of environmental information in respect of landscape and visual impacts, in particular the EIAR and photomontages provided by the appellant, and the submissions from the Planning Authority and observers in the course of the application and appeal, it is considered that the main significant direct and indirect effects on landscape and visual impacts are:

- direct negative, long-term visual effects on the landscape from neighbouring residences, intermittent sections of the immediate road network and within the site, the impacts of which would be reduced where screening is available and maintained, as viewers become accustomed to the appearance of the turbines, and as the landscape is already altered, featuring windfarms and long-established commercial forestry and agricultural operations.

9.15. The interaction between the above factors

9.15.1. Chapter 17 of the EIAR includes table 17.1 addressing the interactions between each of the environmental disciplines assessed in the EIAR. The various potential interactions between the assessed disciplines at different phases of the project are considered in the EIAR. Where necessary, mitigation was employed to ensure that no significant cumulative effects would arise as a result of the interaction of the various elements of the development with one another, with the appellant referring to the measures in each chapter of the EIAR and the supporting documents as primarily addressing any potential significant residual impacts of the project. The potential for hydrology and hydrogeology impacts to interact with three of the other nine factors is considered to arise during the construction and decommissioning phases, including interactions with population and human health, biodiversity, soils and geology factors. For example, an interaction between hydrology and hydrogeology with biodiversity would arise during the construction phase from the need to control and contain materials, in particular ensuring excess sediment does

not enter watercourses, as this could have detrimental impacts on the water quality of downstream aquatic habitats. Other interactions are addressed, including those arising from noise and vibration during the construction and operation phases impacting on population and human health, with various mitigation measures to be employed, including those outlined in the CEMP.

9.15.2. I have considered the interrelationships between the factors and whether these may as a whole affect the environment, even though the effects may be acceptable on an individual basis. Having considered the embedded-design measures of the project and the mitigation measures to be put in place, I am satisfied that no residual risk of significant negative interaction between any of the disciplines would arise and no further mitigation measures to those already provided for in the EIAR, or as conditions of the permission, would be necessary. I am satisfied that in general the various interactions were accurately described in the EIAR.

9.16. Cumulative Impacts

9.16.1. Throughout the EIAR the appellant has referred to the various cumulative impacts that may arise for each discipline, as a result of other existing, proposed and permitted developments in the environs of the site that they were aware of at the time of preparing the EIAR. Where such developments have been permitted, they would be largely in accordance with the nature and scale of development envisaged for the area within the Development Plan, which has been subject to Strategic Environment Assessment. The proposed development could potentially occur in tandem with the development of other development in the area, including landside elements of the off-shore windfarm development before the Commission (ABP ref. 321697-25), upgrades of Tullabrack substation and general road improvements. Other neighbouring projects would need to incorporate their own measures to limit emissions during construction and address traffic management, and the subject project would feature a live construction traffic management plan that could be revised to address any potential trafficking issues arising, should other projects take place at the same time as the subject proposals.

9.16.2. The nature, scale, form and character of the project would generally be similar to that envisaged for the site within the adopted statutory plan for this area. It is therefore concluded that the cumulative effects from the planned and permitted developments

in the area alongside the subject project would not be likely to give rise to significant effects on the environment other than those that have been described in the EIAR and considered in this EIA.

9.17. Reasoned Conclusion on the Significant Effects

9.17.1. Having regard to the examination of environmental information set out above, to the EIAR and other information provided by the appellant, and to the submissions from the Planning Authority, prescribed bodies and observers during the course of the application and appeal, it is considered that the main potential direct, indirect, secondary and cumulative effects of the proposed development on the environment are as follows:

- significant direct negative effects arising for human health as a result of shadow flicker to residential properties in the vicinity during the operational phase, which would be mitigated by detailed shadow flicker curtailment strategies restricting wind turbine operations in certain environmental conditions, resulting in no residual impacts on human health;
- direct negative effects arising for aquatic ecology during the construction phase, which would be mitigated by a suite of appropriate construction phase surface-water management measures, including sediment and pollution control measures, avoidance of in-stream works and pre-construction surveys, resulting in no residual impacts on aquatic ecology;
- direct negative effects arising for flora and fauna during the construction phase, which would be mitigated by a suite of appropriate construction phase management measures, including construction-zone buffers, restricting the timing of works, appointment of an ecological clerk of works and the undertaking of further pre-construction surveys, resulting in no residual impacts on flora and fauna;
- direct negative effects arising for land, soils and geology during the construction, operation and decommissioning of the project as a result of the increased risk of peat slide and failure, which would be mitigated by a suite of appropriate management measures during the during the construction, operation and decommissioning phases, including measures to address the

known deposits of peat and their storage, continued monitoring of ground conditions and taking remedial actions, if necessary;

- direct negative effects arising for water during the construction phase, which would be mitigated by a suite of appropriate construction phase management measures, including sediment and pollution-control measures, resulting in no residual impacts on water;
- direct negative effects arising for water as a result of flooding during the operation phase, which would be mitigated by the design of the watercourse crossings, construction levels and layout, and the surface water management proposals accounting for medium and high-risk flood events, as well as factoring in climate-change, resulting in no residual impacts on water;
- direct negative effects arising for air quality during the construction and decommissioning phases, which would be mitigated by a suite of appropriate management measures, including dust minimisation and suppression measures;
- indirect positive effects for air quality and the climate during the operational phase by displacing the necessity for fossil-fuel dependent energy sources;
- direct negative effects arising for noise and vibration during the construction and decommissioning phases, which would be mitigated by a suite of appropriate construction phase management measures, including the control of construction hours, a construction traffic management plan and noise minimisation measures;
- direct negative effects arising for noise during the operation phase, which would be mitigated by the separation distances to the nearest sensitive receptors, as well as the final turbine model featuring a serrated-trail edge or similar feature, and a noise-compliance monitoring programme with noise-level exceedance amelioration measures;
- direct negative short-term effects arising from traffic generated during the construction phase, which would be mitigated by a suite of appropriate construction phase traffic management measures;

- direct negative effects arising for undiscovered archaeological remains during the construction phase, which would be mitigated by a planning condition requiring monitoring and recording by a suitably qualified archaeologist under an appropriate licence;
- direct negative, long-term visual effects on the landscape from neighbouring residences, intermittent sections of the immediate road network and within the site, the impacts of which would be reduced where screening is available and maintained, as viewers become accustomed to the appearance of the turbines, and as the landscape is already altered, featuring windfarms and long-established commercial forestry and agricultural operations.

9.17.2. Arising from my assessment of the project, including mitigation measures set out in the EIAR and the application, and as conditions in the event of a grant of planning permission for the project, the environmental impacts identified would not be significant and would not justify refusing permission for the proposed development.

10.0 Appropriate Assessment

10.1.1. For the purposes of this section, please refer to the assessment forming appendix A to my report, where it is concluded that the proposed development would potentially have a likely significant effect on the qualifying interests associated with European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA) from activities and works that could impact on water quality in the Moyasta river catchment discharging to the Poulnasherry bay estuarial area of the Shannon. Furthermore, the proposed development would potentially have a likely significant effect for otter associated with European Site No. 002165 (Lower River Shannon SAC) from activities and works along the Moyasta river on the turbine site. An appropriate assessment is required on the basis of these likely significant effects of the project on these two European sites.

10.1.2. The proposed development has been considered in light of the assessment requirements of sections 177U and 177V of the Act of 2000. Following an Appropriate Assessment, it has been determined that the proposed development, individually or in combination with other plans or projects would not adversely affect

the integrity of the European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA), or any other European site, in view of the sites' Conservation Objectives. This conclusion is based on a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.

10.1.3. My conclusion is based on the following:

- detailed assessment of construction, operational and decommissioning impacts;
- the proposed development will not affect the attainment of conservation objectives to restore the favourable conservation condition of otter and maintain the favourable conservation condition of large shallow inlets and bays, as well as mudflats and sandflats not covered by seawater at low tide, in the Lower River Shannon SAC. Furthermore, the proposed development will not affect the attainment of conservation objectives to maintain the favourable conservation condition for qualifying interest bird species associated with River Shannon and River Fergus Estuaries SPA;
- the effectiveness of mitigation measures proposed and the adoption of a project CEMP;
- the application of planning conditions to require the implementation of mitigation measures detailed in the project NIS.

11.0 Planning Assessment

11.1. Introduction

11.1.1. This section of my assessment considers the proposed development in the context of the statutory plan for the area, as well as national policy, regional policy and relevant guidelines, including section 28 guidelines. I have reviewed the application and appeal documentation and I am aware of the planning provisions relating to the site and the proposed development. Based on the details set out in sections 1 to 7 of this report, I am satisfied that the substantive planning issues arising from the

appeal and in the determination of the proposed development, can be addressed under the following headings as part of my planning assessment:

- principle of the development;
- landscape policy;
- residential amenity;
- forestry works;
- hen harrier.

11.1.2. The appeal submitted primarily aims to address the reasons for refusing to grant planning permission for the proposed development, as raised by the Planning Authority, and the matters raised by parties responding to this appeal have been primarily addressed as part of the EIA above, or in the proceeding sections.

11.2. Principle of the Development

11.2.1. The policy context for the proposed development in relation to renewable energy and climate change is set out in section 5 above and within the application, including Chapter 4 of the EIAR, as well as the application and appeal submissions. The grounds of appeal refer to the potential for the proposed development to contribute towards achievement of renewable-energy targets, to be consistent with planning policy and to be within an area that is open for consideration for wind-energy developments. Various Government documents identify the development of renewable energy as a primary contributor in implementing Ireland's climate-change strategy and national-energy policy. The crucial role of on-shore wind-energy developments in electricity production is recognised at national level in Government plans and strategies, such as the Climate Action Plan 2024, the Climate Action Plan 2025, Ireland's Transition to a Low Carbon Energy Future 2015-2030 and the National Planning Framework 2025. To facilitate a reduction in CO_2 emissions, to promote a low-carbon economy and to meet national, regional and county renewable-energy targets, objective 11.47 of the Development Plan encourages the favourable consideration of renewable-energy developments.

