An Bord Pleanála

Inspector's Report

ABP-319448-24

Development	8 no. turbine wind farm development and associated works
Location	Land within the townlands of Clonmellon, Kilrush Upper, Kilrush Lower, Newtown, Ballinlig, Carnybrogan, Cavestown and Rosmead, County Westmeath and Galboystown, Co. Meath. (www.knockanarraghwindfarmsid.ie)
Planning Authority	Meath County Council and Westmeath County Council
Planning Authority Reg. Ref.	N/A
Applicant(s)	Knockanarragh Wind Farm Ltd.
Type of Application	S37E, Planning & Development Act 2000 (as amended).
Prescribed Bodies	Irish Water, TII, Failte Ireland, Ministry of Defence and Irish Aviation Authority
Observer(s)	P. & A. Dalton. E. Carr. N. Tobin. S. & M. Kenny. S. Murray. T. Ni Fhionnain.

E. Mulligan.
D. Monaghan.
J.J. & M. Monaghan.
D. Carr.
B. & R. Mulligan.
A. & N. McGuiness.
L. & M. Kenny.
D. Garry.
P. & M. Fox.
E. Goff.
Eco Advocacy (K. Cummins).

Date of Site Inspection	7th, 8th and 9th October 2024.
Inspector	Deirdre MacGabhann

Contents

1.0 Site Location and Description

1.1. The 115.81ha development site lies within County Westmeath and County Meath, with the proposed wind farm site situated in County Westmeath and the substation in County Meath. The proposed cable route, connecting the wind farm to the sub-station crosses the border between the counties.

Wind Farm Site

1.2. The proposed wind farm site lies west of the N52, between Kells in County Meath and Mullingar in County Westmeath. It is situated c. 2.5km to the northeast of Delvin and c.1km southwest of Clonmellon. The wind farm site is divided into two areas, with one lying to the north of the L5542, a county road off the N52, and one area lying to the south of the local road. These two areas provide the 'northern cluster' and 'southern cluster' of proposed turbines.

1.3. The northern section of the site extends northeast from the L5542, with the western boundary largely following d'Arcy's Crossroads Stream and Killacroy Stream (Figure 5-2-b, EIAR) and the County border. D'Arcy's Crossroads Stream discharges to the Stonyford River c.100m to the southwest of the northern site boundary (as it adjoins d'Arcy's Crossroads Stream). To the east the site largely follows field boundaries. The topography of the site is undulating, with a gentle fall towards d'Arcy's Crossroads Stream/Killacroy stream. Land uses comprise a mix of agricultural pasture and forestry. Forestry is a mix of mostly conifer and broadleaved plantation and to a lesser extent possible ancient or long-established woodland. Within the development site are a number of field drains and arterial drainage channels.

1.4. To the west of d'Arcy's Crossroads Stream, Killacroy stream and Stonyford River and extending to the north and east of the development site, is Lough Shesk proposed Natural Heritage Area (pNHA, site code 000556). The national heritage site is also included within the boundary of the River Boyne and River Blackwater Special Area of Conservation (SAC, site code 002299). Three loughs lie within the pNHA/SAC, Lough Shesk and Freekan Lough to the west of the development site, and Newtown Lough, to the east of the development site. The application site includes a small portion of the pNHA/SAC to the north of d'Arcy's Crossroads Stream (no works are proposed in this area, but the wind turbine will oversail it). To the east of the northern development site, within the red line boundary, is a

Recorded Monument (WM009-004). It is described as '*Situated on a low rise of ground overlooking Newtown Lough 230m to E. Possibly the site of Newtown Castle..'.* Access to the northern part of the development site is currently via existing agricultural entrances from the local road, the L5542. There is an active quarry to the southeast of the northern cluster.

1.5. The southern section of the wind farm site also extends from the L5542 in a southerly direction. It includes forestry and pastoral land. The site lies within the landscape gardens associated with Rosmead House (DHLGH, Survey of Historic Gardens and Designed Landscapes, ID4136), with the ruins of the House (Protected Structure 009-048) situated c. 200m to the southwest of the southern development area. The associated entrance gateway to the House ('triumphant arched gateway), also a Protected Structure (009-034) is situated c.600m to the southwest of Rosmead House. Within the southern development area (c.930m NE of Rosmead House) is a Recorded Monument (WM009-018), a 'Ringfort', depicted as a circular enclosure on the 1837 OS map and a designed landscape feature in later editions. There is an existing met mast of 102.5m within the southern section of the wind farm site near proposed T6 (see below). Access to the southern landholding is via existing agricultural entrances, including from the L5542 and N52.

1.6. The area surrounding the northern and southern development areas mainly comprises dispersed rural dwellings together with agricultural holdings and buildings, and some commercial forestry.

Sub-Station Site and Grid Connection

1.7. The proposed substation site is situated west of the village Clonmellon on a county road, the L6821. The site comprises flat agricultural pastoral land that is bound by mature hedgerows. Traversing the northern part of the site is an existing 110kV OHL. The substation site is separated from the village of Clonmellon by further pastoral fields. A residential development and farm lie on the southern side of the L6821 opposite the site. To the west of the development site, within the same agricultural field is a Recorded Monument, a raised 'Ringfort' (ME023-010). Access to the substation site is via existing agricultural entrances on the L6821.

2.0 **Proposed Development**

2.1. The proposed development comes forward following pre-application consultations with the Board under ABP-314271, which determined that an application of the proposed scale would comprise strategic infrastructure under section 37A of the Planning and Development act 2000, as amended. The development comprises a wind farm development with an operational life of 35 years (from date of commissioning), with the following elements.

- The construction of *8 no. wind turbines*, based on two candidate models, comprising a Siemens Gamesa V155 and Vestas 162 (Appendix 2-1). Overall ground to blade tip height is between 175m and 180m, rotor diameter from 155m to 162m and hub height from 97.5m to 99m. Each turbine will have individual output of between 6.6MW to 7.2MW. Total capacity is 52.8MW to 57.6MW depending on final turbine installed, with the potential to produce annually approximately 152,634 to 166,510 MWh. This would be equivalent to suppling c.33,037 to 39,645 households with electricity per year.
- The turbines are organised in *two clusters*, with turbine nos. 1 to 3 to the north of the L5542 and turbine nos. 4 to 8 to the south of it. T1, T2, T6 and T8 are situated within agricultural land. T3 is situated within mixed woodland/scrub and, T4, T5 and T7 are located within commercial forestry plantation. Elevation of turbines is (mAOD):

T1 – 88.53.	T4 – 93.27.	T7 – 90.05.
T2 – 89.09.	T5 – 91.79.	T8 – 85.71.
T3 – 85.38.	T6 – 91.43.	

- The construction of *temporary hardstands, main crane hardstands* and *permanent turbine foundations* with sizes to vary with turbine model used Drawing no. ABP-314271-22.PL07, Turbine Foundations and Crane Hardstanding Layout). The Board should note that in section 2.41 of the EIAR it is stated that turbine foundations will be 2.5m in depth. However, in the above drawing, turbine foundation depth is shown as 4m. Crane hardstands will be founded on solid ground and have a 0.5m thick engineered granular fill to provide a flat even surface for the crane.

Turbine Type	**Foundation Size (diameter, 4m)**	**Hardstand Dimensions**

Type 1 Siemens Gamesa 155	21.5m	50mx20m
Type 2 Vestas 162	28.4m	82mx30m

- Construction of *6km of new permanent internal site access roads* to include passing bays and all associated drainage infrastructure. It is stated that the width of the completed access road will be c.5m (Drawing -PL28 Road Construction Details). As indicated in the NIS (page 42), at formation level, the access track will extend beyond 5m to allow for cable trenches and surface water drainage ditches. The Board should note that the Road Construction drawings show a maximum width of c.7m and not the 11m referred to in the NIS. Stone materials required for the access tracks will be sourced from two on site borrow pits (see below).
- Two existing *watercourse crossings* between T1 and T3 will be upgraded (culverts). These comprise crossings over an arterial drainage channel and a field drain, with Section 50 consent from the OPW for the upgrading of the crossing over the arterial drainage channel. Two new culverts (900mm pipes) are proposed over field drains approaching T2 from T3 (Figure 7-1, Chapter 7 and Proposed Site Layout Sheet 1 of 5).
- The construction of a permanent *110 kV electrical substation*, to the west of Clonmellon, Co Meath, to connect the proposed wind farm to the national transmission system. The substation will include 2 no. control buildings (IPP and EirGrid buildings, to a maximum height of 8.55m) with welfare facilities, associated electrical plant and equipment, 2.6m high security fencing and gates, underground cabling, wastewater holding tank (with wastewater to be tankered off site), and landscaping.
- Construction of a section of *110kV electricity cabling* between the proposed 110kV Substation and the existing 110kV overhead line at Clonmellon. This includes *two interface masts* (see Substation Layout Drawing no. ABP-314271-22MWP-001).
- Construction of c.*3.86km of 33kV underground electricity cabling*, to connect the main wind farm site (southern and northern clusters) via the L5542, N52 and L6821 to the proposed substation. The underground cabling will include joint bays at tight angles and at every 1000m, with 4 no. located in the public

road. The final locations of cable routes within public roads and on the verge along the public road will be selected following investigatory works to determine the location of existing services (section 2.107, EIAR). Cable trenching will be carried out with the aid of a single lane closure on the N52 and temporary closure of the L5542, over a five-month period (section 14.64 EIAR). A Traffic Management Plan (Appendix 14-3) will be subject of agreement with TII, ABP[1] and the relevant local authorities, as appropriate, prior to commencement. The proposed cable route will cross two sections of Athboy River as it passes through Clonmellon (Grid Connection, Layout Sheet 01 of 08 and 02 of 08). It is proposed to cross the watercourses by piped culvert (Kilskeer stream) and box culvert (Clonmellon stream).

- Construction of an *internal collector cable circuit* within the Main Wind Farm Development Site, including direction drilling of 125m cabling between Turbine 5 and Turbine 8 (section 2.124, EIAR).
- *Undergrounding* of approximately 610 metres of *existing 10 kV overhead electrical power line* in the vicinity of Turbine 6.
- Provision of *two construction compounds* with associated temporary site offices, parking areas, welfare facilities and security fencing, situated to the south of T2 and to the east of T4 (a further construction compound is proposed adjoining the substation site). The construction compound in the Southern Cluster will be used as a maintenance hub to facilitate the operational phase of development. It is shown in Proposed Site Layout Sheet 2 of 5, and it is referenced as an operational compound. It is not clear if the southern construction compound will be limited to the size of the operational compound shown in drawing Temporary Compound Plan & Elevations (PL08-1) or during construction will extend to the size of the construction compound shown in drawing Permanent Compound Plan & Elevations (PL08-2).
- Development of *two borrow pits* (Drawing no. PL21 – 1.4 and PL22 – 2.4) for the purpose of stone extraction, via rock breaking, crushing and blasting. The availability of appropriate aggregate material at the proposed borrow pit locations will be confirmed with site investigations in advance of construction.

[1] NB ABP has no role post consent role in the implementation of the proposed development, should permission be granted.

Turbine hardstands will use material extracted from the borrow pits, supplemented by local quarries if needed.

- Development of an *internal site drainage network* and *sediment control system* (Proposed Drainage Layout, PL10.4, PL11.4 to PL16.4).
- The following *road improvement works* (Site Access Locations Key Plan, PL22):
    - *Entrance to the northern cluster/site access no. 1*: Improvements to an existing site entrance off the L5542 and provision of a new abnormal road delivery roadway behind the existing hedge line. (Drawing Node 13 – L5542 Site Access North, PL27-1).
    - *Entrance to the southern cluster/site access no. 2*. A new site entrance from the L5542 and overrun area to facilitate the delivery of abnormal loads and turbine component deliveries to northern part of the southern site (T4-T7) (Drawing Node 11, PL25-1).
    - *Road improvements to L5542* to facilitate the delivery of abnormal loads and turbine component deliveries (Node 10 and Node 12, PL 24 and PL 26).
    - *Entrance to T8/ site access no. 3*. A new site entrance to T8 from the N52 via an existing agricultural access to be used during the construction phase of the development and to facilitate maintenance works during operation (Node 7, PL23-1).
    - *Entrance to substation, site access no. 4*. A new site entrance from the L6821 to the Proposed 110 kV Substation at Clonmellon (MWP-001).
- *Ancillary forestry felling* of between 19.62ha and 20.09ha to facilitate construction of the development. Tree felling will be subject to a felling licences application to the Forest Service within the Department of Agriculture prior to construction, with replanting required at a location within the State, subject to licence. It is stated in section 2.88 of the EIAR, that tree felling near infrastructure will be limited to a 5m felling buffer along all infrastructure/access tracks, a 10m buffer surrounding hardstandings and compounds, a 6m corridor for buried cables on private land and a 50m separation distance between turbine blade tip and bat habitat feature as per requirements of NatureScot.

- All associated *site development works* including berms, landscaping, and soil excavation and the ongoing maintenance and management of the biodiversity measures in accordance with the Habitats and Species Management Plan. Measures for biodiversity enhancement include wader scrapes for snipe, stockproof fencing, replacement of hedgerows and management of retained and created habitats including wetland and fen habitat within the site boundary.

Construction

2.2. Turbine components will be delivered on site where they will be placed on hardstanding and laydown areas prior to assembly. Each turbine will take 3-4 days to erect, weather dependent, and will require two cranes in the assembly process.

2.3. The turbine haul route extends from Dublin Port, via Dublin Port tunnel, the M50 motorway, M4, N4, N52, L5542 and the development site. A Turbine Delivery Route (TDR) assessment was carried out and swept paths for all the note points along the route has been completed (Figure 2-5 and Appendix 14-1). It is stated that additional clearance may be required above ground level to allow for turbine oversail/swept path during turbine delivery (page 42, NIS).

2.4. Construction will take place over 18 to 24 months and will be follow a broad sequence of:- site establishment (construction compounds), construction of access tracks and crane pads/turbine foundations, substation civil and electrical works, cable delivery and installation, turbine delivery and erection, wind farm commissioning and reinstatement/restoration (Table 2-6 EIAR). The main construction works which are expected to generate the most vehicle trips will be undertaken during months 5 to 11.

Operation

2.5. During operation the turbines will operate automatically on a day-to-day basis, with the turbines responding to changes in wind speed and direction by means of anemometry-equipment and control systems. Twice a year, each turbine will undergo a scheduled service. The operation of the turbines will be monitored remotely, and a caretaker will oversee the day-to-day running of the proposed wind farm.

Decommissioning

2.6. At the end of the 35-year life, subject to planning permission, turbines may be replaced, or the site decommissioned. During decommissioning, the turbine will be dismantled and removed using cranes, to approximately ground level. Components will be transported off site for re-use or recycling. Turbine crane pads will require remedial work (vegetation clearance, levelling and recompacting of granular fill), to ensure that they are suitable to take bearing loads of cranes. Once turbines have been removed, the foundations will be left in place (fewer environmental effects e.g. noise, dust), covered and allowed to revegetate naturally. Internal site tracks will be left *in situ* subject to agreement with PAs and landowners. The proposed substation, 110kV cable from the substation to the existing OHL and 33kV cable linking this to the main wind farm development site, will continue to exist on a permanent basis. The 110kV substation will be taken in charge by ESB Networks/EirGrid and will form part of the national electricity network.

Application documents

2.7. The applicant seeks a 10-year construction period. Documents and drawings accompanying the planning application include the following:

- Completed application form, site, and newspaper notices.
- Planning Statement.
- An Environmental Impact Assessment Report (EIAR) (Volume 2).
- Technical appendices to the EIAR (Volume 3-1 and 3-2).
- AA Screening and Natura Impact Statement (NIS) and associated Appendices.
- Photomontages (Volume 4).

2.8. A copy of the application has been uploaded to the national EIA Portal, ID 2024052.

3.0 **Planning History**

3.1. The planning history of the development site is the pre-application consultations held under ABP-314271 and a permission granted for a temporary met mast (15 months), situated within the development site under PA ref. S5-7-23.

3.2. Wind farm development in the wider area of the site includes:

- ABP-PA25M.309770 – Permission **refused** by the Board, in March 2024, for Coole Wind Farm (up to 15 wind turbines), c.22km to the northwest of the subject site on the grounds of potential effects on soils, water, ecology and a European site (Lough Derravaragh SPA).
- ABP-311565 – Permission **granted** by the Board, in July 2022, for Bracklyn Wind Farm Limited (9 turbines), c. 5.5km to the southwest of the subject development site
- ABP-316212 – Permission **granted** for Ballivor Bog wind farm (26 turbines), c.5km to the south of the subject development site.
- PA ref. 122054 – **Permission** for one wind turbine, 64m hub height, rotor diameter up to 48m, at Dryderstown, Delvin c.6km to the southwest of the subject site.

3.3. The applicant's Planning Report refers to the following precedent cases (and ABP-311565 above), where the Board decided to grant permission for wind energy development, having regard to national policy, amongst other considerations:

- ABP-301619 – Permission granted by the Board for Moanvane Windfarm (12 turbines), tip height up to 169m, >40km to the southwest of the site, northwest of Portarlington in County Offaly.
- ABP-308885 – Permission granted by the Board for Coom Green Energy Park (22 turbines) with a maximum tip height of 169m, in County Cork.

3.4. Appendix 1-1 of the EIAR also sets out the developments considered in the cumulative impact assessment. Cumulative developments within 20km of the development are also shown in Figure 2-4. These relate to the government's EIA portal and indicate developments for which EIA has been carried out.

4.0 Policy Context

4.1. The planning policy context for the development is set out in the Planning Reports submitted by Westmeath County Council and Meath County Council, section 3 of the applicant's Planning Report and Chapter 2 of the EIAR. A summary of key policy documents is set out below.

4.2. **International/EU Policy**

- United Nations Framework Convention on Climate Change (UNFCCC) – Joined by Ireland in 1992 and provides a framework for international efforts to address challenges posed climate change.
- Kyoto Principle (as amended) – Operationalises the United Nations Framework Convention on Climate Change (UNFCCC) and commits industrialised countries/economies to limit and reduce GHG emissions in accordance with agreed targets.
- COP21 Paris Agreement and subsequent COPs (latest COP29, Azerbaijan) – Conference of Parties to UNFCCC, to evaluate the implementation of the Convention and negotiate new commitments.
- European Green Deal – Introduced by the European Commission and provides a roadmap for Europe to becoming climate-neutral by 2050 and achieving a 55% cut in carbon emissions by 2030 (compared to 1990 levels).
- European Climate Law 2021 – Puts into law the objectives of the European Green Deal and sets out targets for reducing greenhouse gas emissions in Member States.
- REPowerEU – 2022 Communication from the European Commission to the European Parliament etc. to make Europe independent from Russian fossil fuels. Objectives include to move rapidly to 'clean energy' (including renewables) production.
- Renewable Energy Directive (most recently revised under EU/2023/2413) – Aims to promote the expansion and increase the uptake of energy from renewable sources across all sectors. The new directive also includes a strategic planning element to identify renewables 'acceleration areas' for renewable energy development, to improve transition times through the planning/permitting system.

4.3. **National Policy**

Programme for Government

4.4. In line with European policy, this 2020 document sets out the Government's commitment to an average 7% per annum reduction in overall GHG emissions from 2021 to 2030.

National Planning Framework Plan, 2018-2040

4.4.1. The NPF is the government's high level strategic plan for shaping the future growth and development of the country to 2040. National strategic outcomes (NSO) include strengthening of rural economies and communities (NSO 3) and transitioning to a low carbon and climate resilient society (NSO 8). NSO 8 refers to the refers to the requirement for new energy systems and transmission grids for a more distributed, renewables focused energy generation system, which includes on shore wind. National Policy Objective (NPO 23) facilitates the development of the rural economy, including energy industries, while noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to tourism. NPO 55 promotes renewable energy generation at appropriate locations to meet national objectives towards achieving a low carbon economy by 2050.

National Development Plan, 2021-2030

4.4.2. The NPF was published alongside the NDP which provides a 10-year investment plan to supporting the implementation of the NPF. In Chapter 13 the document includes Strategic Investment Priorities for transitioning to a climate neutral and climate resilient society. Priorities include the Renewable Electricity Support Scheme auctions to deliver competitive levels of onshore wind energy.

Climate Action Plan

4.4.3. The Climate Action Plan 2024 (CAP24) is the third annual update to Ireland's Climate Action Plan 2019. The plan is prepared under the Climate Action and Low Carbon Development Act 2015 (as amended, see below), which introduced economy wide carbon budgets and sectoral emission ceilings, to achieve a 51% reduction in emissions by 2030 (relative to 2018 levels) and net zero emissions by 2050. CAP24 sets out the sectoral emission ceilings for the electricity sector (Table 3.2) and, in Table 12.5, KPIs to accelerate renewable energy generation. These include 6GW of onshore wind capacity by 2025 and 9GW by 2030. The Plan also details the significant changes required to enhance the electricity grid's capacity and flexibility.

4.4.4. The Climate Action and Low Carbon Development Act 2015 (as amended), requires in section 15(1) relevant bodies to, in so far as practicable, to perform its functions in a manner consistent with (a) the most recent approved climate action plan, (b) the most recent national long term climate action strategy, (c) the most recent approved national adaption framework and sectoral adaption plans, (d) furtherance of the

national climate change objective, and (e) the objective of mitigating greenhouse gas emissions (GHG) and adapting to the effects of climate change in the State. The definition of 'relevant bodies' includes public bodies, as defined under the Freedom of Information Act 2014, and includes An Bord Pleanála.

National Biodiversity Action Plan (NBAP) 2023-2030

4.5. The NBAP includes five strategic objectives aimed at addressing existing challenges and new and emerging issues associated with biodiversity loss. Section 59B(1) of the Wildlife (Amendment) Act 2000 (as amended) requires the Board, as a public body, to have regard to the objectives and targets of the NBAP in the performance of its functions, to the extent that they may affect or relate to the functions of the Board. (The impact of development on biodiversity, including species and habitats, can be assessed at a European, National and Local level and is taken into account in the Board's decision-making having regard to the Habitats and Birds Directives, Environmental Impact Assessment Directive, Water Framework Directive and Marine Strategy Framework Directive, and other relevant legislation, strategy and policy where applicable).

Wind Energy Development Guidelines (WEDG) - Guidelines for PAs, June 2006.

4.5.1. The 2006 WEDG Guidelines provide advice to PAs for onshore wind energy through the development plan process and in determining applications for planning permission. They provide consistency of approach throughout the country and state that whilst the development of renewable energy sources is supported, implementation must have regard for the environment, including the conservation and sustainable use of biological diversity. Specific guidelines are provided on the environmental implications of wind energy and for certain environmental topics, including design and siting, noise, shadow flicker and landscape effects. Recommendations are also made in respect of conditions.

Draft Wind Energy Development Guidelines (WEDG), 2019

4.5.2. The draft WEDG propose key amendments to the 2006 Guidelines in respect of noise, visual amenity, shadow flicker and community engagement. These include the application of more stringent noise limits in line with WHO noise standards together, a more robust noise monitoring system and reporting system and additional

requirements in respect of shadow flicker, community consultation obligation, community dividend and grid connections. A minimum setback distance for visual amenity purposes of 4 times the tip height is also required subject to a mandatory minimum setback of 500m from sensitive receptors. The draft guidelines have not been issued under section 28 of the Planning and Development Act, 2000 as amended and, as per circular 05/2017, the 2006 Guidelines remain in place.

Code of Practice for Wind Energy Development In Ireland Guidelines for Community Engagement (DCCA&E, 2016)

4.5.3. The Department's Code of Practice for community engagement advocates building strong and effective relationships with communities and individuals that will live with all infrastructure projects, including wind turbines. It makes recommendations in respect of promotor contact and visibility, consultation and engagement with the community, compliance with statutory requirements (public notice/consultation), community benefit, impact mitigation, independent advice, ancillary developments and transparency in compliance with the code of practice. Industry best practice guidelines for community consultation are set out in the publication '*IWEA Best Practice Principles in Community Engagement and Community Commitment 2013'.*

Renewable Electricity Support Scheme Good Practice Principles Handbook for Community Benefit Funds GoI, 2021

4.6. Sets out guidelines and recommendations on how to comply with the Community Benefit Fund requirements contained in the RESS-1 T&Cs (i.e. the first suite of projects supported in RESS), with a view to ensuring that communities and developers work together to maximise the benefits of the funds to local communities living in proximity to RESS projects.

National Landscape Strategy for Ireland 2015-2025

4.7. This document has been developed in response to the European Landscape Convention, which establishes principles for protecting and enhancing the landscape while positively manging its change. Recognising the cultural, social, environmental and economic role played by landscape in the State, the NLS provides a high-level policy framework to achieve balance between the protection, management and planning. Central to the policy is the preparation of landscape character maps and

landscape character assessment to inform and guide landscape policy, action plans and development plans.

The Onshore Wind Farm Sector in Ireland Planning In Harmony with Heritage (Heritage Council, 2013)

4.8. This research report examines the policy context for wind farm spatial planning in the State and elsewhere and provides recommendations to improve spatial planning policy formulation, implementation and monitoring in respect of heritage assets.

4.9. **Regional Policy**

Regional Spatial & Economic Strategy 2019-2031 for the Eastern and Midlands Region

4.10. The RSES supports the implementation of the NDP. In section 2.2 it sets out a vision and key principles. These include healthy place making, climate action and economic opportunity. Under climate action, the Plan recognises the need to enhance climate resilience and accelerate a transition to a low carbon society, recognising the role of natural capital and ecosystem services in achieving this. Regional Strategic Objective (RSO) 9, aims to harness the potential for a more distributed renewables focused energy system to support the transition to a low carbon economy. Regional Policy Objective (RPO) 4.84 supports the rural economy and initiatives in relation to diversification, including renewable energy, to sustain employment opportunities in rural areas. RPO 7.36 states that local planning policy will reflect the principles set out in the governments WEDG 2006 and the DCCAE Code of Practice for Community engagement. RPO 10.20 supports and facilitates the development of enhanced electricity supplies and associated networks, including to facilitate linkages of renewable energy proposals to the electricity transmission grid in a sustainable manner.

4.11. **Local Policy**

Westmeath County Development Plan 2021-2027 (WCDP)

4.12. Chapter 10 of the WCDP addresses Transport, Infrastructure and Energy. Energy policies support the development of renewable energy sources to limit greenhouse gas emissions, in an environmentally acceptable manner (CPO 10.139 – CPO 10.140). Wind energy policy objectives, CPO 10.142-10.148, support the

development of wind energy resources in the county, subject to environmental and human health considerations in respect of noise, shadow flicker, ground conditions/geology and air quality, and the principles and guidelines in respect of wind energy as set out in government guidelines. Proposals for large scale energy production projects, in the form of wind farms, are strictly directed to cutover cutaway peatlands in the County, subject to environmental, landscape, habitats and wildlife protection requirements being addressed (Policy objective CPO 10.145). Industrial scale/large scale energy production projects are defined as those that meet or exceed the following criteria height, >100m to blade tip, scale, more than 5 no. turbines and output, having a total output of greater than 5MW (CPO 10.145).

4.13. Also relevant are policies set out in chapters 5, Economic Development and Employment, 9 Rural Westmeath, 11 Climate Action, 12 Natural Heritage and Green Infrastructure, 13 Landscape and Lake Amenities, 14 Cultural Heritage and 16 Development Management Standards. The wide-ranging policies support sustainable economic development of the county, including tourism, the implementation of climate adaption and mitigation measures, alongside the protection of natural resources, residential amenity, landscape character and cultural heritage.