11.2.2. Despite significant progress, Ireland did not meet 2020 EU renewable energy targets, with the overall share of renewables standing at 13%, which was below the

16% target. Although not binding, in 2020 the share of gross final consumption of electricity from renewable sources (RES-E) was 39%, marginally below the national target of 40%. The Climate Action Plans 2024 and 2025 seek to realise a 51% reduction in greenhouse-gas emissions from 2021 to 2030 and an increase in the share of renewables from 43% in 2023 to 80% in 2030, in part requiring 9GW of renewable energy from onshore wind in 2030. Provision of 6GW onshore wind capacity is considered a key metric in monitoring the achievement of the 2030 target.

11.2.3. In contributing towards the achievement of renewable-energy targets, the proposed windfarm would clearly support European and national renewable-energy and climate-change policies. The potential increased supply of renewable energy from the project is supported at regional and local levels through the Regional Spatial & Economic Strategy for the Southern Region and the Clare County Development Plan 2023-2029. The importance of energy to economic activity, the necessity to reduce dependency on fossil fuels in energy production and the need to increase the quantity of energy from renewables, including onshore wind, is supported in the aforementioned regional strategy and the Development Plan.

11.2.4. The Clare Wind Energy Strategy appended to the Development Plan identifies the optimum locations for wind-energy developments in the county having regard to environmental and geographical constraints and the protection of the amenities of local residents. The proposed development is situated in an area identified in the Development Plan as being open to consideration for wind-energy developments and the proposed development would serve to facilitate a reduction in CO_2 emissions over the period of the permission, in line with the provisions of item (a) of objective 11.47 to the Development Plan.

11.2.5. I acknowledge that the Planning Authority assert that the benefits of this renewable-energy project would not outweigh the serious adverse environmental effects that its construction and operation would likely deliver and the proposed development is determined to have unacceptable direct and cumulative impacts on the environment. In conclusion, I am satisfied that there is national, regional and local policy support for the principle of developing a wind-energy project on the appeal site and that there is no specific planning policy restricting the principle of this site accommodating a wind-energy development. Notwithstanding this, the overall suitability of the site for the subject proposed development from a planning and environmental perspective

requires detailed consideration, as set out in the EIA and proceeding sections of this report.

11.2.6. The Planning Authority refer to an inconsistency in relation to the appellant's legal interest in the entirety of the site, including lands at the junction of the N68 national road and the L6132 local road. When registering the application, the Planning Authority accepted that the application complied with Article 22(2)(g) of the Planning Regulations, and I note that the area at the junction of the N68 and L6132 roads is not part of the development site, being solely required to facilitate temporary activities and movement associated with abnormal-load deliveries for the project. Furthermore, section 34(13) of the Act of 2000 provides that if a developer lacks title or owner's consent to do works permitted by a planning permission, the permission does not give rise to an entitlement to carry out the development.

11.2.7. The period of the permission sought, and the operational lifespan sought, would appear reasonable given the scale and nature of the project relative to other permitted projects, including the necessity to connect to the national electricity grid, the achievement of CO_2 reductions and the expected lifespan of the equipment.

11.2.8. Procedural matters raised by observers to the appeal regarding the validity of various guidelines, the application notices, enforcement and access to the application and appeal documentation are not matters that can be addressed under this planning assessment. As noted with respect to EIA, I am satisfied that all parties had fair and reasonable opportunity to engage during the consultation periods for the application and appeal, and this did not prevent the respective third parties in making their observations.

11.3. Landscape Policy

11.3.1. The Planning Authority refused to grant permission for the proposed development as they considered it would negatively alter the character of the rural landscape and this opinion is supported by observers responding to the appeal. In refusing to grant permission for this reason, the Planning Authority refer to the height, scale and siting of the turbines in a low-lying, open and exposed landscape context, and the proliferation of turbines in the area as conflicting with guidance in the Clare Wind Energy Strategy. In response to this, the appellant asserts that the appeal site is

capable of accommodating the proposed wind-energy development, based on the scale of turbines, the context relative to existing neighbouring windfarms, the evolving surrounding landscape, planning policy provisions and the sensitivity of the site to this development.

11.3.2. The Development Plan requires wind energy proposals to be assessed having regard to the provisions of the Clare Renewable Energy Strategy, the Clare Wind Energy Strategy and national wind-energy guidelines. According to the Clare Renewable Energy Strategy, the preservation of landscape character and visual amenity need to be considered when assessing renewable-energy developments, including detailed recommendations for the management, protection and conservation of four major landscape areas. Of these major landscape areas, the appeal site is situated in a 'settled landscape', with objective CDP14.2 of the Development Plan setting out that developments in such areas should be considered with respect to minimising visual impacts via detailed siting and design, and having regard to scenic routes, ridges and shorelines. Developments in settled landscapes should avoid visual prominence and should be designed to minimise the visual impact, through careful choice of forms, finishes and colours, as well as harnessing the screening via topography and vegetation. The Clare Renewable Energy Strategy requires the character of the landscape and views to be protected throughout the County, with measures to be put in place to minimise the impact of developments on the visual amenities of the county.

11.3.3. Objective WES Ten of the Clare Wind Energy Strategy details that the assessment of wind-energy proposals in open to consideration areas, will be evaluated on a case-by-case basis subject to viable wind speeds, environmental resources and constraints and cumulative impacts. With maps available at a county-wide scale, the proposed turbines on the appeal site are situated in a location that appears to overlap three LCAs, referred to in the Wind Energy Strategy as Loop Head, Kilrush (or Kilmihil) Farmland and Shannon Estuary Farmlands LCAs. The Strategy outlines the capacity of these LCAs to accommodate wind-energy development, as well as the possible scale of such developments.

11.3.4. The area of the Loop Head LCA designated as being acceptable in principle for medium-scale, wind-energy developments is detailed in table 4a of the Strategy as being 'north of Kilrush close to Moanmore', where 'a second windfarm may be

acceptable only at a very great distance with minimal visual presence'. The appeal site is adjacent to the southeast of this area, in an area stated in the Strategy as being 'more sensitive to wind-energy development due to the open character, spectacular coastline especially in the north and significant natural-heritage designations around Loop Head and Poulnasherry Bay'. The Kilrush (or Kilmihil) Farmland LCA is detailed in table 4a of the Strategy as comprising rolling hills and drumlins in sparsely settled areas that offer capacity to accommodate medium to large-scale wind-energy development. Those parts of the Kilrush (or Kilmihil) Farmland LCA acceptable in principle for wind-energy developments comprise areas northeast of the appeal site. The Shannon Estuary Farmlands LCA features extensive areas south of the N68 national road that are identified in the Strategy as being acceptable in principle for medium to large-scale, wind-energy developments, subject to appropriate siting and design, but this acceptable in principle area excludes the appeal site, which is north of the N68 national road, in an area open to consideration for wind-energy developments.

11.3.5. The EIAR gives due cognisance to the landscape character of the neighbouring counties of Kerry and Limerick, including the Shannon Estuary and the Beal Hill and Ballybunion LCAs identified in the Kerry County Development Plan 2022-2028, the Shannon Coastal Zone LCA identified in the Limerick County Development Plan 2022-2028 and other scenic amenities. The nearest proposed turbine would be a minimum of 13km to the north of LCAs outside the county. In view of the turbine site's location at a remove from neighbouring county boundaries, the potential visual impact on the quality and character of neighbouring landscapes outside the county would not be significant.

11.3.6. The 2006 Guidelines provide guidance for various landscape character types in terms of the location, spatial extent, spacing, layout, height and cumulative effect of wind energy projects in specific landscape types. The appellant's landscape and visual assessment and justification for the scale of the proposed development is largely influenced by the landscape characteristics of the turbine site comprising 'hilly and flat farmland', which is a landscape characterised by a patchwork pattern of fields interspersed with houses and farmsteads that are connecting by a network of roads, as well as overhead lines. It is on this basis that the appellant considers the

scale, spacing and layout for the proposed turbines to be appropriate in this particular setting and consistent with the 2006 Guidelines.

11.3.7. Given the underlying peatland and general appearance of the lands within the site, largely differentiated from the surrounding agricultural fields, it could reasonably be argued that the subject site features attributes of a 'transitional marginal land' landscape category, as referenced in the 2006 Guidelines. However, the vast majority of views of the development would be from 'hilly and flat farmland', albeit in close proximity to a peatland landscape to the northwest. The Planning Authority refer to the landscape surrounding the turbine site as being low-lying, open and exposed. The ground levels in the area (20m-33m OD) would accord with a low-lying area. The openness of the landscape surrounding the site varies and is not consistent. There are locations within the surrounding and wider area, such as along the estuary, the N68 national road 3km east of Kilrush and within the Moanmore / Tullabrack peatlands, where extensive open views across the countryside are available, while in many locations the gently-rolling farmland featuring fields segregated by trees and hedgerows forms a semi-enclosed landscape and restricts extensive long-range views across the countryside, including along stretches of the R483 regional road approaching the site.

11.3.8. The siting and context for the proposed turbines differentiates from that of the existing Moanmore and Tullabrack windfarms, which are situated in areas that feature attributes characteristic of a peatland landscape type. The 2006 Guidelines support tall turbines within peatland landscapes. The approach within the 2006 Guidelines for wind turbines on 'hilly and flat farmland' indicates a preference for turbines to be of medium height, although taller turbines may be appropriate on high ridges or hilltops of relatively large scale. Each of the proposed turbines at 150m tip height are at the taller scale of turbines referred to under the 2006 Guidelines, whereby a tip height over 100m is considered tall. I would not consider the appeal site to be situated on a high ridge or hilltop. As noted within section 9.14 of the EIA, views of the development from scenic routes and shorelines, including Loop Head and Poulnasherry bay, would be quite limited and of negligible to low magnitude of impact. Furthermore, the distance from the proposed turbines to the nearest villages and towns would not result in the development having a substantive relationship with these settlements.

11.3.9. In compliance with the 2006 Guidelines, I am satisfied that the regular spacing between the proposed turbines would respond reasonably well to the terrain and other features on the site and the grid-like layout would be acceptable for this relatively flat pocket of ground. The proposals show consideration for key receptors by positioning the turbines in locations at substantive distances from residential properties and the main public roads serving the area.