4.14. The development site lies to the northeast of Delvin and to the west and southwest of Clonmellon, both designated 'Towns & Villages' in the settlement hierarchy. To the northwest of the site, Lough Shesk is designated as a proposed Natural Heritage Area and Special Area of Conservation (River Boyne and River Blackwater SAC, site code 002299). The site lies in the River Deel Lowlands Landscape Character Area, with Low capacity for wind energy development. There are no High Amenity Areas or Protected Views in the vicinity of the site.

4.15. The above policies are set out in the adopted development plan, as revised to take account of the Direction issued to the PA, on the 28th September 2022, by the Minister for Housing, Local Government and Heritage. The Direction required the PA to delete wind energy policy objective CPO 10.143, which related to mandatory setback distances for wind turbines, in its entirety from section 10.23.2 of the Development Plan on the grounds that it was contrary to national policy and Ministerial guidance on wind energy development.

Meath County Development Plan 2021-2027 (MCDP)

4.16. The MCDP aligns with the policies and objectives of the Eastern and Midland Regional Spatial Strategy. Policies in respect of Wind Energy are set out in Chapter 6, Infrastructure Strategy. In section 6.15.3.2, the Plan states that the PA *'will continue to support and encourage the principle of development of wind energy, in accordance with Government policy and having regard to the provisions of Landscape Characterisation of the County and the Wind Energy Development Guidelines (2006) and any revisions thereof'.* Associated policies promote a reduction in GHG emissions and the sustainable use of energy sources, locally based renewable energy alternatives, where the development does not negatively impact on the surrounding environment, landscape, biodiversity, natural and built heritage, residential or local amenities (INF POL 34-36, INF OBJ 39, 41). Section 6.15.4 deals with energy network infrastructure. Policies support and facilitate the development of enhanced electricity supplies, and associated networks, to serve existing and future needs of the County and to facilitate new transmission infrastructure projects, including linkages of renewable energy proposals to the electricity transmission system, with regard to best practice in terms of siting, design and least environmental impact (INF POL 46 and 48, INF POL OBJ 50).

4.17. Also relevant are policies set out in Chapters 04 Economic and Employment Strategy, 08, Cultural and Natural Heritage Strategy, 09 Rural Development Strategy, 10 Climate Change Strategy and 11 Development Management Standards (and all associated appendices). Policies support sustainable economic development of the county, the implementation of climate adaption and mitigation measures, and the protection of natural resources, residential amenity, landscape character and cultural heritage.

4.18. Section 11.8.1, Development Management Wind Energy, encourages renewable development proposals which positively contribute to reducing energy consumption and carbon footprint (DM POL 27) and sets out the criteria the PA will take into account in assessing individual applications (DM OBJ 76). The criteria referred to include social impacts, traffic effects, effects on landscape character, impact on protected views, impacts on designated sites, landscape and cultural heritage.

4.19. In Section 11.8.3, Wind Energy, it is stated that topographical enclosures and extensive areas of degraded or previously developed lands should be identified for wind farm development to help minimise visual impacts and to harmonise wind turbines with the landscape (also policy objective DM OBJ 7). Policy DM POL 28 requires compliance with the Wind Energy Development Guidelines, (2006) and Circular PL20-13, and any updates thereof.

4.20. With regard to Energy Networks, in section 11.8.4, it is stated that in the assessment of individual proposals, the Council will take the criteria outlined in section 11.8.1 (Energy Development) into account.

4.21. The proposed substation and grid connection route, situated in County Meath, lie within Landscape Character Area 17, South West Kells Lowlands, with 'moderate value' and 'moderate sensitivity' with localised landscape importance. Protected views and prospects are shown in Map 8.6 of the Plan, and include elevated views in the area of the site from the Hill of Ward east of Athboy (panorama), from tower of Lloyd at Kells (panorama), Loughcrew Cairns (Slieve na Calliagh) northwest of the development site (panorama), the Hill of Tara (east of Trim) and Brú na Bóinne (to the east of Slane).

4.22. **Natural Heritage Designations**

4.23. Immediately west of the wind farm site and overlapping with the development site boundary is the River Boyne and River Blackwater SAC (site code 002299). Included within the boundary of the SAC is Lough Shesk proposed Natural Heritage Area (site code 000556). The area of overlap with the development site is c.1.93ha, however, no works are proposed within this area.

4.24. There are a number of other sites in the wider area (see Figure 5-4-a and 5-4-b, EIAR), including Girley Bog NHA (c.7km E/NE), Lough Lene SAC (c.10km W), Lough Bane and Lough Glass SAC (c.6.5km, NW), White Lough, Ben Loughs and Lough Doo pNHA/SAC (c.10km NW), Lough Derravaragh NHA/SPA (c.16km, W/SW), River Boyne and River Blackwater SPA (c.6.5km SE), Lough Glore pNHA (c.10.5km NW), Lough Ramor pNHA (c.15km N) and Royal Canal pNHA (c.16km S).

5.0 EIA Screening

5.1. The proposed development is a type of development which falls within Class 3(i), Part 2, Schedule 5 of the Planning and Development Regulations, 2001, as amended, and requires environmental impact assessment.

> Class 3(i), Part 2, Schedule 5 '*Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts'.*

6.0 Submissions and Observations

6.1. Planning Authorities

Westmeath County Council

6.2. The submission by Westmeath County Council made under section 37E(4) of the Planning and Development Act 2000, as amended, comprises the Report made to Elected Members and record of the views of Elected Members, including their view that the development should not proceed. These are summarised below.

Report to Elected Members

6.3. The Report to Elected Members, provides a description of the proposed development, its location, policy context and a summary of the application documents. Comments are made on the EIAR, in technical reports and in the Planning Assessment. These are summarised below.

- EIAR - The PA generally concurs with the findings of the EIAR, except with regard to:
    - Alternatives – The site selection process failed to appreciate the significance of the policy CPO 10.145[2] in respect of appropriate locations for wind farms.

[2] The submission by Westmeath CC refers to CPO10.146. However, this policy to strictly direct large-scale energy production projects, in the form of wind farms, onto cutover cutaway peatlands in the County, is clearly set out in CPO 10.145 of the Plan, with the re-numbering of policies arising out of the Ministerial Direction.

- Biodiversity – Recommends a condition that the applicant employ a full time Ecological Clerk of Works to oversee mitigation measures and biodiversity works, if permission is granted.

- Technical reports (these are summarised in the Report, but not attached to it)
  - District Engineer – Recommend conditions to clarify road improvement works along the L5542, provision of adequate sightlines at entrances, submission prior to commencement of mitigation measures for site material spillage on the public road, detailed condition survey along haul roads, queuing arrangements for construction traffic, source and volume of aggregate material, pre-condition survey of cable routs, identification of existing watercourse crossings/bridges, details of cable installation and revised Traffic Management Plan (to address shortfall in sightlines at site access no. 3 on the N52, 230m required, 160m achieved). Request for provision of a bond and special roads levy.
  - Environment section – Recommend conditions in respect of the CEMP, compliance with mitigation measures, Wind Energy Development Guidelines, employment of shadow flicker control software, employment of an Ecological Clerk of Works and a Bird Specialist and preparation of a Construction and Demolition Resource Waste Management Plan.
  - Transportation – Recommend conditions in respect of a structural condition survey of all bridges/culverts along the proposed access route to the development and grid connection route, and identification of adverse impact avoidance proposals.
- Planning Assessment.
  - Principle. The development does not comply with policy CPO 10.145 of the Westmeath CDP which directs large scale energy production projects, in the form of wind farms, onto cutover cutaway peatlands in the County, subject to environmental requirements being addressed.
  - Residential amenity. Recommends that turbines be located within 10 x rotor diameter of a sensitive receptor and include an automatic shadow flicker control mechanism (to shut down the relevant wind turbine should shadow flicker occur).

- Grid connection, haulage route and traffic. As per the reports of the district engineer and Transportation Section (above).
- Property values. Evidence of potential impact of wind farms should be provided assess impacts on property values.
- Turbine design. Considers that no stripes should be painted or attached to the turbines (keep them as visually clean).
- Amenity potential. Limited information submitted regarding payment distribution of the Community Benefit Fund and details of a benefit fund development working group. Matter to be addressed by condition.
- Construction and Environmental Management Plan (CEMP). Revised CEMP to be submitted prior to commencement, to include updated drawings and key personnel for the management and oversight of the development. CEMP to remain a live document throughout the project.
- Construction and Demolition Resource Waste Management Plan (CDRWMP). CDRWMP to be submitted prior to construction, to include details of the fully licensed waste contractor to remove waste from the site.
- Development Contributions and Bond. Recommends (a) a levy under the applicable Development Contribution Scheme, (b) a specific condition requiring pre-surveying of affected roads, proposals for rendering routes fit for purpose, ongoing monitoring and repair, post construction survey and remedial works (in preference to a Special Development Contribution condition) and (c) a cash bond for the repair of damage to the road network (public roads/culverts/bridges) used as a haul route for the development, with the amount of cash bond determined once material sources are known.

6.4. The report concludes that whilst the development in in accordance with European energy policy, relevant section 28 guidelines, national and regional policy, it would be contrary to Policy Objective CPO 10.14 of the Westmeath CDP, due to its location on predominantly agricultural grassland and forestry. The report therefore recommends refusing permission for the development.

6.5. Elected Members provide the following views on the development:

- WEDG 2006 are outdated and an inappropriate reference point for the consideration of such a strategic wind energy development. More appropriate forms of a renewable energy need to be considered in the County. Offshore is the most obvious location for wind energy development in the country.
- Concerns raised in respect of shadow flicker mitigation measures, devaluing of property, separation distances (previous policy had a separation distance of 10x tip height, should still be in place, and would offer greater protection to residential amenities).
- Concerns in relation to quarrying component in terms of subsiding and flooding.
- Effects of turbines on tourism, heritage, and the visual amenities of the area.
- Policy 10.146 directs this type of development to cutover/cutaway bogs, which are more suitable than built up areas for this form of development. Development should be refused based on Westmeath CDP policy.
- Development was cherry picking standards under the various guidelines.
- The proposals were a developer led process and should not be considered a SID as it would not achieve predicted outputs.
- €1000 to be paid to dwelling directly affected was insufficient to compensate locals for devaluing their properties.
- Noise assessment is inappropriate (no independent baseline noise assessment). Independent assessment should be carried out by WCC. Reference to a recent High Court Case (not identified) which determined that noise associated with wind turbines is a nuisance.

Meath County Council

6.6. Meath County Council's submission to the Board comprises a Chief Executive's Report to Elected Members and an extract from Minutes of an Ordinary Meeting of Meath County Council, with comments by Elected Members on the subject development. These are summarised below.

Chief Executive's Report

6.7. The CE Report to elected members describes the proposed development, the development site, its planning history and relevant planning. It summarises internal

reports, provides a planning assessment and makes recommendations in respect of the development. Matters raised are summarised below, under these headings.

Internal Reports:

- Archaeology – Inadequate assessment of archaeology, including reference to/use of appropriate guidelines, adequacy of mitigation measures, no evidence to support assumptions, no geophysical survey, no evidence that the site has been walked. Inadequate assessment of ducting works on Clonmellon (18th century planned estate town), impact on Rosmead demesne, archaeological potential of wetland bogs, impact of borrow pit on ringfort, impact of development on castle site. Inadequate details on the preservation of known sites (WM009-018, WM009-004 and ME023-010) and effect of construction traffic on vernacular architecture (e.g. Bridge NIAH 15400917). Details of regarding size/depth of construction areas and impact on drainage and archaeology. Proposals for large areas within the application site with no indicated use. Recommends further information on 26 items and that the impact of the development on Lough Crew a highly sensitive national monument is considered further (see detailed report by County Archaeologist, 19th April 2024 appended to CE Report).
- Transportation – Recommend relocating the entrance to the substation site to the southeast corner (to allow for straighter aligned access road, adequate sightlines available at this location, more suitable for underground cabling route).
- Heritage Officer – Cumulative impact of the development on the Hill of Tara, independent assessment on likely impact on the Tentative List for World Heritage Sites, and cumulative impact on Loughcrew. Level of detail in relation to habitat and species survey.
- Architectural conservation office – The development site is visible from Loughcrew Cairns and the Tower of Lloyd (protected view no. 13) and would have a negative effect on the setting and experience of this historic landscape. Views/visibility from the site of Tara should also be explored (Tentative World Heritage Site, with a high sensitivity landscape character of

exceptional value and international importance, including protected views 43 and 44, 47 from Skryne Church).

Planning Assessment:

- Application details.
    - *Boundary treatment*. Boundary treatment for areas enclosed by the application site, but which are outside of the red line boundary (if such areas require protection during construction).
    - *Drawings*. Drawing no.PL06.4 Turbine Elevation shows a different minimum and maximum hub height to design flexibility parameters set out in the application documents.
    - *Replacement forestry*. No indication of potential off-site areas for replanting and their suitability for native or commercial non-native forestry.
    - *Turbines/turbine foundations*. No excavated spoil should be stored in the flood risk area or adjoining watercourses.
    - *Access/access tracks*. Refer the Board to TII comments in relation to the access on the N52.
    - *Access tracks/recreation*. ABP may wish to consider recreational use of the site and access tracks, with amenity signage to be agreed with the PA.
    - *Substation, External Finishes*. ABP may wish to clarify the dimensions of the substation (in chapter 2, 2.132, compound area is 11,194m^2 and based on dimensions, 12,322$m^{2)}$. Finishes to substation building to be identified by the Board or to be agreed with the PA by condition. Matt dark green paint is recommended on all exposed metal work, service buildings, cabin, gates and fences. All lighting to be directed inward, avoiding light spill/glare. MCC note that no CCTV poles/structures details are submitted for the substation area. ABP may wish to seek a draft Decommissioning Plan in advance of deciding on application or address by condition.
    - *Design flexibility* – If permission granted, ABP may specify design envelope to be agreed with the relevant PA.

- Principle of development – It is for ABP to determine if the development constitutes a material contravention of the Westmeath CDP under section 37(2)(b).
- Design and amenity – The visual impact of the proposed substations on Clonmellon should be considered (including interface masts etc.) Berms and screening will limit views of substation compound over time. The impact on the archaeological setting of ME023-010: Ringfort – rath: Balboystown, should be considered.
- Access/ Traffic and Movement – Construction Traffic Management Plan to be agreed in consultation with the relevant Roads Authorities.
- Cultural and landscape heritage – Cumulative impacts on cultural heritage, including architectural and archaeological heritage, landscape and wider landscape of the region (to include impact on the Tentative WHS and other sensitive locations as set out in Department reports, above).
- Environmental Management.
    - Surface water/watercourses – Works to be in accordance with IRI Guidelines for the protection of fisheries during construction works in and adjacent to waters, all works supervised by Ecological Clerk of Works and Project Hydrologist. Section 50 applications for culverts may be required.
    - Wastewater – Wastewater treatment system to be maintained over lifetime of development if permission granted.
    - CEMP – Recommends conditions in relation to CEMP set out in section 7.7.1 of CE report (no section 7.7.1, assume this relates to recommended schedule of conditions, section 7.3.1 of CE report). Condition 12(a) and 25 set out requirements in respect of the CEMP.
    - Waste management – Invite the Board to consider the requirements of the EPAs (2021) *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects* (section 3.1), and an associated planning condition.
- AA Screening Report and NIS – Recommends that the applicant may need to consider other windfarms referenced in the Planning Statement and other

renewable energy projects (e.g. solar farms). ABP invited to consider the issues raised by public bodies in the consultation undertaken (DAU, IFI and MCC) and differences of opinion regarding survey work as advised by DAU. ABP should satisfy itself that the AA was undertaken by appropriate experts. If permission is granted, recommend conditions requiring implementation of all mitigation measures and additional measures proposed by MCC in the CE report.

- EIAR General comment - ABP should satisfy itself that the EIAR was prepared by appropriate experts. No solar farms considered in the assessment of in-combination effects. Recommend conditions requiring implementation of all mitigation measures and additional measures proposed by MCC. Topic specific comments are:
    - Population and human health – Substation is located immediately north of an existing residence. Delivery of abnormal loads is likely to be challenging. Applicant has not considered Ireland's Hidden Heartlands and Ireland's Ancient East strategies, in its assessment of effects on tourism assets. ABP should satisfy itself that the public have had opportunity to express opinions and concerns.
    - Biodiversity – ABP may wish to seek additional information on relevant qualifications/expertise from applicant and consider additional advice given the differences of opinion between DAU and applicant re surveys. Recommend aviation lights on wind turbines should be flashing (reduce collision risk, birds). Many of the wildlife/geological sites identified through survey are of county importance and provide several ecosystem services including important stepping stones and ecological corridors (Article 10 Habitats Directive) for improving the ecological coherence of protected sites.
    - Land, Soil, Water – Recommend conditions requiring that the final CEMP includes a surface water management plan, water protection and monitoring protocol, site drainage management and emergency silt control and spillage response procedures. ABP requested to consider all issues raised by IFI for instream works or impacts to surface water features and associated habitats and species. Imported material

should be suitable to the peat soil/subsoil and bedrock of the site (no change to hydrochemistry).

- Air and climate – Recommend ABP clarify inclusion/exclusion of traffic emissions in Carbon Assessment Tool and consider EC '*Technical Guidance on the Climate Proofing of Infrastructure in the period 2021-2027'*. CEMP to include dust control suppression strategy for construction and decommissioning phases.
- Landscape and visual – Considers that the undulating and often enclosed landscape in the immediate vicinity of the proposed development will limit the visual impact of wind turbines and substation site to the local area. Greater landscape and visual impact will be experienced from higher ground. Potential for coalescence of wind farms (cumulative effects) from Loughcrew Cairns (VP1) (less so from Tower of Lloyd, VP2). Effect of development on Tara, Tentative WHS should also be considered. Recommend ABP seek independent World Heritage expert. ABP should consider view of development/impact on Fore Abbey itself, Ballinlough Castle and its setting, Killua Castle, other views from Trim, impact of development on Clonmellon, impact of substation on adjoining archaeology (setting). Cumulative assessment should include solar farms and other wind farms e.g. Yellowriver, Ballydermot (proposed), Cushaling/Cloncant and Cloncreen and should consider impact on Boyne Valley sites, Tara complex, Loughcrew, Slieve na Calliagh Hills and the Hill of Uisneach at Frewin Hill, Westmeath. The Board is also invited to consider Heritage Council's (2013) *Windfarm Planning In Ireland, Planning in Harmony with Heritage* and *National Landscape Strategy for Ireland 2015-2025.* If permission is granted, recommend conditions re external finishes, maintenance of wind farm site and no stockpiling during operation.
- Shadow flicker – If permission is granted request a condition in relation to shadow flicker and associated mitigation.
- Cultural heritage – See comments by MCC Archaeologist above.

- Traffic – See comments by MCC Transportation Dept. above. If permission is granted, recommend condition for an agreed programme of road cleaning to be agreed with MCC, prior to commencement.
- Major accidents and natural disasters – Refers to the requirement for a Fire Safety Certificate for buildings on site, to be examined by the Fire Officer at Fire Safety Certification stage.
- Mitigation measures – If permission is granted, recommend a condition requiring implementation of the mitigation and monitoring measures set out in the EIAR (Chapter 17), those set out in the EIAR/NIS/CEMP and those set out in the CE and internal reports. Require an Ecological Clerk of Works to be appointed to oversee mitigation measures and for mitigation measures to be in line with NRA guidelines for conservation of bats, with any works relating to bats carried out under licence from the NPWS.
- Development contributions and community benefit - Recommend development contribution, a cash deposit/bond for the reinstatement of the site on cessation and a condition in respect of the community benefit fund.

Conclusion and recommendation

- Whilst the development is consistent, in principle, with local planning policy, there is potential for landscape character and visual effects on protected views and heritage sites, and other aspects of the development (as set out above), which necessitates further assessment and information. The report recommends FI in respect of the issues raised in the report, including cumulative impacts on archaeology, architectural, cultural heritage and landscape, further information in respect of the archaeological impact assessment, lighting for the proposed development and impact on birds, hub height of turbines, inclusions of traffic emissions in Carbon Assessment Tool, use of access tracks for recreational purposes, boundary treatment, resource and waste management plan, decommissioning plan and area of substation compound.
- Conditions – The PA includes a schedule of conditions, should the Board decide to grant permission.

6.8. The Elected Members raise the following concerns:

- Lack of public consultation.
- Location in/proximate to the River Boyne and Blackwater SAC, Lough Shesk proposed NHA. Location of turbines T1, T2 and T3 between Lough Shesk, Freekans Lough and Newtown Lough, in area of national importance.
- Proximity to protected structures (Rosmead House and gateway, Killua Castle, Ballinlough Castle).
- Impact on the natural unspoilt environment and on people living in the area.
- Impact on Whooper Swan (come annually to Newtown Lake) and other protected species include bat species and rare plant (Round-leaved Wintergreen, occurring around Newtown Lough).
- Effects on area, plants and animals and their habitats during and after construction.
- End of life of turbine blades and compliance with Circular Economy legislation, compliance with planning conditions.
- Duration of community funds and how these would work.
- Monitoring of noise.
- Effects of wind turbines on health, shadow flicker, impact on television and phone signals.

6.9. **Prescribed Bodies**

Irish Water

- FI required to identify, survey and map the exact location of Irish Water infrastructure relative to the proposed works. Design of works to be in accordance with Irish Water Codes of Practice/standards.

An Taisce

- Proximity to Cavestown woodland area (NPWS native woodland survey 2003-2008), and woodland identified in the NPWS Ancient and Long-Established Woodland Inventory 2010 (in proximity of T4 and T5). Proximity to River Boyne and River Blackwater SAC. Sufficiency of mitigation measures to comply with Article 6(3) of the Habitats Directive (including water quality). Biodiversity chapter omits consideration of Lough Shesk pNHA. Any potential

impacts on the pNHA should be evaluated and any hydrological connections identified, and mitigation measures introduced if required.

TII

- National road access. Refer to the section 28 guidelines '*Spatial Planning and National Roads Guidelines for Planning Authorities'* (DoECLG, 2012). Westmeath CDP provides no 'exceptional circumstances' for new site entrance to T8 from N52 (national road, 80kph speed limit). The policy conflict is not identified in the EIAR or referenced in TIIs EIAR scoping submission. No Design Report for the proposed alterations. Set out following road safety matters to be resolved, prior to decision (1) Road Safety Audit to be undertaken, (2) revised documents to demonstrates works comply with TII standards, and (3) any damage to pavement of the national road due to turning movements of abnormal loads, to be rectified in accordance with TII standards.
- National road scheme planning. Development (inc. cable routeing and access to the N52), are within the confirmed Constraints Study Area for the N52 Improvement Scheme 'N52 Cavestown to Kilrush'. EIAR is unclear how the issue has been considered and addressed. Require clarification, with application proceeding where it is demonstrated that the guidelines have been adhered too.
- National road network maintenance and safety:
    - *Turbine haul route*. Any works to the national road network to facilitate delivery of turbines required to comply with TII standards and be subject to a Road Safety Audit. Applicant to consult with national road operators/road authorities in respect of operational requirements to be safeguarded.
    - *Structures*. Unclear if haul route has been assessed for abnormal weight loads. Structures along haul road to be checked to ensure can accommodate loads associated with the development, with relevant road authorities confirming acceptance of proposals and referred to TII.

- *Cabling/trenching*. Works along the N52 have potential to significantly impact on the levels of safety and strategic function of the national road network. Implications for the future management and maintenance of the national road network (including cost) e.g. maintenance liabilities, differential settlement. No assessment of likely traffic effects of traffic management measures during construction, of high concern given high AADT on road link, and the potential availability of alternative routes/technological solutions. Recommend a full assessment of alternatives and associated implications. If no alternative, planning permission should include removal of joint bays from the paved national road surface.
- *HDD and water crossings.* Exact details of watercourse crossing along the proposed cable route on the N52 not provided. Any existing freeboard should be preserved to allow for increasing the size of the existing watercourse drainage culverts for increased capacity (climate change), with HDD crossing of the watercourse under the N52 if required. Recommend a condition to this effect and that works are submitted to and approved by TII in advance.
- *Greenways*. Recommend consultation with Westmeath CC for any proposed Greenways.

Failte Ireland

- States that the Irish landscape is one of the primary assets for tourism in the country, the cornerstone of international tourism marketing campaigns and the essential need to protect the quality, character and distinctiveness of the resource. Also recognised the importance of developing the States renewable energy sector.
- Request the Board to consider the potential impact of the development on local heritage and tourism sites, including Rosmead House and grounds, Triumphant Arch (Smiling Bess), Killua Castle, Ballinlough Castle and other wider tourism assets, including Loughcrew Megalithic Landscape/ House and Gardens, Fore Abbey landscape, Lough Lene and the Tower of Lloyd and their associated surrounding landscapes.

- Refer to the location of the development, Meath and Westmeath, within 'Ireland's Hidden Heartlands' a regional tourism brand.
- Raise concerns in relation to how the impact on tourism is addressed in the EIAR, the visually open, exposed and unspoilt character of the natural landscape where wind farm development is unfamiliar and where negative impacts would be intensified:
    - Population and human health – The EIAR does not include all important tourism sites near the development site, UNESCO Brú na Bóinne, Boyne Valley, Loughcrew Megalithic Landscape/ House and Gardens. No assessment of effects on Loughcrew as a tourism asset. No assessment of impact on local attractions such as Killua Castle, Ballinlough Castle. In general sites of local tourism and recreational value are not adequately acknowledge or assessed. The development has potential to alter the character and experience of sites such as Rosmead Country House & Triumphant Arch, Ballinlough Castle, Killua Castle and surrounding baseline environment (VP18 to 25). Development will introduce views of development into landscape associated with Loughcrew Megalithic site (VP21). Development is not visible from Fore Abbey (site specific VP5) but will be visible from much of the associated heritage landscape surrounding the Abbey.
    - Landscape and visual – Description of impacts in EIAR tends to underrepresent the visual effects of the development and impact on landscape character e.g. VP25. Magnitude of Impact is better described for this (and other) VPs, as High or Very High, rather than High-Medium used in the assessment. The proposed development is situated in an area where similar development is not a feature of the existing environment (the permitted/proposed wind farms referred to in the cumulative impact assessment are c.10km to the south).
    - Cultural heritage – Significant heritage landscapes of Loughcrew and Fore Abbey are not mentioned in the baseline context. The assessment should have addressed the character, nature and significance of the landscape as a setting for Loughcrew and Fore

Abbey. The impact assessment on local sites of heritage value e.g. Rosmead House and Triumphant Arch ('Smiling Bess'), Ballinlough Castle and other local heritage sites underrepresents the actual significance of effects that are likely to be experienced.

Department of Defence (regulation of military aviation)

- Make recommendations regarding the illumination of turbines.

Irish Aviation Authority (regulation of civil aviation)

- Require conditions which require the applicant to contact IAA to agree obstacle warning light scheme, provide as constructed coordinates, and notify in advance of crane operations.