11.3.10. The proposed turbines would be visible alongside the Moanmore and Tullabrack windfarms (1.8km to 2km to the northwest). The 2006 Guidelines do not restrict situations where two or more wind-energy developments would be visible together, although the cumulative effect of wind-energy developments should ensure that turbines do not visually dominate the landscape. To state that proposals would result in ad hoc proliferation of wind farms in this area would not appear reasonable, when considering the broad distribution of windfarms with an output of greater than 500kW in the County, as illustrated in figure A of the Clare Wind Energy Strategy. While there are locations where the proposed turbines would be viewed alongside the existing operational Moanmore and Tullabrack windfarms, the additional four turbines in conjunction with the 13 operational turbines would not appear excessive given the separation distances to other large-scale windfarms and the expansive intervening areas devoid of such developments. I also note the recently refused proposals for three turbines in Moanmore Lower approximately 2.7km to the west of the turbine site (CCC ref. P25/60257), which could potentially have resulted in 20 turbines within the wider landscape, albeit spread out over a distance of 4.5km.

11.3.11. From a planning policy perspective with specific regard to local policy provisions, it would be reasonable to conclude that the 'settled' landscape on which the proposed windfarm is to be located has capacity to accommodate a windfarm development. Detailed assessment of the visual impact of the development has been completed in section 9.14 above. There is a need to balance the preservation and enhancement of the amenities of places and features of natural beauty and interest against the need to develop key strategic infrastructure in a manner that is consistent with proper planning and sustainable development. Protected views and routes are not shown to be impacted by the development in a substantive manner and the overall conclusion arising from the visual impact assessment carried out is that impacts range from negligible to high. While the development would alter the appearance of

the site, the project would not substantially deter the use or amenity value of the immediate and wider landscape, and the turbines would sit amongst a long-established working environment.

11.3.12. As noted in the EIA section of my report, this development is capable of availing of screening provided by topography and vegetation, while also assimilating with the existing windfarms and appearing separate to these existing windfarms, depending on the orientation and location of the viewer. Substantive visual confusion when viewed alongside the existing windfarms would not arise and I am satisfied that the proposed development would be capable of being absorbed in this 'settled' landscape, in line with Development Plan provisions, and with embedded-design measures reducing the visual impact of the development on the immediate landscape and most sensitive receptors.

11.3.13. The appearance of the development would not be substantively out of character with the area, including existing windfarms, albeit of less scale and height, and the proposed development can be absorbed at a local level. I am satisfied that it has been demonstrated that the proposed development would not be likely to have significant negative impacts for the character and appearance of the site and surrounding area, and that adverse impacts on the identified LCAs and scenic areas would not arise. Accordingly, the development would not conflict with provisions of the Clare Wind Energy Strategy of the Development Plan or result in ad hoc piecemeal proliferation of wind turbines in this location. The impact on the outlook from neighbouring properties is considered separately in the proceeding section.

11.4. **Residential Amenity**

11.4.1. The second of the Planning Authority's four reasons for refusal to grant planning permission for the proposed development centred on the assertion that the proposed development would seriously injure the amenities of residential properties in the vicinity by reason of noise, disturbance and visually-overbearing appearance, and in doing so it would be contrary to objective CDP11.47(e) of the Development Plan and would depreciate the value of property in the vicinity. The Planning Authority asserts that this impact would arise consequent to the height and scale of the proposed turbines, the location of the site in an open landscape, the relationship with existing windfarms in the vicinity of the subject site, and the construction-phase traffic

movements. The appellant refers to the separation distances of over 600m between the proposed turbines and the nearest inhabited houses that are not associated with the development, as conforming to planning policy and mitigating the potential for adverse impacts to arise for the amenities enjoyed by neighbouring residents.

11.4.2. Objective CDP11.47(e) of the Development Plan aims to strike an appropriate balance between facilitating renewable and wind energy-related development and protecting the residential amenities of neighbouring properties. The Development Plan does not specifically address how this balance would be achieved. Appendix 7 to the Development Plan refers to the Wind Energy Development Guidelines (2006) and the draft update of these Guidelines (2019) as being used to formulate chapters in the Development Plan addressing climate action, transport, service infrastructure and energy, as well as volume 6 appended to the Development Plan titled the 'Clare Renewable Energy Strategy'. The 2006 Guidelines remain in force and the associated 2019 draft Guidelines provide best practice guidance in relation to mitigating the impacts of wind-energy developments on residential properties. I am satisfied that the amenities enjoyed by neighbouring residents could potentially be substantially impacted by noise and vibration at construction stage, as well as by noise and shadow flicker at operational stage.

11.4.3. The Development Plan refers to the Clare Noise Action Plan (2018) as setting out measures based on standards in the Environmental Noise Directive 2002/49/EC to deal with noise pollution associated with major noise sources. Objective CDP 11.40 of the Development Plan aims to promote the proactive management of noise where it is likely to have significant adverse impacts on health and the environment.

Construction Phase

11.4.4. In section 9.12 above, the key elements of the project that would impact on noise and vibration are identified, including the works to install turbine foundations, upgrade roads and excavate a borrow pit. The key receptors in the study area of the project are also noted, as well as the various measures to address noise and vibration impacts arising at these receptors. An assessment of the significance of the noise impacts from the proposed construction works and along the associated grid-connection and haul routes does not suggest that noise-level emissions experienced at the nearest noise-sensitive receptors would exceed noise level

standards. With respect to the increased traffic movements associated with the construction phase of the development, based on the varying frequency and number of vehicles during the course of the construction, the assessment in section 9.12 above concluded that undue impacts on the amenities enjoyed by residents of neighbouring properties would not arise from noise associated with the project construction traffic. Furthermore, given the separation distances to the nearest neighbouring receptors and the expected typical vibrations from works such as ground-breaking, excavation and crushing, it was concluded that vibrations from the activities at the turbine site and along the associated routes, would not have a significant impact on the amenities of neighbouring residents to the project.

11.4.5. The construction phase noise and vibration impacts predicted to arise would be of a temporary nature and their impacts would vary in magnitude over the course of the construction. Furthermore, those elements of the works with greatest potential to impact on the amenities of neighbouring residents would be at a significant remove from houses and the works along the public roads would be of a similar undertaking to roadworks regularly encountered and undertaken in rural contexts such as at the appeal site and in the associated works areas.

Operation Phase

11.4.6. In terms of operational impacts from shadow flicker associated with the rotating turbine blades, section 9.6 of the EIA above indicates that undue disturbance from shadow flicker effects for neighbouring residences would not arise, with the identified impacts arising acceptable based on the 2006 Guidelines and with scope to further secure the elimination of shadow flicker. A condition can be attached to address the potential for cumulative shadow flicker impacts should other windfarms be permitted and constructed in the vicinity.

11.4.7. The Planning Authority's reason for refusal refers to the proposed turbines as being visually overbearing on existing properties, with the turbine heights, the open landscape and the cumulative impact alongside the existing turbines forming contributary factors in this regard. The grounds of appeal assert that the scale of the proposed turbines would appear similar to the existing turbines and with sufficient setbacks achieved, overbearing impacts would not arise. In response to this, the observers assert that the proposed turbines feature excessive heights when

compared with the existing turbines, with overbearing impacts arising for neighbouring residents.

11.4.8. To address the visual impact of the proposed development, it is essential that the height of the proposed turbines is considered relative to neighbouring buildings or structures, and the proposed turbines should not have an overbearing presence or dominate neighbouring buildings. Sections 9.14 and 11.3 of this report comprehensively address the visual impact of the proposed development both on its own, and, cumulatively with other existing windfarms in the area.

11.4.9. The Development Plan indicates that the subject area is 'open for consideration' in terms of wind-energy developments, therefore, there is an underlying acceptance that the landscape has some potential to absorb wind turbines and associated development.

11.4.10. The appellant's photomontage booklet illustrates the potential appearance of the turbines in the landscape, including context with respect to neighbouring buildings and structures. In this regard I consider viewpoints 2 to 11 inclusive best serve in portraying how the turbines would sit relative to neighbouring residences. While the turbines would be visible from numerous residences, their prominence would dissipate as the distance from the turbines increases, therefore, it is those residences closest to the turbines that would be most likely to experience overbearing impacts.

11.4.11. The proposed turbine heights and the separation distances from the proposed turbines and the nearest residential receptors, as discussed above, provide firm means in substantially avoiding any potential overbearing impacts from the development on neighbouring residential receptors. The proposed development would introduce new features into a landscape that already accommodates turbines, albeit of a lesser height and scale. I am satisfied that the photomontages from the stated viewpoints demonstrate that the wind turbines would not have a significant overbearing impact on the surrounding residences, including where potentially viewed alongside the existing turbines.

Other Matters

11.4.12. The observers also question the expertise of the consultants engaged in undertaking the noise impact and shadow flicker assessments for the project. Details of the

qualifications of those who have undertaken such assessments for the project are included in the EIAR. Having reviewed the assessments I do not consider that there is any basis to question the veracity of the information presented, the approach undertaken and the conclusions reached by the consultants in this regard. For this reason I do not share the concerns of the observers regarding the appropriateness or otherwise of the expertise of the consultants engaged by the appellant to undertake the subject noise and shadow flicker assessments.

11.4.13. The observers also refer to concerns regarding the impacts of the development alongside ongoing difficulties in enforcing noise and shadow flicker impacts from the existing neighbouring turbines. The Planning Authority has not referred to any difficulties with respect to the operation of the existing windfarms in the area, nor have they referred to enforcement actions in relation to their operation. The assessments undertaken by the appellant with respect to noise and shadow flicker account for the background baseline environment, including the existing windfarms, and follow best practice guidelines appropriate to the assessment, therefore, I am satisfied that a reasonable approach to account for the cumulative impacts of the proposals on residential and visual amenity have been undertaken as part of the EIAR submitted with the application. Matters with respect to the potential for the development to result in a depreciation in property values have been considered in section 9.13 above, where it was concluded that the proposed development would not have significant long-term implications for property values. The planning system is not a mechanism for protecting property values; it serves to ensure development is sustainable and adheres to the proper planning of an area.

Conclusion

11.4.14. Arising from the above, I am satisfied that undue impacts on the amenities of neighbouring residents would not arise consequent to the noise, vibration and general disturbance associated with the construction phase of the project. Furthermore, overbearing impacts and shadow flicker associated with the proposed turbines over the operational lifespan of the project have been considered and it is also concluded that undue impacts on the amenities of neighbouring residents would not arise. In conclusion, I am satisfied that an appropriate balance between facilitating this wind-energy development and protecting the residential amenities of neighbouring properties has been arrived at, and, accordingly, the proposed

development would not be contrary to the stated aims of objective CDP11.47(e) of the Development Plan.