6.10. **Third Party Observations**

6.11. There are 17 no. of third-party observations on file. Observations are made by parties residing in Clonmellon and Delvin, and Oldcastle and associated townlands around the development site, and by a party from Rathmolyon (>20km to SE of the site). Issues raised are summarised below in a grouped format:

- Alternative forms of renewable energy/viability of wind energy. More appropriate forms of renewable energy e.g. deep bore thermal, solar. Wind energy is inconsistent, driven by grants, requires use of substantial finite natural resources, is inefficient and unsustainable. Reliance on wind energy derived from lack of public consultation, contrary to democratic principles and Aarhus convention. Full cost/benefit analysis should be carried out.
- Application details/Applicant. Development is not in name of parent company (Statkraft). Development is developer led, is divisive. Should be plan led. Questions whether the grid connection forms part of the application.
- Consultation/Access to information. Lack of community engagement, no public meeting, no attendance by applicant at community organised meeting organised, virtual consultation room inadequate. Inconsistent with the Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement. Reference to case no. 314271 on wind farm website is misleading. Case closed in 2023. Could result in submissions being

disregarded. No mention on SID website of subject reference no. 319448. Short time to review EIAR.

- Premature. WEDG 2006 are out of date, do not address the impact of substantial turbines. The development is premature pending the publication of the revised Guidelines. Scale of development is similar offshore wind farms. Offshore location more appropriate (distance from dwellings, more wind).
- Inconsistent with policies of the WCDP and MCDP. Westmeath CDP directs large scale wind energy projects to cutover cutaway peatlands. Development is contrary to Meath CDP which protects the environment, landscape, habitats and wildlife designated sites.
- Precedents. Set by other refusals. PL17.238669, PL237728, PL17.203801, PA ref. 22/552.
- Design flexibility. Turbine model constructed may not be either of the models examined. Hub height, rotor diameter, foundation size and hardstand dimensions not confirmed. This is unsatisfactory and does not allow for a proper EIAR to be completed. Cautious approach should be adopted given the sensitive location of the development.
- Cultural heritage. Impact on protected structures Killua Castle, Ballinlough Castle and associated structures, Rosmead House and its protected gates, Smiling Bess Gates, Clonyn Castle and Devlin Castle. Impact on Recorded Monuments, WM009-004, WM009-018 and ME023-010.
- Impact on designated sites/protected species. Impact River Boyne and River Blackwater SAC, Lough Shesk pNHA, Newtown Lough and key habitats adjacent to the loughs. Turbines T1, T2 and T3 are situated between these lakes, in proximity to and with hydrological connections to SAC. T1 to T3 should be excluded. No other place in the country where the full sequence of stages in the open water/ peat bog transition is so well illustrated within a compact area. Presence of Marsh butterfly and alkaline fens should be protected at this time (biodiversity crisis). Further study required to assess impact on butterfly and cumulative impact with other wind farms.

Interconnectivity and cumulative effects on the Annex I habitat H7140 Transition mire and quaking bog is not adequately assessed. NIS acknowledges the risk of temporary lowering of groundwater on fen habitat. Area should not be disturbed prior to national Fen survey. Rare plant, Round-leaved wintergreen, listed in Red Data Book, occurs around Newtown Lough and is its only site in County Meath. Proximity of T1 to Killacroy Stream. Significant excavation close to bank. Risk of water pollution. Proposed mitigation measures, including water quality monitoring are inadequate as pollution will have occurred. River Lamprey, Otter, Pine Marten, Badger and Irish Hare, Common Frog, Stoat, Hedgehog, Red Squirrel and Bats occur within the site and are protected under the Wildlife Act 1976. Impact on conservation interests of Derravarragh SPA (Whooper Swan, coot, tufted duck and pochard). Lough Shesk pNHA likely to support the local SPAs wildlife. Wood sandpiper observed within development site and cannot be excluded from being part of Lough Derravarragh SPA waterbird population. Whooper Swan comes annually to Newtown Lough and breeds in the area. Collision risk for Whooper Swan. Impact on wetland and waterbirds, with large flock of Golden Plover observed within 500m of development. Inadequate assessment of cumulative effects on Lough Derravarragh, inappropriate to rely on appropriate assessments carried out for other developments.

- Birds. Direct loss/degradation of habitats for breeding/ feeding/ foraging and or roosting birds. Impact on Barn owl (Rosmead House). Impact on sand martin, meadow pipit and woodcock recorded during bat surveys. Unacceptable loss of wet woodland habitat where Woodcock is found breeding. Research by Schindler et al 2024 (see submission by T. Ni Fhionnain) indicates that the site may lie on a migratory route for Greenland white-fronted geese. This data should be fully considered, and potential impacts assessed (including collision risk). Inadequate monitoring of effects on bird species (proposed for 3 years and for IEFs only). Any impacts after 3 years, any effects on other species cannot be addressed. Cumulative effect of numerous wind farms in one area on Golden Plover and common snipe. Use of avian radar systems to detect nocturnal birds recommended by DAU not carried out. Potential impact on Hen Harrier (project and cumulative

effects). Regular siting of Kestrel birds in area close to T1 and T2. Impacts on important populations of Mallard, Amber-listed species, Merlin, Mute swan and Barn owl.

- Bats. Inadequate assessment of effects on bat population. More studies should be carried out. Loss of significant habitat and roosting areas. Rosmead House, and its use as a roosting area, not explored. Collision risk for bat species (including with mitigation measures, cutting back trees/vegetation). Cumulative effects with two other wind farms in close proximity.
- Biodiversity. Rich area for biodiversity. Inappropriate location of development. Loss of habitats (physical works), degradation/disturbance of habitats within and outside of the site (e.g. from changes to hydrology, siltation), fragmentation, increased edge effects. Disturbance during construction and operation (collision risk, barotrauma, barrier effect). Introduction of invasive species (are present in the area, if not observed on site by applicant).
- Soils. Development requires removal of substantial quantities of peat (for foundations and roadways). With consequences for habitat, archaeology, carbon sink and natural heritage. More sustainable to rewet the bog and also provide a valuable carbon sink. Peat stability. Stability of turbine foundations (with loss/changes to peat bog). Impermeable roadways acting as a barrier to drainage. Impact on natural drainage and bogland
- Water. Flood risk. Proximity of T1 to Stonyford River (<50m) and risk of contamination during construction, with effects on otter and salmonids. Lack of information on wells within 2km of the site. Extensive construction phase could result in an increase in the water table (from runoff) and affect drinking water. Risk of contamination of surface water with runoff from contaminants in turbines (e.g. metals, chemicals).
- Landscape and visual effects. Landscape and visual impact of industrial scale wind turbine on unspoilt countryside. Significant height and scale that does not integrate with landscape, overbearing. Inconsistent with the area of the country. Cumulative effects with other wind farm development not

adequately assessed (including wire line view from VP4). Significant effects on small community from multiple wind farms. Impacts on views and prospects. EIAR underestimates impact on Lough Crew, Tower of Lloyd, Trim Castle, Hill of Tara and Uisneach ('Moderate' visual impacts despite 'very high' sensitivity). Risk of future expansion of wind farm with greater effects.

- Tourism and amenity. Adverse effects on tourism, amenity and local amenity. Giant turbines incompatible with Irelands' Ancient East. Impacts on natural attractions, Killua Castle, Lough Lene and Fore Abbey.
- Population. Development is unsuitable to a small rural community (significant number of turbines) and should be located offshore. Impact on residential property, enjoyment of homes, and primary schools (noise, ultrasound, shadow flicker). Shadow flicker mitigation measures do not work effectively. No turbines should be within 10 rotor diameters of any residence. Proximity to Clonmellon village (no photomontages from village). Turbines will dominate rural dwellings (trees will not screen), dominate the skyline, impact on residents' enjoyment. Impact of red lighting. Numerous access paths, substations and power lines will be significant. Impact on property values and/or ability to develop/sell land/dwellings. Permission should be refused on the grounds that it would seriously injure the amenities or depreciate the value of property in the vicinity, as per section 10(c) Schedule 4, P&D Act 2000 (as amended). Local population has a higher age profile. Industrialisation of area will not make it attractive to new families. Justification for employment benefits and where employment will be sourced e.g. locally or from another European state.
- Health effects. Health impacts including those with hearing aids and with autism (wind turbine syndrome, noise, infrasound, shadow flicker, sleep disturbances, headaches). Reference to legal cases where adverse effects identified (page 12, EcoAdvocacy submission). Proximity to St. Mary's Special School in Southhill. Need for further noise testing, from actual residential houses affected by wind direction, at different times throughout the year. Effectiveness of mitigation measures e.g. to prevent shadow flicker.

- Agriculture. Site lies in an agricultural area. Impact on animals (noise, flicker) and on crop production.
- Cumulative effects. Cumulative impacts not adequately assessed.
- Construction period. Significant construction period (10 years), inappropriate in rural area, proximity to protected structures/monuments, and displacement effects on animals, flora and fauna.
- Material assets. Effect of turbines on broadcast communications with close proximity of Clonmellon. Potential for effects on radio and TV signals. Potential effect on home working. Substantial requirement for aggregates and other materials, finite resources. Use and source aggregates/construction materials. Any quarried material should be sourced from quarries with planning permission. Potential for secondary effects on eskers (source of aggregates). Turbines should be situated in naturally occurring bedrock (reduced requirement for concrete, aggregate etc.). Significant issues size of turbines creates for aviators and airplanes. Disruption to utilities.
- Construction traffic. Substantial hedge cutting, tree cutting, canopy removal and road widening required along Turbine Delivery Route, not in scale with the development in the area. Volume of construction traffic (over 10 years), delivery routes unsuitable for large loads. Negative impacts on human health from construction traffic (noise, dust etc.). Traffic movements associated with movement of excavated material in and out of site. Cumulative effects on local road network/users with other proposed and approved wind farms.
- Greenhouse gas emissions. Massive amount of concrete required for construction, generating CO_2 emissions. Use of SF6 gas (insulant and a potent GHG). GHG emissions and particulate matter from diesel fuelled trucks.
- Health and safety. Issues associated with industrial wind turbines (fires, accidents, infrasound, risk of fire at worked (dried out) bog and associated flora. Adequacy of assessment (all relevant issues considered), lightning strikes, storm damage, anchorage, use of batteries, capacity of local fire service to address, risk of shock, electrocution, arc faults and flashes.

- Decommissioning. Inappropriate to retain large concrete bases (waste of finite natural resources). Wind turbine blades difficult to dispose of and cost of disposing of turbines should be addressed by applicant, with appropriate bond to cover disposal and reinstatement.
- SEA Directive. The proposed development is a project. If the development forms part of a planned approach to development of wind energy in the region, by the applicant, SEA should be carried out.
- Adequacy of assessments. Board should ensure that EIAR and NIS are adequate, and that the development complies with EIA and Habitats Directives and European Landscape Convention. Compliance with the Machinery Directive.
- Carbon Footprint. Carbon footprint of development, including for use of concrete and fuel. Likely unacceptably high footprint with use of significant quantities of concrete. No details on other materials required for wind turbines and associated infrastructure e.g. steel, rare metals, magnets, or on the environmental effects of extracting/producing these and associated human rights issues.
- Precedent. Undesirable precedent the development would establish.
- Enforcement. Poor enforcement of conditions in the State and poor compliance. Similar concerns for subject development.

7.0 Further Information and Responses

7.1. The applicant responds to the issues raised in submissions and observations. In the interest of brevity, these are referred to and summarised in the assessment sections of this report.

8.0 Assessment

8.1. Having examined the application details and all other documentation on file, including the submissions received in relation to the proposed development, and inspected the site, and having regard to relevant local, regional and national policies and guidance, I consider that the main issues in this appeal are as follows:

- Consultation/access to information.
- Alternative forms of renewable energy/strategic environmental assessment.
- Precedents.
- Principle.
- Premature pending review of WEDG 2006.
- Applicant/application details.
- Consultation/access to information.
- Design flexibility.
- Potential for recreational use of the site.
- Impacts on the local community and residential amenity.
- Impact on environment, biodiversity, national and European sites and compliance with EIA and AA Directives. This includes the matters raised in respect of the technical sections of the EIAR and NIS.
- Competency of experts (AA and EIAR).
- Compliance with the European Landscape Convention.
- Compliance with Machinery Directives.
- Decommissioning.
- Community benefit fund.
- Enforcement.
- Impact on agriculture.
- Conditions of the permission.

8.2. These issues are considered below in the Planning, EIA and AA sections of this report.

9.0 Planning Assessment

9.1. Consultation/access to information

9.2. Parties to the application raise concerns regarding applicant's approach to public consultation and its inconsistency with the government's Code of Practice for Wind Energy Development in Ireland, Guidelines for Community Engagement (2016). It is also stated that the reference to ABP. ABP-314271 on the applicant's website is misleading and could result in submissions being disregarded and that there is limited time to review the EIAR. In response the applicant refers the Board to the

approach taken to community engagement set out in Appendix 1-4 of the EIAR, and the to the longstanding process of engagement with the community which commenced in 2013 (for a larger wind development). Community engagement for the current development commenced in 2023, with the appointment of a Community Liaison Officer and launch of a Community Liaison Strategy, based on the government's Code of Practice for Community Engagement.

9.3. The government's Code of Practice Community Engagement (2016), advocate building strong and effective relationships with communities as an integral part of any infrastructure project. The guidelines recommend the appointment of a Community Liaison Officer, for contact and visibility, hosting of meetings and ongoing community liaison, clear arrangements for making contact, active engagement with the community (e.g. letter drops and house contact) alongside compliance with statutory/regulator obligations.

9.4. The applicant's approach to pre-planning and public consultation is set out in Addendum 3 of the Planning documents. For the public, this included an information leaflet to community members within 1.6km of the development, provision of a public website, door to door calls, one to one meetings with the public on request and a virtual consultation room. A report of the public consultation exercise is provided in Appendix 1.4.

9.5. Having regard to the guidelines for community engagement and public consultation exercise carried out, it would appear that the applicant has made a very reasonable attempt to engage with the community. It is perhaps regrettable that a public meeting was not held, but this is not specifically required in the guidelines. With regard to the applicant's website, there are two websites for the proposed windfarm, Knocannarraghwindfarm.ie, which provides the virtual consultation room, and Knockanarraghwindfarmsid.ie which provides links to project documentation for the subject development. On the latter website, documents have the pre-application reference number i.e. ABP-314271, not the subject development reference number ABP-319448. I would accept that this has the potential to be misleading. Notwithstanding this, the development has been the subject of reports by two planning authorities and their elected members, the subject of a very reasonable effort in public consultation by the applicant and site and newspaper notices have been provided to alert the public to the proposed development. Further, submissions

have been received from the public and no specific difficulties have been raised with regard to reviewing the documentation in the period of 7 weeks beginning 5th April 2024.

9.6. Having regard to the foregoing, I am satisfied that the applicant has carried out a very reasonable public consultation exercise, that the purpose of the public notices has been served and that the public have had an opportunity to participate in the decision-making process, and to make submissions on the proposed development in advance of decision making.

9.7. **Alternative forms of Renewable Energy and Strategic Environmental Assessment (SEA)**

9.8. In response to third party submissions, the applicant refers to the European and national policy context for the development, which supports the development of wind energy, and to the Board's decision to confirm that the development fell within the scope of paragraphs 37A(2) (a), (b) and (c) of the Planning and Development Act 2000, as amended (strategic infrastructure).

9.9. In section 4.0 of this report, I have set out the policy context for the proposed development. This includes unambiguous polices at international, EU, national, regional and local level to address climate change and support the development of renewable forms of energy, including wind energy. Notably national policy documents set out ambitious targets for the provision of onshore wind energy by 2025 and 2030 (CAP24). Within this context, I am satisfied in principle that the proposed form of development, onshore wind, is consistent with the policy framework for energy and climate action and that there is no requirement for a cost benefit analysis of the proposed development, or comparative assessment against other forms of renewable energy. Further, CAP24, was subject to strategic environmental assessment, appropriate assessment and public consultation, and included a call for expert evidence to support and inform its preparation. I am satisfied therefore that the principles of the Aarhus Convention as it relates to public participation, in the evolution of this key policy document, have been satisfied.

9.10. Finally, the EPAs guidelines on the information to be contained in an EIAR (EPA, 2022) refers to the assessment of alternatives and states, '*Analysis of high-level or sectoral strategic alternatives should not be expected within a project level EIAR.*

Types of high-level strategic alternatives include electricity generation from renewables rather than fossil fuels...'. In this context, the proposed development clearly comes forward as a project and there is no requirement to carry out an assessment of alternative forms of energy production or SEA, even if the project forms part of a range of projects pursued by the applicant.

9.11. **Precedents.**

9.12. Third parties refer to the following cases, as precedents that ar relevant to the subject development:

- PL17.238669 – This refers to an appeal in respect of a 30m high telecommunications tower, at Clonard, County Meath. It was refused by the Board on the grounds of height, design and location adjacent to the Royal Canal and impact on visual character and scenic amenity.
- PL237728 – This refers to an appeal in respect of 12 no. wind turbines (85m high), at Gaybrook demesne, and associated townlands, Mullingar, County Westmeath. It was refused on the grounds of proximity to Lough Ennell, impact on landscape character, and conflict with the overall development plan objectives for the location of wind energy.
- PL17.203801 – This refers to an appeal in respect of a proposed landfill development at Longwood, County Meath. It was refused on the grounds of complex hydrological conditions, limited investigations carried out, potentially inadequate mitigation measures and proximity to Boyne River, a designated SAC.
- PA ref. 22/552 (ABP-316078) – This refers to a solar farm at Ardcath, Meath, which was refused permission by the PA on the grounds of impact on landscape character, Hill of Tara and Skryne, but granted by the Board.

9.13. These cases raise similar issues to the matters raised in submissions. However, each application referred to has its own site-specific context and will have been adjudicated upon in the context of the then prevailing planning policy. This context will have a significant bearing on the decisions made by the Board/PA. The cases cited do not therefore provide relevant precedents for proposed development, which will be considered having regard to its site-specific context and current planning policies.

9.14. **Principle**

9.15. Westmeath County Council recommend refusing permission for the proposed development on the grounds that it would be contrary to Policy Objective CPO 10.145 which strictly directs large-scale energy production projects, in the form of wind farms, onto cutover cutaway peatlands in the County, and on the grounds that the subject development is located on predominantly agricultural and forestry. This approach is advocated also by third parties. Meath County Council state that it is for the Board to determine if the development comprises a material contravention of the Westmeath CDP and the details of the court cases referenced.

9.16. In response to the submission, the applicant states that the Board, under section 37(2)(b)[3] the Board may grant permission for a development that materially contravenes a development plan, subject to certain provisos. Further, the applicant refers to the proposed development as a Renewable Energy Plant, (REPowerEU Plan, May 2022), of '*overriding public interest',* the targets set out in the CAP24 for wind energy, the obligations placed on the Board under section 15 of the 2015 Climate Act, the potential for the development to displace significant CO_2 emission over its lifetime and the obligation of the Board to have due regard to EU and national legislation while examining the Westmeath CDP and exercising its discretion under section 37(2)(b). The applicant also argues that the development supports the fulfilment of the NPFs objective to transition to a competitive, low carbon, climate resilient society. It is stated that with the emerging Revised NPF development plans will be required to plan for the delivery of regional renewable electricity capacity allocations, including onshore wind. In this context, it is argued that the approach taken in the current Westmeath CDP is overly prescriptive and does not accord with national policy. The applicant also refers the Board to recent cases where decisions have been granted, having regard to the wider policy context for wind energy development (ABP-311565, Bracklyn Wind Farm Ltd, Moanvane Wind Farm and ABP-308885 Coom Green Energy Park). Also referenced is recent case law which has determined that the Board is not bound by the views of the PA or the policies of the CDP but must consider these in coming to their decision (Save Roscam v ABP (No. 6) [2024] IEHC 335, 7 June 2024). It is stated that the ruling in Save Roscam V

[3] For strategic infrastructure development, the relevant section of the Act is 37G(6).

ABP postdates the decisions on the Umma More case (12th February 2024) and its references to Brophy v ABP [2015 IEHC 433] and Murtagh v ABP (unreported High Court March 29th, 2023). The applicant argues that the proposed development does not sit within an area specifically designated within the CDP for wind energy but has been designed to avoid and mitigate likely significant effects on the environment and is consistent with the wider policy context for renewable energy in the country and is a project of overriding national interest as set out in European policy.

Assessment

9.17. As stated above, there is a substantial and robust policy context which supports the development of renewable energy, including onshore wind, in the State. The proposed development comprises strategic infrastructure. The renewable wind energy development will have an estimated power output of between 52.8 and 57.6MW per annum and will be connected via the proposed substation to the national transmission system. Over its lifetime, the development has the potential to displace between 1,678,665 and 1,834,432 tonnes of CO_2 a significant GHG. It would therefore be consistent with this policy context and contribute to achieving targets set by the State for on shore wind energy.

9.18. Similarly, Westmeath County Development Plan and Meath County Development Plan support the development of renewables, including onshore wind, subject to environmental safeguards. Westmeath CDP, in policy objective CPO 10.145, directs large scale wind energy development to cutover cutaway peatlands in the County (subject to environmental considerations). The policy defines large-scale energy production projects, as those with a blade tip > 100m, comprising more than 5 no. turbines and having a total output >5MW falls. The proposed development falls within the Plan's definition of a large-scale project and is not situated in an area of cutover cutaway peatlands (although one of the turbines is situated in an area of previously cutover peat, T7).

9.19. WCC's Chief Executive's Report to the Board recommends that permission for the development is refused on the ground that the development contravenes the objective. No material contravention is cited.

9.20. Under section 37G(2) of the Act, when making a decision in respect of strategic infrastructure development (section 37E), the Board is required to consider certain

information. This includes report of the planning authority and consider the provisions of the development plan for the area. It is not bound by the report of the PA or the provisions of the development plan.

9.21. Further, under section 37G(6) of the Act, the Board '*may decide to grant a permission for development, or any part of a development, under this section even if the proposed development, or part thereof, contravenes materially the development plan relating to any area in which it is proposed to situate the development'*.

9.22. The determination by the Board of Bracklyn and Ballivor Wind Farms (ABP-311565 and ABP-316212), took such an approach and granted permission for a development, located outside of cutover cutaway bog contrary to policy CPO.145 of the WCDP, on the basis of overarching national objectives in relation to the promotion of renewable energy targets within the state and the conclusions of the Inspector's report in respect of environmental effects.

9.23. Recent case law has been referred to by the applicant (Save Roscam v ABP (No. 6) [2024] IEHC 335, 7 June 2024). In essence, this case confirmed that the Board has capacity to take a different view to the planning authority and, in principle, to grant a permission for a development which materially contravenes a development plan. Also referenced by the applicant is Umma More v ABP [2024/495] and cases referred to within in (Brophy v ABP [2015 IEHC 433] and Murtagh v ABP, unreported High Court March 29th, 2023). This case, Umma More v ABP, has recently conceded by the Board and is therefore not considered here.

9.24. Given the urgent requirement to roll out renewable energy in the state, and the obligations placed on the Board under section 15 of the Climate Act, 2015, I am satisfied therefore that it is appropriate that the Board consider the submission made by the planning authority and the provisions of the Westmeath County Development Plan (as wells as the factors listed in section 37G(2) of the Act), prior to coming to decision on the proposed development, but that it is not bound by these. This would therefore include policy 10.145 of the Westmeath CDP, which directs substantial wind energy development to cutover cutaway peatlands. In this assessment, in a policy context which supports the development of wind energy in the State and in the county, I am satisfied therefore that it is appropriate to consider the planning and environmental consequences of the proposed development situated on lands outside

of cutover cutaway peatlands. In section 11.2 of the EIAR I comment further on the applicant's consideration of alternative locations.

9.25. Further, in the EIAR and AA sections of this report I have concluded that the proposed development will give rise to certain residual landscape and visual effects in the immediate area of the site and from elevated viewpoints at distance from the development, and residual short-term effects on the local road network (L5542). However, having regard to:

(a) The evidence presented in the application documents on the public perceptions of wind farms, including by tourists,

(b) the short-term nature of construction works,

(c) the absence of other significant adverse environmental effects (including on people living in the area of the site) or significant effects on European sites,

(d) the positive effect the development will have on air quality and climate, with a net reduction in GHG emissions over the lifetime of the development, and

(e) the urgent need to transition to a low carbon economy set out in international, national and local policy documents,

9.26. I am satisfied that the development albeit in a location outside of an area of cutover cutaway peatlands in County Westmeath, is compliant with the wider policies and objectives of Westmeath County Development Plan and Meath County Development Plan for wind energy development and environmental protection and is acceptable.

9.27. **Premature pending revised WEDG**

9.28. In response to third party submissions, the applicant acknowledges that the 2006 WEDG are outdated and subject of targeted review. It is stated that the design of the development has adhered to the 2019 draft guidelines, where appropriate, and elsewhere to the 2006 Guidelines e.g. noise, where the 2019 guidelines do not represent current best practice.

9.29. The 2006 WEDG are considerably out of date in particular having regard to the significant increase in scale of turbines since 2006 and rapidly changing technology. Whilst draft guidelines have been published in 2019, these have not been adopted by government but are supported in part, in practice, for example with regard to community benefits, shadow flicker, and set back distances from dwellings (4 x tip

height). Further, best practice guidelines have been produced by industry in respect of noise. Whilst this may imply a 'cherry picking' of standards by the applicant, under the various guidelines, the approach adopted by the applicant is in line with government guidelines and current best practice (see EIAR).

9.30. The government have given commitments to publishing revised guidelines however the indicated timescale has slipped repeatedly. CAP24 states that revised WEDG for onshore wind will be published in 2025. Given the policy context for the urgent and rapid roll out of alternative forms of renewable energy in the State, and the continued delay in the provision of revised wind energy guidelines, whilst not ideal, I consider that it is incumbent on the Board to continue to make decisions in respect of wind energy in the absence of the revised guidelines. Further, I am satisfied that the 2006 Guidelines, draft guidelines (2019) and government and industry best practice guidelines, which continue to evolve and be informed by experience in the sector, provide a robust and reasonable basis on which informed decisions can be made.

9.31. **Applicant/application details**

Applicant/developer led/grid connection

9.32. Third parties argue that development is not in name of parent company (Statkraft), is developer, not plan led. Parties also seek clarification whether the grid connection forms part of the application.

9.33. The applicant for the proposed development is Knockanarragh Wind Farm, a limited company established. This is clearly identified in the application documents, and there is no legal requirement for the applicant to disclose the parent company. The application for the proposed development is developer led. This is not unreasonable given the policy and development plan context for wind energy development in the State, which is not prescriptive in terms of applicant type (e.g. developer or community led). With regard to the grid connection, it is clearly stated in the application documents and site notices that the subject development includes construction of a 110kV substation west of Clonmellon, construction of 33kV underground electrical cabling to connect the wind farm to the substation and a section of 110kV electrical cabling to connect the substation to the existing 110kV OHL at Clonmellon.

SID status/output

9.34. It is argued by elected members that the proposed development should not have been designated as SID, but an application made to the PA on the grounds that it would not achieve predicted outputs.

9.35. The proposed development, with a total power output of 52.8MW to 57.6MW is of a scale and type that clearly falls within the Seventh Schedule of the Act, '*An installation for the harnessing of wind power for energy production (a wind farm) with more than 25 turbines or having a total output greater than 50 megawatts*'. Further, it has been the subject of pre-application consultations with the Board and determined to be strategic infrastructure under ABP-314271, having regard to the size, scale and location of the development, and its strategic importance, by reference to the requirements of section 37A(2)(a, b and c).