11.5. Forestry

11.5.1. The third reason for refusal issued by the Planning Authority asserts that inadequate assessment of the impacts of a significant area of commercial forestry being felled was undertaken by the appellant and that this would have implications for existing wildlife and habitats, hydrology and surface waters, Poulnasherry Bay, the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA, with inappropriate reliance on post-consent site investigations and concerns regarding the risk of pollution to watercourses. Arising from this the Planning Authority assert that the development would contravene objective CDP 15.3 of the Development Plan, which aims to protect European sites and requires all plans and projects to comply with the requirements of the Habitats Directive and the Act of 2000.

11.5.2. From the outset I note that the development description provided in the planning notices advertising the application, refer specifically to 'all ancillary forestry felling to facilitate construction'. The reason for refusal stems from the report of the Planning Authority's Environmental Assessment Officer when addressing the application NIS and refers to section 2.5.1 of the application Planning Statement as featuring post-consent mitigation measures to be developed further in consultation with key stakeholders. The Environmental Assessment Officer correctly refers to the project as entailing the clear felling of an area amounting to 17.6ha, which they assert to form an intrinsic and considerable portion of the project, before leading on to state that the mitigation measures for this element of the project, as referenced in appendix 17.1 of the EIAR, would require various details of the felling operations to be addressed at post-consent stage.

11.5.3. In response to the reason for refusal, the appellant refers to the details of the forestry felling operations and future use of the subject clear fell areas associated with the project as primarily being provided in the Biodiversity Enhancement and Management Plan and the Forestry Report, respectively forming appendices 6.6 and 15.2 to the EIAR. The appellant also refers to forestry felling elements of the project and the associated mitigation measures as being addressed in further detail under

the EIAR chapters dealing with hydrology and hydrogeology, soils and geology, and biodiversity.

11.5.4. I have reviewed the entirety of the information submitted with the application, including the various EIAR appendices. The Biodiversity Enhancement and Management Plan outlines the present condition of the site, including habitats and land uses, while setting out how the proposals would rehabilitate a 3.4ha area of conifer plantation to bog, in order to offset the loss of cutover bog (0.54ha) to facilitate the project. This plan sets out the various means and timing of tree-felling operations, the blocking of drains and the monitoring of birds and vegetation over the course of the restoration and enhancement works.

11.5.5. Several details of the project would be developed further post consent, which is not an uncommon requirement in wind-energy developments or with development proposals of this scale. I do not agree that the extent of post-consent requirements, in particular the further development of harvest plan details, place considerable reliance on details that could not have been assessed in the EIA or AA sections of my report. The broad principles that would guide the final details of such harvest plans are addressed in the application documentation, including use of brash mats, buffers to drains, soil and water protection, health and safety, storage areas and methods to be employed for watercourse and drain crossings.

11.5.6. The application, including the EIAR, Forestry Report and Biodiversity Enhancement and Management Plan include a broad range of mitigation measures to address the potential environmental impacts of the forestry clear-felling proposals. The Planning Authority's reference to the mitigation measures stated in appendix 17.1 of the EIAR and section 2.5.1 of the Planning Statement, without due regard for the various other reports and sections of the EIAR, including the extensive mitigation measures to address impacts on biodiversity, hydrology, surface water and sensitive sites, does not allow for a complete and thorough assessment of the impacts of the development to be undertaken. While separate reports are submitted with the application, there is a need to appreciate and understand that these reports are dependent on the other and should not be assessed in isolation of each other. Problems in assessing proposals tend to emerge when reports feature details contrary to another, although I have not found this to be case, and the reason for

refusal does not appear to infer same, as it is the asserted that an absence of details has resulted in the concerns of the Planning Authority.

11.5.7. Failure to fully consider the entire contents of all documentation included as part of an application and appeal does not allow for appropriate and adequate engagement in assessing proposals. Despite the appellant responding to this reason for refusal in their grounds of appeal, the Planning Authority chose not to directly respond on this, which could have provided further clarity on the rationale for attaching the subject reason for refusal. Notwithstanding these concerns, the reason for refusal does highlight various matters, including impacts on aquatic ecology, hydrology, surface waters and Poulnasherry bay, which have been comprehensively assessed as part of the EIA above. As concluded in section 9.10 above, sufficient details have been provided with the application to adequately identify and describe the direct and indirect effects of the forestry felling element of the proposed development on the environment. The possibility of significant effects on the Lower River Shannon SAC, the River Shannon and River Fergus Estuaries SPA and all European sites has been excluded following the assessment undertaken in section 9 of this report. In conclusion, it would not be reasonable to conclude that the proposed development would contravene the aims of objective CDP 15.3 of the Development Plan.

11.6. Hen Harrier

11.6.1. Within their final reason for refusal the Planning Authority asserts that it cannot be concluded that the proposed development would not have significant impacts on hen harrier. The reason for refusal does not specifically address planning policy concerns, although I acknowledge that it does conclude by asserting that this asserted shortcoming in the assessment of environmental impacts of the project would result in the proposed development not being in accordance with the proper planning and sustainable development of the area. I also acknowledge that in chapter 15 of the Development Plan a host of planning objectives and policies included are intended to safeguard habitats and species. Objective CDP15.8 of the Development Plan aims to ensure the protection and conservation of areas, sites, species and ecological networks / corridors of biodiversity value outside of designated sites.

11.6.2. The Planning Authority's concerns for hen harrier stem from the report of their Environmental Assessment Officer, which cites issues regarding the proximity of the site to known breeding pairs of hen harrier, the potential habitat disturbance arising from the proposed development, the declining population of hen harrier in the area, the limited long-term post-consent hen harrier monitoring data information available from existing windfarms in the area, the density of existing and permitted windfarms in west Clare, and the information received with the application. In response to the Planning Authority's reasons for refusal, the appellant asserts that the potential impacts of the development on ecological receptors, including hen harrier, has been undertaken as part of the application EIAR and NIS, and significant effects on breeding or wintering hen harriers would not arise.

11.6.3. Section 9.8 of the EIA above, assesses the likely impact of the development on key ecological receptors, including hen harrier. Disturbance of hen harrier at their closest known breeding sites located 7km to the south of the turbine site and 8.7km to the north in the West Clare Uplands IBA would not reasonably arise from the subject project given this separation distance. The NatureScot guidance document 'Assessing Connectivity with Special Protection Areas (SPAs) Guidance (2016)' indicates a core foraging range of 2km for hen harrier during the breeding season, with a maximum range of 10km. The turbine site, featuring pre-thicket forestry, an important foraging resource for hen harrier, would be positioned outside the core foraging range and towards the outer periphery of the maximum foraging range from the nearest known breeding locations. Turbine-blade rotation is understood to deter hen harrier from foraging in areas proximate to turbines, with 500m temporal flight-activity displacement for hen harrier known to arise (based on 'Pearce-Higgins model'). Notwithstanding this, the core-foraging area within 2km of the known breeding hen harrier sites would not be impacted and the maximum foraging area would only be marginally impacted, given the expansive area to this range (314km^2), including an extensive mosaic of similar forestry and boglands, and the limited flight-activity displacement areas within approximately 500m of the four proposed turbines.

11.6.4. In relation to the asserted declining population of hen harrier in the area, as noted above in section 9.8 most recent national surveys for hen harrier actually refer to an increase of four breeding hen harrier pairs between 2015 and 2022 in the hectad (ref. R05) comprising the appeal site.

11.6.5. It is not reasonable for the Planning Authority to list limited long-term post-consent hen harrier monitoring data from other existing windfarms in the area as part of a reason for refusing the subject development. The Planning Authority has not outlined if this data exists and is available to the appellant, if this data was necessary as a condition of a previous permission, if this is an enforcement issue or if this relates to a past failure of the appellant (or a related company) to comply with a permission.

11.6.6. With respect to the density of existing and permitted windfarms in west Clare, the cumulative impact of such developments on hen harrier could potentially impact as a barrier to this species or loss of habitat. As mentioned in section 10.3 above, the distribution of operational windfarms is reasonably sparse, and does not suggest the subject turbines would create a substantive barrier for hen harrier, with a minimum of 1.8km separation distance between the nearest existing turbines and the four proposed turbines, allowing for a minimum of 800m flight-activity area between the windfarms based on the aforementioned temporal displacement data. I am not aware of permitted windfarms in the immediate area that would create an additional barrier or loss of habitat for hen harrier and as noted above, the subject hectad containing the appeal site has most recently experienced an increase in breeding hen harrier.

11.6.7. In providing more recent bird survey data for the project, it can be concluded that the development would not lead to unacceptable impacts for bird species, including hen harrier, and, accordingly, the proposed development would not fail to comply with objective CDP15.8 of the Development Plan aiming to ensure the protection and conservation of areas, sites, species and ecological networks / corridors of biodiversity value outside of designated sites. In conclusion, I am satisfied that the information available with respect to hen harrier would not warrant refusal of a grant of planning permission for the proposed development.

12.0 Conclusion and Recommendation

12.1.1. The proposed use of the appeal site for wind turbines and associated infrastructure, would be compatible with the overall policies and objectives for this area within the Development Plan. Furthermore, I am satisfied that the proposed development

could be absorbed into the landscape and that undue impacts on the amenities of neighbouring residents would not arise. Material contravention of policies or objectives of the Development Plan has not been concluded to arise. The information provided as part of the application, including the EIAR, allows for robust conclusions to be arrived at in relation to the impacts of the development on receiving waters and biodiversity, including birds.

12.1.2. Having regard to the above assessments, I recommend that permission should be granted for the proposed development, for the reasons and considerations set out in the draft Order below.

12.1.3. Finally, 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.

13.0 Recommended Order

Planning and Development Acts 2000 to 2022 as amended

Planning Authority: Clare County Council

Planning Register Reference Number: P24/60143

Appeal by Ballykett Green Energy Limited care of Jennings O'Donovan Consulting Engineers, Finisklin Business Park, Sligo, against the decision made on the 23rd day of May, 2024, by Clare County Council to refuse to grant permission to Ballykett Green Energy Limited in accordance with plans and particulars lodged with the said Council.