Boundary treatment

9.36. Meath CC request the Board to consider the need for boundary treatment for areas enclosed by the application site, but which are outside of the red line boundary, if such areas require protection from construction activities.

9.37. The planning application boundary (red line boundary) extends to a large site, with the footprint of the development contained within this (see Proposed Site Layout Sheet nos. 1 to 5). Whilst the footprint of the completed development is indicated in plans, the extent of construction work indicated in the text of the application, and assessed in the EIAR and NIS, is not indicated e.g. formation level of roads, nor the means by which land outside of the development footprint (construction and operation) will be protected during construction works. Section 4.11.1.11 of the NIS states that '*temporary fencing (paling with 25 mm mesh) will be erected around the required site works to delineate the works area and to minimise the potential for disturbance impacts outside of the works area'.* It is not clear if this undertaking is made in reference to works only in proximity to the River Boyne and River Blackwater SAC or the site as a whole. Notwithstanding this, given the sensitivity of habitats on site and the risk of construction effects extending outside of the construction footprint, I consider that it is appropriate that temporary fencing be required around the site works area. This matter can be addressed by condition.

Size of turbines

9.38. MCC refer to Drawing no. PL06.4 Turbine Elevation, which shows a different minimum and maximum hub height to design flexibility parameters set out in the application documents. In response, the applicant clarifies that the size of turbines is as per the public notices i.e. hub height ranging from 97.5m to 99m inclusive.

Drawing no. PL06.4 Turbine Elevation indicates turbines with a hub height of 102.5m maximum and 99m minimum and are incorrect. The Board should therefore refer to the written dimensions in the public notices and description of the development in Chapter 2 of the EIAR.

Replacement forestry

9.39. MCC refer to the absence of indicated potential off-site areas which would be subject to replanting and their suitability for native or commercial non-native forestry. In response the applicant refers to the approach to replanting forestry set out in the EIAR (Chapter 5, sections 5.25-5.30), where it is stated that the replant lands will not be within the same hydro- or hydrogeological sub-catchment as the proposed development and to the prudent approach to process applications for felling and afforestation close to the time when the activities will occur.

9.40. As indicated by the applicant, replanting of forestry will not take place within the same sub-catchment and will not therefore give rise to cumulative environmental effects. Further, it is not unreasonable that any application to the Forestry Service for felling and replanting take place closer to the time of works occurring, subject to planning permission being granted. However, I would recommend to the Board that should permission be granted, the location of replant lands is identified in advance of commencement of works. This matter could be addressed by condition.

Storage of spoil

9.41. MCC recommend to the Board that a condition is imposed on any permission to require spoil to be stored outside of flood risk zones.

9.42. The applicant's schedule of mitigation measures refers to the storage of stockpiled materials out with a 50m buffer from watercourses (water mitigation measures). I note there is no specific reference to storage outside of the flood risks zones. However, such an approach is not unreasonable and would protect water quality

during flood incidences. If the Board are minded to grant permission, this matter can be addressed by condition.

Turbine, Substation, External finishes

9.43. WCC recommends that no stripes be painted or attached to the turbines, in order to keep them as visually clean as possible. MCC recommends that the Board clarify the dimensions of the substation, that finishes to substation building are identified by the Board or to be agreed with the PA by condition. It is also recommended that matt green paint be used on external features, all lighting is directed inward, avoiding light spill/glare and that a decommissioning plan is sought in advance or by condition. It is also noted that no details CCTV poles/structures are submitted for the substation area.

9.44. In response, the applicant raises no objections to any condition in respect of external finishes, appropriate direction lighting and decommissioning. The applicant refers to Drawing no. MWP-001 for confirmation of substation dimensions.

9.45. Given the rural location of the proposed substation, it is appropriate the external finish to the substation building and associated features, where possible, are finished in a matt green palette and that lighting is directed inward. I am satisfied therefore that these matters, and details of CCTV poles/structures, can be addressed by condition. The proposed substation will become a permanent part of the transmission infrastructure and will not be decommissioned. With regard to turbine finish, I note that the application documents clearly state that turbines will be finished in white, off white or light grey to blend into the sky background in accordance with the WEDG 2006, or as determined by the Board. This matter can also be addressed therefore by condition.

9.46. With regard to the size of the compound, Drawing no. ABP-314271-22-MWP-001 indicates a compound size of 100.75m x 122.099m = 12,301m^2, including the construction compound, and 11,194m^2, excluding the construction compound. These areas are not dissimilar to the areas referred to by the PA (11,194m^2 and 12,322m^2), with the difference explained the inclusion/exclusion of the construction site.

Construction period

9.47. Third parties raise concerns regarding the lengthy construction period sought. However, I note that the applicant proposes to construct the development within 10 years of a grant of permission, but with construction to take place over 18 to 24 months. The actual period for construction is not unreasonable and could be addressed by condition.

9.48. **Design flexibility.**

9.49. Parties to the application refer to the design flexibility sought. MCC states that if permission is granted, the Board may specify design envelope, to be agreed with the relevant PA. Third parties argue that the turbine model constructed may not be either of the models examined, and that the absence of confirmed dimensions does not allow for a proper EIAR to be completed.

9.50. The applicant's Planning Statement addresses design flexibility. It is stated that the development is in accordance with case law which provides for limited flexibility in the context of the changing technology for wind turbines (Derryadd judgements nos. 1 and 2[4]). Turbine dimensions may not be either of the two candidate turbines but will be within the range of parameters set out. The applicant refers to the Planning and Development, Maritime and Valuation (Amendment) Act 2022 (Commencement of Certain Provisions) (No.2) Order 2023, which gave effect to section 37CC, 37CD and 37CE of the Planning and Development Act 2000 (as amended). It is stated that the new sub-sections enable a person who proposes to apply for permission for development specified in the Seventh Schedule (i.e. strategic infrastructure), to meet with the Board with a view to determining if it is appropriate that the proposed application may be made to the Board before the prospective applicant has confirmed certain details of the application i.e. to consider the appropriateness of design flexibility. In this instance, it is stated that the applicant has not sought design flexibility under the terms of the Act, given the urgency of the need for the development and noting the discretionary nature of section 37CC(1) of the Act and Article 15J(4) of the P&D Regulations, 2000, as amended.

9.51. It is stated that the EIAR assesses the permutation which will result in the greatest environmental effect and whether there are any differences in the significance of

[4] Sweetman v ABP (No. 1) [2020] IEHC 390 (Derryadd no. 1) and Sweetman v ABP & Ors [2021] IEHC 662 (Derryadd no. 2).

environmental effects, for other permutations within the range i.e. for those permutations that do not have the greatest environmental impact (see Table 2-2, Planning Statement).

Assessment

9.52. The proposed development comprises turbines within the specifications set out for Turbine Type 1, tip height 175m (Siemens Gamesa 155) and Turbine Type 2, tip height 180m (Vestas 162), with section 2.34 of the EIAR stating that '*The exact make and model of the turbine will be dictated by competitive tender process but will remain within the range listed below [Table 2-1]'* with the EIA assessing all permutations '*within the range of the proposed dimensions'.* The wording used by the applicant would suggest a design envelope approach to selection of wind turbines.

9.53. Under the Maritime and Valuation (Amendment) Act 2022, the government introduced arrangements for design flexibility in applications for strategic infrastructure development. These came into effect on the 21st December 2023 (Circular PL 11/2023), predating the application to the Board for the subject development 2nd April 2024, and post-dating the date upon which pre-application consultations in respect of ABP-314271, which were concluded in August 2023.

9.54. The design flexibility sought in the application documents has not been established through the pre-application consultation process, as envisaged in the legislation amending the Planning and Development Act 2000. In this regard, I would disagree that the applicant's assertion that section 37CC(1) of the Act and Article 15J(4) of the P&D Regulations, 2000, as amended are discretionary.

9.55. Section 37CC(1) of the Act states '*A person who proposes to apply for permission for any development specified in the Seventh Schedule (referred to in this section and section 37CD as a "prospective applicant") may request a meeting with the Board for the purposes of section 37CD as part of consultations referred to in section 37B(1)'.* Article 15J(4) of the Regulations states '*A planning application may be accompanied by an opinion on unconfirmed details…*'

9.56. My understanding is that the use of the term 'may' in both instances, allows for a situation in which the applicant does not wish to seek design flexibility or to make a planning application where details of the development are unconfirmed. Further, I

consider that the applicant's approach is inconsistent with the legislation for design flexibility

9.57. Should the Board decided to grant permission for the development, this procedural anomaly would have to be addressed. In order to do this, I would recommend that if the Board decide to grant permission for the development, this be restricted to a specific turbine type. This would avoid any requirement for compliance with legislation for design flexibility and allow decision making to take place. Further, it would provide clarity in respect of the dimensions of the proposed turbines for assessment purposes. Finally, should the applicant wish to alter the details of the permission, this could be done by request under section 146B of the Act (alteration by Board of strategic infrastructure development).

9.58. **Potential for recreational use of the site**.

9.59. MCC recommends that the Board may wish to consider recreational use of the site and access tracks, with amenity signage to be agreed with the PA. In response the applicant states that recreational use was considered but discounted on the basis of the segmented nature of the site, number of landowners involved and difficulties in obtaining agreement across all landowners due to the ongoing use of some areas of land within the site for farming and agriculture and limited suitable access points.

9.60. The suggestions for use of the wind farm access site for recreational use are not unreasonable. However, given the arguments put forward by the applicant in respect of the practical difficulties associated with the landholding, notably multiple landowners, achieving collective agreement and ongoing use of the site for agriculture and forestry, I would not recommend that the board require any such use should they decide to grant permission for the development. Notwithstanding this, recreational use of the site could be pursued via the Community Benefit Fund.

9.61. **Impacts on the local community and residential amenity**

9.62. Parties to the application raise concerns regarding the potential for adverse effects on local amenity, residential amenity and human health. These issues are addressed in the EIAR section of this report (including impacts on property values).

9.63. **Compliance with the European Landscape Convention**

9.64. This matter is addressed in the landscape section of the EIA.

9.65. **Compliance with the Machinery Directive**

9.66. Compliance with the EU Machinery Directive is a matter for another code. However, reference is made to it in the applicant's consideration of risk of major accidents and natural disasters, with the turbines required to be quality assured under this Directive.

9.67. **Decommissioning**

9.68. Third parties argue that it is inappropriate to retain large concrete bases (waste of finite natural resources), wind turbine blades difficult to dispose of, end of life of turbine blades should comply with the requirements of the Circular economy, and the applicant should cover the cost of disposal and reinstatement.

9.69. The applicant is seeking a 35-year permission for the subject development. At the end of this period, it is proposed that the turbines will be fully disconnected from the power supply (substation to form a permanent part of the transmission infrastructure), with internal component parts removed prior to dismantling of turbines to ground level. Turbines components will be transported off site for re-use or recycling. Foundations will be covered and left to re-vegetate, on the grounds that their removal would result in environmental nuisance, such as noise, vibration and dust. Similarly, access tracks will be left in situ, subject to agreement with the PA and the relevant landowners. A detailed decommissioning plan will be agreed in advance of construction.

9.70. The approach taken by the applicant is not unreasonable and is consistent with current practices in wind farm development. At the end of the 35-year period of operation, it is likely that the disposal and re-use options will have evolved, as will the requirement for aggregates and the cost/benefits of retaining large concrete bases in situ, in line with EU and national policy e.g. the Circular Economy. Should the Board decide to grant permission, I would recommend a condition requiring an outline decommissioning plan to be agreed with the PA in advance commencement, with provision for a revised and detailed plan in advance of decommissioning, and appropriate bond.

9.71. **Community Benefit Fund**

9.72. PAs, elected members and third parties raise concerns regarding the devaluation of property, the inadequacy of the €1000 to be paid to dwelling directly affected to compensate for this, the duration of community funds and details on how the fund would be used. WCC recommend that the matter be addressed by condition.

9.73. In response, the applicant refers to the research presented in the EIAR which largely indicates that onshore wind turbines have (a) little to no effect negative impact on property prices, and (b) where there is a negative effect, this generally disappears over time.

9.74. The issue of effects of the development on property values is considered in the EIA section of this report (Population and Human Health). For the reasons stated, I am satisfied that there is no demonstrative evidence that wind farms have an adverse effect on property values.

9.75. The applicant's proposed Community Benefit Scheme is described in section 4.29 of the EIAR. It has regard to the Renewable Energy Support Scheme requirement that a contribution of €2/MWh will be contributed to a Community Benefit Fund, which will provide a minimum payment of €1000 to all dwellings within 1km of the development and which will provide 40% of the funds to be paid to not-for-profit community enterprises. It is envisaged that the applicant will engage at an early stage with the community for the use of the CBF.

9.76. The provision of the CBF is consistent, in principle, with the government's guidelines '*Renewable Electricity Support Scheme, Good Practices Principles Handbook for Community Benefit Funds'*, GoI 2021. Operation of the fund is governed by guidelines provided on the RESS and typically falls outside of the planning system. Further, the community benefit funds are directed to communities, not to address the devaluation of property, but to ensure that communities across the country benefit from the transition to renewable sources of energy.

9.77. Should the Board decide to grant permission, I would recommend a condition requiring provision of CBF, in the circumstances where the applicant does not benefit from support under the RESS, for instances enters into a direct relationship with an energy user. Such a condition would ensure that the community, consistent with the government's guidelines, would benefit from the transition to renewable sources of energy.

9.78. **Enforcement**

9.79. Third parties to the application raise concerns regarding the poor record of enforcement in the State and concerns for the subject development.