Proposed Development:

The development will consist of:

- the erection of 4 no. wind turbines with an overall ground to blade tip height of 150m with a rotor diameter of 136m and a hub height of 82m;
- the construction of crane hardstand areas and turbine foundations, the creation of a new site entrance onto the L6132;

- the construction of 1 no. temporary construction compound with associated temporary site offices, parking areas and security fencing;
- installation of 1 no. permanent meteorological mast of 82m overall height;
- construction of new internal site access tracks and upgrade of existing site track, to include all associated drainage including new clear span bridge crossing of the Moyasta River;
- development of a site drainage network and biodiversity enhancement measures;
- the construction of 1 no. permanent 38kV electrical substation, 2 no. permanent spoil storage areas, all associated underground electrical and communications cabling connecting the wind turbines to the windfarm substation and to the existing Tullabrack 110kV Substation;
- all ancillary forestry felling to facilitate construction including the development of one no. borrow pit, vertical realignment of an existing crest curve on the L6132;
- a ten year permission and a 35 year operational life from the date of commissioning of the windfarm;

at Ballykett, Tullabrack East, Tullabrack, Tullabrack West, Gower South and Gowerhass townlands, Kilrush, County Clare.

Decision

GRANT permission for the above proposed development, in accordance with the said plans and particulars, based on the reasons and considerations under and subject to the conditions set out below.

Reasons and Considerations

The Commission performed its functions in relation to the making of its decision, in a manner consistent with Section 15(1) of the Climate Action and Low Carbon Development Act 2015, as amended by Section 17 of the Climate Action and Low Carbon Development (Amendment) Act 2021, the Climate Action Plan 2024, the Climate Action Plan 2025, the relevant provisions of Ireland's Long-term Strategy on Greenhouse Gas Emissions Reductions 2024, the National Adaptation Framework

Planning for a Climate Resilient Ireland 2024, including the relevant sectoral adaptation plans as they relate to biodiversity and energy, and in the furtherance of the objective of mitigating greenhouse-gas emissions and adapting to the effects of climate change in the State.

In coming to its decision, the Commission had regard to the following:

(a) European legislation, including:

Renewable Energy Directive EU/2023/2413;

Directive 2014/52/EU amending Directive 2011/92/EU (Environmental Impact Assessment Directive);

Directive 2000/60/EC (Water Framework Directive);

Directive 92/43/EEC (Habitats Directive);

Directive 79/409/EEC, as amended by 2009/147/EC (Birds Directive).

(b) National policy and guidance, including:

Project Ireland 2040 - National Planning Framework (2025);

National Development Plan (2021-2030);

National Biodiversity Plan 2023-2030;

Wind Energy Development Guidelines – Guidelines for Planning Authorities (2006).

(c) Regional and local planning policy, including:

Regional Spatial and Economic Strategy for the Southern Region 2020-2032;

Clare County Development Plan 2023- 2029.

(d) the location, nature, scale, layout and design of the proposed development,

(e) the range of mitigation measures set out in the application documentation, including the Environmental Impact Assessment Report and Natura Impact Statement,

(f) the submissions received in relation to the application and appeal,

(g) the Inspector's report and recommendation.

Appropriate Assessment Screening

The Commission considered the screening report for Appropriate Assessment and all other relevant submissions and reports and carried out an Appropriate Assessment screening exercise in relation to the potential effects of the proposed development on designated European sites. The Commission noted that the proposed development is not directly connected with or necessary for the management of any European site and considered the nature, scale and location of the proposed development, as well as the report of the Inspector. The Commission agreed with the screening exercise carried out by the Inspector, and concluded that having regard to the qualifying interests for which the sites were designated, and in the absence of connections to and distance between the appeal site and the European sites, including European Site No. 004182 (Mid-Clare Coast Special Protection Area), European Site No. 004161 (Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle Special Protection Area) and European Site No. 004114 (Illaunonearaun Special Protection Area), these sites could be screened out from further consideration and that the proposed development, individually or in combination with other plans or projects would not be likely to have significant effects on these European sites.

Furthermore, the Commission considered that an Appropriate Assessment of the implications of the proposed development for European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA) required further investigation, as the proposed development has the potential to have a significant effect for these European sites in view of their conservation objectives and that a stage 2 Appropriate Assessment is, therefore, required.

Appropriate Assessment

The Commission considered the Natura Impact Statement, and all other relevant submissions and reports and carried out an Appropriate Assessment of the implications of the proposed development for the relevant European sites in view of the sites' conservation objectives.

The Commission considered that the information and reports before it was adequate to allow the carrying out of an Appropriate Assessment. In completing the Appropriate Assessment, the Commission considered, in particular, the following:

(i) site specific conservation objectives for the European Sites,

(ii) current conservation status, threats and pressures of the qualifying interest features for otter, tidal, mudflats and sandflats, large, shallow inlets and bays,

(iii) likely direct and indirect impacts arising from the proposed development, both individually or in combination with other plans or projects, specifically impacts to water resource and displacement / disturbance of otter,

(iv) mitigation measures that are included as part of the current proposal.

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

In overall conclusion, the Commission was satisfied that the proposed development would not adversely affect the integrity of the aforementioned European sites or any other European site, in view of the sites' conservation objectives.

Environmental Impact Assessment

The Commission completed an Environmental Impact Assessment of the proposed development, taking into account:

a) the nature, scale and extent of the proposed development;

b) the Environmental Impact Assessment Report and associated documentation submitted in support of the application, including the addendum report;

c) the submissions from the first party, the Planning Authority, third parties, and prescribed bodies in the course of the application and appeal; and;

d) the Planning Inspector's report;

The Commission considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the first party during the course of the

application and the appeal, adequately identifies and describes the direct, indirect, secondary and cumulative effects of the proposed development on the environment.

The Commission agreed with the examination set out in the Inspector's report, of the information contained in the Environmental Impact Assessment Report and the associated documentation submitted by the first party and submissions made in the course of the planning application and appeal.

The Commission considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the first party during the course of the application and the appeal, provided information that is up-to-date, compliant with the provisions of the EU Directive 2014/52/EU, reasonable and sufficient to allow the Commission to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Commission considered that the main significant direct and indirect effects of the proposed development on the environment are, and would be mitigated, as follows:

- significant direct negative effects arising for human health as a result of shadow flicker to residential properties in the vicinity during the operational phase, which would be mitigated by detailed shadow flicker curtailment strategies restricting wind turbine operations in certain environmental conditions, resulting in no residual impacts on human health;
- direct negative effects arising for aquatic ecology during the construction phase, which would be mitigated by a suite of appropriate construction phase surface-water management measures, including sediment and pollution control measures, avoidance of in-stream works and pre-construction surveys, resulting in no residual impacts on aquatic ecology;
- direct negative effects arising for flora and fauna during the construction phase, which would be mitigated by a suite of appropriate construction phase management measures, including construction-zone buffers, restricting the timing of works, appointment of an ecological clerk of works and the undertaking of further pre-construction surveys, resulting in no residual impacts on flora and fauna;

- direct negative effects arising for land, soils and geology during the construction, operation and decommissioning of the project as a result of the increased risk of peat slide and failure, which would be mitigated by a suite of appropriate management measures during the during the construction, operation and decommissioning phases, including measures to address the known deposits of peat and their storage, continued monitoring of ground conditions and taking remedial actions, if necessary;
- direct negative effects arising for water during the construction phase, which would be mitigated by a suite of appropriate construction phase management measures, including sediment and pollution-control measures, resulting in no residual impacts on water;
- direct negative effects arising for water as a result of flooding during the operation phase, which would be mitigated by the design of the watercourse crossings, construction levels and layout, and the surface water management proposals accounting for medium and high-risk flood events, as well as factoring in climate-change, resulting in no residual impacts on water;
- direct negative effects arising for air quality during the construction and decommissioning phases, which would be mitigated by a suite of appropriate management measures, including dust minimisation and suppression measures;
- indirect positive effects for air quality and the climate during the operational phase by displacing the necessity for fossil-fuel dependent energy sources;
- direct negative effects arising for noise and vibration during the construction and decommissioning phases, which would be mitigated by a suite of appropriate construction phase management measures, including the control of construction hours, a construction traffic management plan and noise minimisation measures;
- direct negative effects arising for noise during the operation phase, which would be mitigated by the separation distances to the nearest sensitive receptors, as well as the final turbine model featuring a serrated-trail edge or similar feature, and a noise-compliance monitoring programme with noise-level exceedance amelioration measures;

- direct negative short-term effects arising from traffic generated during the construction phase, which would be mitigated by a suite of appropriate construction phase traffic management measures;
- direct negative effects arising for undiscovered archaeological remains during the construction phase, which would be mitigated by a planning condition requiring monitoring and recording by a suitably qualified archaeologist under an appropriate licence;
- direct negative, long-term visual effects on the landscape from neighbouring residences, intermittent sections of the immediate road network and within the site, the impacts of which would be reduced where screening is available and maintained, as viewers become accustomed to the appearance of the turbines, and as the landscape is already altered, featuring windfarms and long-established commercial forestry and agricultural operations.

Having regard to the above, the Commission is satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment. The Commission is satisfied that the reasoned conclusion is up-to-date at the time of making the decision. The Commission completed an environmental impact assessment in relation to the proposed development and concluded that subject to the implementation of the mitigation measures proposed and subject to compliance with the conditions set out herein, the effects of the proposed development, by itself, and cumulatively with other development in the vicinity, would be acceptable. In doing so, the Commission adopted the report and conclusions of the Inspector.

Conclusions on Proper Planning and Sustainable Development

Having regard to the scale, form and extent of the proposed development and the details submitted with the application and appeal, the Commission is satisfied that the proposed development accords with European, national, regional and local planning policy provisions and that an approval for the proposed development would be consistent with the national climate ambitions and with the relevant provisions of the Climate Action Plan 2024 and the Climate Action Plan 2025. Furthermore, the Commission has performed its functions in relation to the making of this decision, in a manner consistent with Section 15(1) of the Climate Action and Low Carbon Act

2015, as amended, and subject to compliance with the following conditions, the proposed development would be in accordance with the relevant provisions of the Clare County Development Plan 2023-2029, would not seriously injure the visual amenities of the area or the amenities of property in the area, would be acceptable in terms of traffic safety and would constitute an appropriate form of development at this location. The proposed development, would therefore, be in accordance with the proper planning and sustainable development of the area.

14.0 Conditions

1. The development shall be carried out and completed in accordance with the plans and particulars lodged with the application and in the applicant's response received on the 9th day of May, 2025, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development, and the development shall be carried out and completed in accordance with the agreed particulars.

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

2. The mitigation and monitoring measures identified in the Natura Impact Statement shall be carried out in full.

   Reason: In the interest of protecting European sites.

3. The mitigation and monitoring measures identified in the Environmental Impact Assessment Report shall be carried out in full.

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

4. The period during which the development hereby permitted is constructed shall be ten years from the date of this Order.

   Reason: Having regard to the nature of the development, the Commission considers it appropriate to specify a period of validity of this permission in excess of five years.

5. a) The permission shall be for a period of 35 years from the date of the first commissioning of the windfarm. All structures shall then be removed and the site reinstated unless, prior to the end of that period, planning permission shall have been granted for their retention for a further period.

b) Prior to the commencement of development, a detailed Site Restoration Plan providing for the removal of the turbines and all ancillary structures, and a timescale for its implementation, shall be submitted to and agreed in writing with the planning authority.

c) On full or partial decommissioning or if the wind farm ceases operation for a period of more than one year, the windfarm, the turbines and all ancillary structures shall be dismantled and removed permanently from the site. The site shall be restored in accordance with the agreed Site Restoration Plan and all decommissioned structures shall be removed from the site within six months of decommissioning.

Reason: To enable the planning authority to review the operation of the windfarm over the stated time period, having regard to the circumstances then prevailing, and in the interest of landscape restoration upon cessation of the project.

6. The following design requirements shall be complied with:

a) The wind turbines including masts and blades, and the wind monitoring mast, shall be finished externally in a light grey colour.

b) Cables within the site shall be laid underground.

c) The wind turbines shall be geared to ensure that the blades rotate in the same direction.

d) No advertising material shall be placed on or otherwise be affixed to any structure on the site without a prior grant of planning permission.

Reason: In the interest of visual and residential amenity.

7. Noise levels generated by the wind farm following commissioning by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at noise-sensitive locations, shall not exceed:

a) For the daytime period 0700 to 2300 hours, in quiet environments, where background noise is less than 30dB(A)L90 T10, a maximum noise level of 40dB(A)L90 T10;

b) For daytime periods, 0700 to 2300 hours, where the background noise level exceeds 30dB(A)L90 T10, the greater of 45dB(A)L90 T10, or 5dB(A) above background levels;

c) For the nighttime period 2300 to 0700 hours, for all noise environments, 43dB(A)L90 T10.

The wind farm shall not give rise to amplitude modulation, tonal or impulsive noise at noise-sensitive locations.

Prior to the commissioning of the windfarm, the developer shall submit and agree in writing with the planning authority a Noise Compliance Monitoring Programme (NCMP) for the operational wind farm. The NCMP shall include a detailed methodology for all sound measurements, including frequency of monitoring and recording of results, which shall be made publicly available. The NCMP shall be fully implemented during the operation of the wind farm.

Reason: In order to protect the amenities of noise-sensitive properties in the vicinity of the development.

8. a) Cumulative shadow flicker arising from the proposed development, by itself or in combination with other existing or permitted wind energy developments in the vicinity, shall not exceed 30 hours per year or 30 minutes per day at existing or permitted dwellings or other sensitive receptors;

b) Appropriate software shall be employed on each of the turbines to ensure that there will be no shadow flicker at any existing neighbouring dwelling. Turbine shutdown shall be undertaken by the wind energy developer or operator in order to eliminate the potential for shadow flicker;

c) A report shall be prepared by a suitably qualified person, in accordance with the requirements of the planning authority, indicating compliance with the above shadow flicker requirements at dwellings. Within 12 months of the commissioning of the wind farm, this report shall be prepared and submitted to, and agreed in writing with, the planning authority. The developer shall

outline proposed measures to address any recorded non-compliances, controlling turbine rotation if necessary. A similar report may be requested by the planning authority at reasonable intervals thereafter.

Reason: In the interest of residential amenity.

9. Drainage arrangements, including the attenuation and disposal of surface water, shall comply with the requirements of the relevant section of the planning authority for such works and services.

Reason: In the interest of public health and surface water management.

10. Prior to the commencement of development, the developer shall submit to, and agree in writing with, the planning authority, details of an obstacle-warning light scheme, which can be visible to night-vision equipment.

Reason: In the interest of aviation safety.

11. Prior to the commissioning of the windfarm, the developer shall submit for the written agreement of the planning authority details of actions to be taken by the developer in the event of the proposed development causing interference with telecommunication signals. Such actions shall be completed to minimise interference with telecommunication signals and shall be carried out to the written satisfaction of the planning authority at the developer's expense.

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

12. Prior to the commencement of development, the developer shall submit to, and agree in writing with, the planning authority, details of an obstacle-warning light scheme, which can be visible to night-vision equipment.

Reason: In the interest of aviation safety.

13. Details of aeronautical requirements shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. Subsequently the developer shall inform the planning authority, the Irish Aviation Authority and the Department of Defence of the co-ordinates of the as constructed positions of the turbines and the highest point of the turbines (to the top of the blade spin).

Reason: In the interest of air traffic safety.

14. The developer shall engage a suitably-qualified, licence-eligible archaeologist (licensed under the National Monuments Acts) to carry out pre-development archaeological testing in areas of proposed ground disturbance and to submit an archaeological impact assessment report for the written agreement of the planning authority, following consultation with the National Monuments Service, in advance of any site preparation works or groundworks, including site investigation works, topsoil stripping, site clearance and construction works. The report shall include an archaeological impact statement and mitigation strategy. Where archaeological material is shown to be present, avoidance, preservation in-situ, preservation by record, archaeological excavation and / or monitoring may be required.

Any further archaeological mitigation requirements specified by the planning authority, following consultation with the National Monuments Service, shall be complied with by the developer.

No site preparation and/or construction works shall be carried out on site until the archaeologist's report has been submitted to and approval to proceed is agreed in writing with the planning authority.

The planning authority and the National Monuments Service shall be furnished with a final archaeological report describing the results of any subsequent archaeological investigative works and/or monitoring following the completion of all archaeological work on site and the completion of any necessary post-excavation work. All resulting and associated archaeological costs shall be borne by the developer.

Reason: To ensure the continued preservation either in situ or by record of places, caves, sites, features or other objects of archaeological interest.

15. In the event that the proposed development causes interference with telecommunications signals, effective measures shall be introduced to minimise interference with telecommunications signals in the area. Details of these measures, which shall be at the developer's expense, shall be submitted to, and agreed in writing with, the planning authority prior to

commissioning of the turbines and following consultation with the relevant authorities.

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

16. Site development and building works shall be carried out only between the hours of 07:00 to 19:00 Mondays to Fridays inclusive and 08:00 to 14:00 on Saturdays, and not at all on Sundays and public holidays. Deviation from these times will only be allowed in exceptional circumstances where prior written agreement has been received from the planning authority and in accordance with measures outlined in the Environmental Impact Assessment Report.

Reason: To safeguard the amenities of property in the vicinity.

17. The construction of the proposed development shall be managed in accordance with a final Construction and Environmental Management Plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. The final Construction and Environmental Management Plan shall be subject to ongoing review throughout the construction phase of the proposed development through regular environmental auditing and site inspections.

b) The Construction and Environmental Management Plan shall include but not be limited to operational controls for dust, noise and vibration, waste management, protection of soils and groundwaters and surface waters, protection of flora and fauna, site housekeeping, emergency response planning, site environmental policy, waste management, project roles and responsibilities;

c) Works near watercourses shall be carried out in consultation with and in accordance with Inland Fisheries Ireland ‘Guidelines on the Protection of fisheries during Construction work in and adjacent to Waters’ (2016);

d) The Construction and Environmental Management Plan shall include a draft decommissioning plan for the turbines, to include reuse and / or recycling of turbine components. A revised decommissioning plan shall be

submitted to, and agreed in writing with, the planning authority prior to commencing decommissioning of the development.

Reason: In the interest of environmental protection and neighbouring amenities.

18. The delivery of large-scale turbine components for the construction of the wind farm shall be managed in accordance with a Construction Traffic Management Plan, which shall be submitted to, and agreed in writing with the planning authority prior to commencement of development. This plan shall provide details of the road network to be used by construction traffic, including over-sized loads, detailed proposals for access point sightlines (including those to be retained after the construction phase), and detailed arrangements for the protection of bridges, culverts or other structures to be traversed, as may be required. The plan should also contain details of how the developer intends to engage with and notify the local community in advance of the delivery of abnormal, oversized loads.

Reason: In the interest of public safety and residential amenity.

19. The Community Benefit scheme shall be adhered to for the life of the wind farm. The scheme shall be administered in accordance with the Renewable Electricity Support Scheme 'Community Benefit Fund Good Practice Principles' (2021) prepared by the Department of the Environment, Climate and Communications.

Reason: To ensure that the community living in proximity to the wind farm, benefits from it.

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

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

21. Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the satisfactory reinstatement of the site upon cessation of the project coupled with an agreement empowering the planning authority to apply such security or part thereof to such reinstatement. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be referred to An Coimisiún Pleanála for determination.

Reason: To ensure satisfactory reinstatement of the site.

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

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

Colm McLoughlin
Senior Planning Inspector

14th July 2025

Appendices

Appendix A – Appropriate Assessment Screening Determination

The requirements of Article 6(3) of the Habitats Directive, related to screening the need for AA of a project under section 177U of the Act of 2000, are considered in the following section.

1. Description of the site, project and context

Site

The site primarily features commercial forestry, cutover bog, agricultural pastures and a river, located in a low-lying rural area, with the habitats identified on site outlined in section 9.8 of the report above and the drainage regime described in detail in section 9.10. The Moyasta river, including various drainage channels discharging into this river, traverses the turbine site, flowing in a westerly direction towards Poulnasherry bay in the estuarine area of the Shannon. Gowerhass stream traversing the turbine-delivery route is a tributary of the Moyasta, and the Tullagower river and Brisla East stream also traversing this route are tributaries of Doonbeg river.

No Annex I habitats were recorded within the appeal site and only limited use of the appeal site by flora and fauna was identified within the appellant's ecological surveying, primarily as a result of the conifer plantation. Various bird species have been recorded during surveys at the site, including hen harrier, merlin, peregrine falcon, golden plover, kestrel, snipe, grey wagtail, meadow pipit and cormorant. Bats have been recorded foraging along hedgerow and tree lines within the site, and evidence of pine marten, deer, fox, badgers and common frog using the site has been recorded. Aquatic habitat along the riparian corridor is noted, including records of otter using the river. Freshwater pearl mussel is known to use sections of the Doonbeg river catchment downstream of the turbine-delivery route. Invasive species were not identified in the works areas.

Project

A detailed description of the proposed development is provided in section 2 of the main report above and expanded upon below where necessary. Details of the construction phase of the development are provided throughout the application

documentation, including the CEMP, with cognisance of the site context and connections to sensitive waterbodies. In-stream works would be avoided as part of the construction phase and crossings of drains would be minimised during forestry clear-felling operations, with temporary structures comprising logs lined lengthways, overlaid with a geotextile membrane and brash, to be used at drain crossings. Following various standard practice site environmental management measures for a project of this nature and scale, including the installation of various control measures, such as check dams, stilling ponds, temporary bunds, silt bags and fences, as well as various monitoring measures, the proposed drainage would be maintained to mimic the existing drainage regime as closely as possible. Nature-based solutions to surface water management would be employed to mitigate downstream flood risk, with supervision by an ecological clerk of works. Foul wastewater from the various phases of the proposed development would be contained in sealed units that would be serviced, as necessary, by licenced operators for removal to a wastewater treatment plant.

Context

The closest European sites, including SACs and SPAs, and the direction and distance to same from the proposed turbine site, are identified in table A.1 below.

Table A.1 Neighbouring European Sites

Site Code	Site Name	Distance	Direction
002165	Lower River Shannon SAC	4.2km	west
004077	River Shannon and River Fergus Estuaries SPA	4.3km	west
002343	Tullaher Lough and Bog SAC	6.1km	northwest
002250	Carrowmore Dunes SAC	8.7km	north
004182	Mid-Clare Coast SPA	8.7km	north
001021	Carrowmore Point to Spanish Point and Islands SAC	11.4km	north
002264	Kilkee Reefs SAC	11.6km	west
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	17.1km	south
004114	Illaunonearaun SPA	17.8km	west

Relevant Submissions

The appellant has submitted a document titled ‘Screening Report for Appropriate Assessment and Natura Impact Statement’, dating from February 2024 and prepared

by BioSphere Environmental Services. This document provides a description of the site, the receiving environment and the proposed development, as well as identifying European sites potentially within the zone of influence of the development. The AA screening concluded that the possibility of the proposed development having a significant effect on two European sites (Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA) cannot be excluded. With the implementation of avoidance and mitigation measures, the NIS concluded that the proposed development would not have an adverse effect on the integrity of the above European sites, individually or in combination with other plans and projects.

The submissions and observations from third parties, the Planning Authority and prescribed bodies are summarised in sections 4, 6 and 7 of this report. As noted above, the Planning Authority raised concerns with respect to the absence of project details and the need for post-consent measures in relation to forestry felling and turbine foundations, which they consider to place uncertainty regarding the potential impacts of the project on European sites, including via mobilisation of phosphates from disturbed peat soils to the Lower River Shannon SAC. Arising from this the Planning Authority assert that it cannot be concluded beyond reasonable scientific doubt that adverse effects would not arise. The Minister for Housing, Local Government & Heritage (NPWS) asserts that the competent authority should consider whether they require more up-to-date field surveying for their AA determination. This matter has been addressed above in the EIA and planning assessment of my report, with more recent bird surveys submitted by the appellant.

In appealing the Planning Authority's decision, the appellant asserted that potential for deterioration in waters had been addressed as part of the application details, with significant impacts not likely to arise for the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA. The appellant points towards the fact that both IFI and the Department of Housing, Local Government and Heritage did not raise concerns regarding the potential impacts of the development on water quality.

2. Potential impact mechanisms from the Project

Impact Mechanisms

I am satisfied that the potential impact mechanisms from the project alone or in-combination that are likely to affect identified European Sites comprise:

All Phases -

- runoff of sediment and pollutants to surface waters and / or groundwater;
- noise and disturbance;

Construction Phase -

- alterations to groundwater;
- dust deposition;

Operational Phase -

- collision-risk;
- barrier-effect;
- displacement;
- loss of habitat.

The appellant's Screening for AA does not explore the issue of in-combination effects. This detail in provided in the NIS with reference to 17 operational, permitted or proposed windfarms within 20km of the appeal site.

Zone of Influence

The European sites in the vicinity of the proposed development are identified in figure 3 of the appellant's 'Screening Report for Appropriate Assessment and Natura Impact Statement', while the qualifying interests of the seven European sites closest to the appeal site are listed in table 2 of their report.

In determining the potential zone of influence for the proposed development I have had regard to the nature and scale of the project, the distance from the development site to European sites, the information provided with respect to ecological species habituating and using the site, and any potential pathways that may exist from the development site to a European site. The appeal site is not located within or adjacent to any European site. There is a river running though the turbine site, which ultimately discharges into Poulnasherry bay forming part of the Shannon estuary complex located approximately 4.2km to the west of the site. There is a hydrological connection from the development site via this watercourse to European sites located within Poulnasherry bay. There is not a hydrological connection from

the site to Tullaher Lough and Bog SAC (Site Code: 002343), which is a substantive distance from the appeal site and is designated in respect to the conserving of bog and peatland habitats.

As noted above in section 9.8, the verge strengthening works along the turbine-delivery route would entail minor excavation and surface reinstatement works along the carriageway, however, within 10m of the three watercourse crossings, steel plates / beams, sitting on sandbags, would be placed on the edges of the carriageway. Section 2.3 of the appellant's NIS further clarifies that these verge strengthening works at watercourse crossings on the turbine-delivery route would not require any excavation works, with an ecological clerk of works supervising this element of the turbine delivery process. Accordingly, the project would not entail excavation works, or other intrusive works at the watercourses crossings along the turbine-delivery route. Other than allow traffic to pass over the watercourses, as currently occurs, this part of the project would not reasonably have hydrological connectivity with European sites downstream of the turbine-delivery route.

Species known to use the site may also form qualifying interests for neighbouring European sites, therefore, this may infer connectivity between the site and European sites.

Conclusion on the Extent of the Zone of Influence

Having regard to the foregoing, my screening assessment will focus on the impact of the proposal on the conservation objectives of the European sites within Poulnasherry bay and European sites whose qualifying interests include species that may habituate or use the appeal site. Other than those sites summarised in table A.2 below, I am satisfied that no other European Sites would be potentially at risk from the proposed development.

3. European Sites at Risk

Table A.2 European Sites at Potential Risk

Site Name / Code	Qualifying Interests (QI)	Connections
Lower River Shannon SAC 002165	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140]	Hydrological connections exist through surface water leaving the turbine site entering the Moyasta River and ultimately discharging to

	Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Freshwater Pearl Mussel [1029] Sea Lamprey [1095] Brook Lamprey [1096] River Lamprey [1099] Salmon [1106] Common Bottlenose Dolphin [1349] Otter [1355]	Poulnasherry bay, an estuarial area of the Shannon. Otter recorded as using a stretch of the Moyasta river may be associated with this SAC.
River Shannon and River Fergus Estuaries SPA 004077	Cormorant [A017] Whooper Swan [A038] Light-bellied Brent Goose [A046] Shelduck [A048] Wigeon [A050] Teal [A052] Pintail [A054] Shoveler [A056] Scaup [A062] Ringed Plover [A137] Golden Plover [A140] Grey Plover [A141] Lapwing [A142]	Hydrological connections exist through surface water leaving the turbine site entering the Moyasta River and ultimately discharging to Poulnasherry bay, an estuarial area of the Shannon. Small groups of cormorant were regularly recorded at Poulnasherry bay and coastal areas south of Kilrush. Two cormorants were recorded flying over the turbine site in October 2020. Extensive use of the site by cormorant was not in evidence and negligible collision-risk was identified.

	Knot [A143] Dunlin [A149] Black-tailed Godwit [A156] Bar-tailed Godwit [A157] Curlew [A160] Redshank [A162] Greenshank [A164] Black-headed Gull [A179]	Between five and 15 golden plover were recorded flying over the survey area in January 2021 and December 2022. The NatureScot guidance 'Assessing Connectivity with Special Protection Areas (SPAs)', refer to a core range of 3km for golden plover, with maximum range of 11km. Extensive use of the site by golden plover was not in evidence and negligible collision-risk was identified. Black-headed gulls were recorded at the survey site in October 2020 and August 2022. Extensive use of the site by black-headed gull was not in evidence. With the exception of scaup, single sightings and groups of the respective other QI bird species, were recorded in the hinterland of the site between 2020 and 2024, however, extensive use of the site or its immediate area by these bird species was not in evidence.
Mid-Clare Coast SPA 004182	Cormorant [A017] Barnacle Goose [A045] Ringed Plover [A137] Sanderling [A144] Purple Sandpiper [A148] Dunlin [A149] Turnstone [A169] Wetland and Waterbirds [A999]	Of the QI species, only cormorant was recorded during surveys at the site. Two cormorants were recorded flying over the turbine site in October 2020. Extensive use of the site by cormorant was not identified and negligible collision-risk would arise.
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA 004161	Hen harrier [A082]	The NatureScot guidance 'Assessing Connectivity with Special Protection Areas (SPAs)', refer to a foraging range of 2km during the breeding season for Hen harrier, with a maximum range of 10km, and a 1km distance between alternative nest sites. The site is outside the core and maximum foraging ranges, as well as alternative nest sites, for hen harrier associated with this European site.

Illaunonearaun SPA 004114	Barnacle Goose [A045]	Barnacle goose not recorded during project surveys.

4. Likely significant effects on European sites

Having excluded direct effects on European sites, section 3.2 of the appellant's NIS details the likely indirect effects of the proposed development on European sites. Taking account of the characteristics of the proposed development in terms of its location and the scale of works, habitat loss and alteration or habitat / species fragmentation would not be likely to arise. Based on the above, including connections and the nature of the project, the following issues are considered for examination in terms of their implications for likely significant effects on the conservation objectives of European sites within the potential zone of influence of the project:

- Effect 1 – changes in water quality and resource;
- Effect 2 – disturbance and / or displacement of species;
- Effect 3 – collision risk / changes in species population.

The Conservation Objectives for the five sites in the zone of influence are detailed in table A.3 below, with discussion regarding the effects of the proposed development on these conservation objectives following the table.

Table A.3 Could the Proposed Development alone undermine Conservation Objectives

Site	**Conservation Objectives**	**Conservation Objectives Undermined?**			
		Effect	**1**	**2**	**3**
Lower River Shannon SAC	Maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex I species for which the SAC has been selected Restoration of otter https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf Accessed 14/03/2025		Yes	Yes	No

River Shannon and River Fergus Estuaries SPA	To maintain the favourable conservation condition of the Annex I bird species for which the SPA has been selected https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004077.pdf Accessed 14/03/2025		Yes	No	No
Mid-Clare Coast SPA	To maintain the favourable conservation condition of the Annex I bird species for which the SPA has been selected https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004182.pdf Accessed 14/03/2025		No	No	No
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	To restore the favourable conservation condition of hen harrier https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004161.pdf Accessed 14/03/2025		No	No	No
Illaunonearaun SPA	To restore the favourable conservation condition of Barnacle Goose https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004114.pdf Accessed 14/03/2025		No	No	No

Changes in Water Quality and Resource

The most challenging elements of the proposed development from a water quality perspective would be at construction stage, primarily due to the need to undertake clear-felling works, to provide watercourse crossings, to undertake works within an identified flood plain and to undertake excavation works associated with turbine foundations and a borrow pit.

Should potential pollutants flow downstream and lead to a deterioration in water quality, this could indirectly affect the food supply and foraging habitat of bird species associated with the River Shannon and River Fergus Estuaries SPA and aquatic ecology associated with the Lower River Shannon SAC. This would appear a

reasonably logical assessment of the potential effects of the proposed development adjacent to the river channel, as the site activities could have impacts on water quality that may influence the achievement of the site conservation objectives specifically relating to bird species, aquatic species and otter. The development could reasonably effect the maintenance or restoration of the favourable conservation condition of marine / coastal habitats in Lower River Shannon SAC given that the development could lead to pollutants and sediment entering these habitats, which could have implications for bird species reliant on this habitat. The discharge from the Moyasta river into Poulnasherry bay is at a substantive distance from habitats mapped by the NPWS for this SAC, comprising sandbanks which are slightly covered by sea water all the time, estuaries, coastal lagoons, reefs, perennial vegetation of stony banks and vegetated sea cliffs of the Atlantic and Baltic coasts. Accordingly, it is the intertidal habitats (tidal, mudflats and sandflats, as well as large, shallow inlets and bays) of Poulnasherry bay and the bird species using these habitats that could only reasonably be impacted by changes in water quality and resource arising from the project.

Disturbance and / or Displacement of Species

Based on the distances to the nearest European sites and / or the findings of ecological surveying undertaken for the project, disturbance or displacement of bird species associated with European sites would not be likely to arise.

Map 17 of the Conservation Objectives for the Lower River Shannon SAC identifies the commuting routes for otter associated with this European site. The mapped commuter routes include areas of the Poulnasherry bay. Otters are known to have expansive ranges and there is potential for the project to result in disturbance or displacement of otter associated with the Lower River Shannon SAC.

There would be no scope for decline in the extent and distribution of spawning beds for Brook Lamprey, Sea Lamprey and River Lamprey, or alteration of habitat quality for Salmon and Bottlenose Dolphin associated with the Lower River Shannon SAC.

Collision Risk / Changes in Species Population

There is no potential for substantive changes in population of species associated with any SPA European sites, including via collision risk, given the negligible potential for collision to arise based on surveying and the collision-risk model.

The area intended to form part of the restored habitat for freshwater pearl mussel (conservation objectives map 15) in the Lower River Shannon SAC is at substantive distance from the appeal site and the project would not reasonably result in impacts to the water quality, hydrological regime and substratum conditions necessary to support this conservation objective.

5. Screening Conclusion

I conclude that the proposed development could potentially have a likely significant effect on the qualifying interests associated with European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA) from activities and works that could impact on water quality in the Moyasta river catchment discharging to the Poulnasherry bay estuarial area of the Shannon. Furthermore, the proposed development could potentially have a likely significant effect for otter associated with European Site No. 002165 (Lower River Shannon SAC) from activities and works along the Moyasta river on the turbine site. An appropriate assessment is required on the basis of these likely significant effects of the project on these two European sites.

6. Stage 2 - Appropriate Assessment

The following is a summary of the objective assessment of the implications of the project on the qualifying interests of European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA), using the best scientific knowledge in the field. All aspects of the project that could result in significant effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are both considered and assessed.

Test of Effects & Mitigation Measures

Water Resource

As the site of the proposed development is at a remove from Poulnasherry bay, no direct effects would occur for the associated European sites. In terms of indirect effects the key element is the potential impact on water quality and resource during construction and operation phases.

Detailed consideration of water resource is undertaken throughout the EIA above, including with respect to clear-felling works, provision of watercourse crossings,

works within an identified flood plain and excavation works associated with turbine foundations and a borrow pit. Management measures, including specific measures for this project to prevent excess sedimentation and pollution downstream affecting water quality and control of waters discharging from the site, are outlined in the EIAR, NIS and the CEMP, which would ensure that there are no likely effects on the Moyasta River and other receiving waters during all phases of the project, thereby avoiding negative effects on water resources.

I am satisfied that with the implementation of the specific measures outlined in the EIAR and NIS for the management of surface water, such as silt fences and containment of wastewater, fuels and other hydrocarbons, as well as the avoidance of in-stream works, monitoring and compliance in line with the Guidelines on the Protection of Fisheries during Construction Works in and Adjacent to Waters (IFI, 2016), the proposed works and operations would not have likely significant effects on surface water quality downstream. Furthermore, I am satisfied that with the implementation of the specific measures outlined in the EIAR, for the management and monitoring of groundwater during excavation processes, such as measures to initially drain excavation areas and address water ponding, the proposed construction works and operations would not have likely significant effects on groundwaters.

During the operational phase, the proposed development would feature a host of surface water drainage measures and nature-based solutions to intercept, store and treat waters leaving the site and entering the Moyasta River. Surface water management measures employed for the project would be supervised by an ecological clerk of works and an emergency response would be enacted, if necessary.

Otter

Breeding sites or holts for otter were not observed during surveys, although a sighting of otter swimming within the Moyasta river confirmed that this watercourse forms suitable habitat for this species. Other than the Moyasta river, the feeding potential for otter using other connected watercourses is not anticipated to be high, given their condition and ecological status.

In the absence of mitigation measures to address the potential for the site to serve otter, the project could have significant impacts for this species. Although no holts were identified during surveys, given the lapse in time since surveys for otter were undertaken (November 2023), the appellant sets out that a pre-construction survey would be carried out for otter holts at the proposed Moyasta river crossing and at least 150m either side of this. Otters are a transient species, moving their nest sites, and I am satisfied that a pre-construction survey would be necessary. The appellant states that in the unlikely event of an active holt being located, measures may be taken with necessary consents to evacuate the animals from the holt to ensure that there is no disturbance to breeding animals. Consequent to the measures to safeguard against disturbance and / or displacement to otter, I am satisfied that the impact on terrestrial mammal species as a result of the project would not be significant.

Conclusion

The evidence available provides certainty that the project, including mitigation and planning conditions, would not result in pollution of water or significant adverse impacts for qualifying interests, and it can be concluded that the proposed development would not be likely to have significant adverse impacts on European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA), in view of the sites' conservation objectives.

I am therefore satisfied that the development would not cause changes to the key indicators of conservation value, hence there is no potential for any adverse impacts to occur on either the habitat or the species associated with European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA).

7. In-combination Effects

The development of this area is catered for through land-use planning by Clare County Council, including through the Clare County Development Plan 2023-2029. This statutory plan has been subject to AA by the Planning Authority, who have concluded that its implementation would not result in significant adverse effects on the integrity of any European sites.

An observer states that the in combination impacts of the project with the proposed Moanmore Lower windfarm (CCC ref. P25/60257) have not been considered in the appellant's 'Screening Report for Appropriate Assessment and Natura Impact Statement'. The subject proposed turbines alongside the recently refused Moanmore Lower turbines (CCC ref. P25/60257) and the existing turbines in the area could not be reasonably considered to create substantive obstacles interfering with bird migratory routes given the substantive separation distances between the proposed turbines and the neighbouring existing turbines (1.8km to the northwest) and the proposed turbines (3.7km to the west). Furthermore, extensive use of the appeal site has not been shown to arise for migratory birds.

Th refused Moanmore Lower windfarm was proposed to feature a blade transfer area off the L6132 at Tullabrack East townland overlapping the appeal site. The subject appeal proposals would feature an expansive range of measures to address risks to water quality and qualifying interest species. While the subject project and other projects would potentially impact on water quality, the likelihood of significant negative effects to water quality within Poulnasherry bay have not been shown to arise from the subject project. I am satisfied that the proposed development, in combination with other plans and projects, will not adversely affect the integrity of European sites.

8. Appropriate Assessment – Conclusion

The proposed development has been considered in light of the assessment requirements of sections 177U and 177V of the Act of 2000.

Having carried out screening for Appropriate Assessment of the proposed development, it was concluded that it would be likely to have a significant effect on European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA). Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of those sites in light of their conservation objectives. Following an Appropriate Assessment, it has been determined that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European Site No. 002165 (Lower River Shannon SAC) and European Site No. 004077 (River Shannon and River Fergus Estuaries SPA), or any

other European site, in view of the sites Conservation Objectives. This conclusion is based on a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.

My conclusion is based on the following:

- detailed assessment of construction, operational and decommissioning impacts;
- the proposed development will not affect the attainment of conservation objectives to restore the favourable conservation condition of otter and maintain the favourable conservation condition of large shallow inlets and bays, as well as mudflats and sandflats not covered by seawater at low tide, in the Lower River Shannon SAC. Furthermore, the proposed development will not affect the attainment of conservation objectives to maintain the favourable conservation condition for qualifying interest bird species associated with River Shannon and River Fergus Estuaries SPA;
- the effectiveness of mitigation measures proposed and the adoption of CEMP;
- the application of planning conditions to require the implementation of mitigation measures detailed in the project NIS.