9.80. The proposed development comprises a large infrastructure project in a sensitive site. The absence of environmental effects is predicated on the implementation of the development in accordance with the proposed plans, particulars and mitigation measures. For certain environmental parameters, these measures include for monitoring of effects. In the State, planning authorities are responsible for planning enforcement and have considerable powers under the Planning Act to take action to ensure that the development that is undertaken is in accordance with plans, particulars and conditions of the permission. The Board has no role here. Under legislation the Office of the Planning Regulator can examine complaints about local authorities that relate to the overall organisation of the authority and the systems and procedures it uses when carrying out its planning functions

9.81. **Impact on agriculture**

9.82. Thirds parties to the application argue that the proposed development will impact on animals (noise, flicker) and on crop production.

9.83. The proposed development comprises a relatively modest land take from a substantial landholding. The applicant has stated that agricultural land uses, and forestry, will continue with the operation of the wind farm. Whilst I accept that there may be short term effects on animals in proximity to construction sites (e.g. sheep), and long-term loss of agricultural and forestry land from the footprint of the development, there is no evidence presented by any party that wind farms have any adverse effects on farm animals or crop production during operation. Further, I note that Teagasc Rural Development Fact Sheets, Wind Energy, identify wind farms as a potential farm diversification development. It raises no concerns regarding adverse effects on farming activities.

9.84. **Conditions of the Permission**

9.85. Westmeath County Council and Meath County Council, in their reports to the Board, propose certain conditions, should the Board decided to grant permission. In response to submissions, the applicant has generally indicated a willingness to

accept the conditions proposed by the planning authorities, with the exception of turbine lighting (see EIAR).

9.86. In table C1 below, recommended conditions are tabulated, and I have indicated whether these are included in, or excluded from, the recommended schedule of conditions. Reasons for excluding recommended conditions are given e.g. measures are included in the EIAR and implementation of the EIAR is required by condition of the permission. Recommended conditions are not therefore considered in the body of this report unless substantial issues have been raised in submissions and/or by the applicant.

Table C1: Recommended Conditions - In/Exclusion in Schedule of Conditions

Planning Authority		**Included/ excluded in Schedule of Conditions**
Westmeath County Council		
Residential amenity	Location of turbines (10 x rotor diameter from sensitive receptor).	Excluded. Conflicts with WEDG 2006.
	Automatic shadow control, with shut down should shadow flicker arise.	Excluded as included in EIAR.
	Community benefit.	Included (in circumstances where no RESS).
Biodiversity.	Employment of full time Ecological Clerk of Works and bird specialist.	Included, as additional to measures in EIAR.
Environment	Updated CEMP	Excluded as provided for in EIAR.
	Compliance with mitigation measures	Included, standard condition.
	Compliance with Wind Energy Development Guidelines	Operating limits/mitigation measures reflect WEDG 2006.
	Preparation of a construction and demolition resource waste management plan.	Excluded as provided for in the EIAR.
Traffic	Road improvements along L5542	Included, as additional to measures in EIAR.
	Mitigation measures for site material spillage on public roads.	Excluded as provided for in EIAR.
	Adequate sightlines at site entrances.	Included, additional to measures in EIAR.
	Condition survey of local roads/haul routes and cable route, before and after construction, with developer to carry out maintenance programme during construction and repairs.	Included, clarifies extent of mitigation measures in EIAR.
	Structural condition survey of culverts/bridges along haul routes and grid connection route, with appropriate mitigation measures.	Included, clarifies extent of mitigation measures in EIAR.

	Queuing arrangements for construction traffic.	Excluded as provided for in EIAR.
	Source and volume of aggregate materials (will determine extent of cash bond).	Included, clarifies extent of mitigation measures in EIAR.
	Security bond.	Included.
	Details of cable installation.	Included, clarifies extent of mitigation measures in EIAR.
	Revised Traffic Management Plan.	Included, as clarifies nature and extent of measures in EIAR.
Development contribution.	Levy set out in Development Contribution Scheme to apply.	Included in schedule of conditions.
Turbine design	No stripes/marking on turbines.	Included in schedule of conditions.
Meath County Council		**Included/excluded**
1, 3, 4	Standard condition (plans and particulars, period of permission, duration of development).	Included in schedule of conditions. No reference to access tracks to be retained, as provided for in application.
2.	Appointment of Community Liaison Officer	Included in Schedule of conditions, to clarify measures in the EIAR (CEMP refers to various contact persons).
5.	Connection to national grid.	Excluded. Permission sought for connection to national grid. Consent issues to be addressed with EirGrid.
6.	Height of turbines.	Included, with reference to single turbine type for reasons stated in this report (design flexibility).
7-9.	CCTV, external finishes and lighting	Included in schedule of conditions, not detailed in application documents.
10.	Boundary treatment.	Included in schedule of conditions, not detailed in application documents.
11.	Wastewater holding tank.	Addressed in EIAR therefore not included as specific condition.
12.	Implementation of mitigation measures (including EIAR, NIS, CEMP, Habitat Management and Enhancement Plan),	Included in schedule of conditions, standard condition.
	Employment of ecologist, hydrologist during and after construction to ensure mitigation measures are completed and monitoring is carried out for at least 7 years.	Included, as clarifies nature and extent of measures in EIAR.
	Requires bat mitigation measures to be in line with NRA standards	Bat mitigation measures set out in the EIAR, CEMP and baseline bat report, include preconstruction survey work, derogation licence if required from NPWS and bat buffer zones. Additional condition for measures to be in line with NRA standards, will provide additional and more comprehensive approach to mitigation.

13.	Shadow flicker.	Included in schedule of conditions, standard condition.
14-15.	Timing of removal of hedgerows/trees, landscaping.	Excluded as addressed in EIAR/NIS.
16.	Archaeology.	Included, clarifies the nature and extent of measures in EIAR.
17.	Revised entrance to sub-station.	Excluded, as proposed arrangements considered to be more beneficial.
18.	Crossing of watercourses, prevention of discharge of suspended solids, other pollutants, biosecurity measures and work to IFI standards.	Included, clarifies extent of mitigation measures in EIAR.
19.	Construction and Demolition Resource Waste Management Plan.	Excluded as Waste Management Plan provided for in the EIAR.
20.	Road safety audits and details of signage and works required to facilitate abnormal loads.	Included as clarifies extent of mitigation measures in EIAR.
21.	Revised Traffic Management Plan, to include haul routes, vehicles to transport materials, conditions survey of roads and bridge, schedule of necessary works/protection, repair of construction damage, temporary traffic management arrangements, phasing programme for works, including with other wind farms.	Included as clarifies extent of mitigation measures in EIAR.
22.	Post construction road survey and repair of damage.	Included as clarifies extent of mitigation measures in EIAR.
23.	Public road to be kept free of dirt/debris.	Included as clarifies extent of mitigation measures in EIAR.
24.	All essential infrastructure to be outside of Flood zone A and B. No access tracks to be raised above local ground levels in Flood zone A and B.	Excluded as provided for in the EIAR.
	No development within 10m of watercourse (to facilitate access by OPW)	Excluded as provided for in the EIAR.
	Works to be carried out in accordance with IFI Guidance on construction work near watercourses.	Included as clarifies extent of mitigation measures in EIAR.
25.	Updated CEMP.	Included as clarifies extent of mitigation measures in EIAR.
26.	Waste Management Plan.	Excluded as provided for in the EIAR.
27.	Control of dust.	Excluded as a specific condition (addressed in EIAR and risk of adverse dust effects very low, with distance from receptor, short duration of works/rolling programme). Included in updated CEMP condition.

28.	Low frequency noise.	Excluded. Considered in assessment, with no potential for significant effects.
29 -32.	Refuelling, storage of contaminants, spill kits, burning of waste.	Excluded as provided for in the EIAR.
33.	Waste management.	Excluded as provided for in the EIAR.
34-35.	Construction noise.	Excluded as provided for in the EIAR.
36.	Complaints register.	Included as clarifies extent of mitigation measures in EIAR.
37.	Storage of excavated material.	Excluded as addressed in EIAR.
38.	Pre-construction survey of invasive species.	Excluded as addressed in EIAR.
39.	Pre-site clearance survey for protected species.	Included as clarifies extent of mitigation measures (and role of Ecological Clerk of Works).
40.	Site to be maintained in a neat and tidy condition during operation.	Excluded, plans indicate extent of works.
41.	Interference with telecommunications.	Included as clarifies extent of mitigation measures in EIAR.
42.	Works to roads/bridges to be in accordance with NRA guidelines.	Included as clarifies extent of mitigation measures in EIAR.
43.	Outline decommissioning plan to be submitted in advance of commencement.	Included as clarifies extent of mitigation measures in EIAR.
44-45.	Development contribution, bond.	Included, standard condition.
46.	Community benefit fund (identification of projects)	Included, standard condition.

9.87. **Further Information**

9.88. Meath County Council recommend further information in respect of a number of matters including archaeology, architectural and cultural heritage. In the planning assessment, EIA and AA sections of this report, I have examined each of the matters raised by the PA and consider that there is sufficient information on file for the Board to draw conclusions in respect of the matters raised. As such I do not consider that further information from the applicant is necessary.

9.89. **Other Matters**

9.90. The CEMP refers to a post consent role for the Board (e.g. section 3.2.1, CEMP). However, in practice this role would fall to either of the two planning authorities, in which the site lies.

10.0 Environmental Impact Assessment

10.1. Statutory Provisions

10.2. Schedule 5, Part 2, Class 3, Energy Industry (j), Planning and Development Regulations, 2001 (as amended) requires EIA for '*Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts'.* The subject development comprises a wind farm of 8 no. turbines and an output of 52.8MW to 57.6MW. The proposed development therefore requires EIA. In addition, the proposed development has also been determined by the Board to comprise strategic infrastructure under section 37B(4)(a) of the Planning and Development Act, 2000 (as amended). Consequently, as per the requirements of section 37E of the Act, an application for permission is required to be accompanied by an EIAR.

10.3. EIA Structure

10.4. This section of the report comprises the environmental impact assessment of the proposed development in accordance with Planning and Development Act 2000 (as amended) and the associated Regulations, which incorporate the European directives on environmental impact assessment (Directive 2011/92/EU as amended by 2014/52/EU). Section 171 of the Planning and Development Act, 2000 (as amended) defines EIA as:

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

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

10.6. This EIA section of the report is therefore divided into two sections. The first section assesses compliance with the requirements of Article 94 and Schedule 6 of the Regulations. The second section provides an examination, analysis and evaluation of the development and an assessment of the likely direct and indirect significant effects of it on the following defined environmental parameters, having regard to the EIAR and relevant supplementary information:

- population and human health,
- biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive,
- land, soil, water, air and climate,
- material assets, cultural heritage and the landscape,
- the interaction between the above factors, and
- the vulnerability of the proposed development to risks of major accidents and/or disasters.

10.7. The assessment provides a reasoned conclusion and allows for integration of the reasoned conclusions into the Boards decision, should they agree with the recommendation made. Adequacy of the consultations carried out by the applicant is also considered below.

10.8. **Issues Raised in Respect of EIA**

10.9. Issues raised in respect of EIA by parties to the application are:

- Adequacy of expertise.
- Adequacy of alternatives (site selection).
- Adequacy of design flexibility for the purposes of assessing effects under EIA.
- Compliance with the EIA Directive.
- Impacts on population and human health, biodiversity (including sites of natural heritage interest and ancient/long established woodland), birds (including difference of opinions on bird survey methods, illumination of turbines), soils, water, climate and air (including carbon footprint and noise), cultural and heritage assets, landscape and visual effects (including magnitude of effects), tourism, traffic (including access to and effects on National road), material assets (including Irish Water assets and airspace) and major accidents and natural disasters.

- Cumulative effects, with other development (e.g. solar).

11.0 Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations 2001

11.1. Compliance with the requirements of Article 94 and Schedule 6 of the Regulations is assessed below.

Article 94 (a) Information to be contained in an EIAR (Schedule 6, paragraph 1)
A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development (including the additional information referred to under section 94(b).
A description of the proposed development is provided in Chapter 2 of the EIAR. It includes details on the proposed development site, the design and size of the proposed development, including design options for two turbine types, temporary and permanent land take, requirement for materials, details of the construction programme and operation and decommissioning phases. Further details on the development site are provided in the technical chapters of the EIAR. Certain aspects of the development require further clarification. However, these are not substantial and can be addressed by condition. I am satisfied therefore that sufficient information has been presented to enable an assessment of likely significant environmental effects to be carried out.
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. These are considered technical assessment of this EIA below. For the reason stated in this EIA, I disagree with the applicant's conclusions in respect of the significance of landscape and visual effects, and the potential for significant effects on fen habitat. Otherwise, I am satisfied that the likely significant effects of the development on the environment have been described.
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).
Measures to mitigate predicted environmental effects are set out in each technical chapter of the EIAR (where relevant), in summary in Chapter 17 and in the CEMP. Having regard to my examination of the EIAR and the submissions made, and my assessment of the likely significant effects of the development on the environment, I am satisfied that the EIAR provides a description of the features and measures to avoid, prevent or reduce significant adverse effects, except in respect of fen habitat. However, this issue is addressed by the recommended omission of Turbine T1.
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).

Alternatives are considered in Chapter 3 of the EIAR and include the 'do nothing' scenario, alternative locations, alternative technologies, alternative design and layout and alternative cable routes and haul routes. Having regard to the details presented I am satisfied that the applicant has provided a description of the reasonable alternatives, relevant the proposed wind energy development, and an indication of the main reasons for the resultant proposed development, with reference to effects on the environment (see further comments below on alternative locations).
Article 94(b) Additional information, relevant to the specific characteristics of the development and to the environmental features likely to be affected (Schedule 6, Paragraph 2).
A description of the baseline environment and likely evolution in the absence of the development.
A description of the baseline environment is typically included in each technical chapter of the EIAR and an assessment of the likely evolution of it, in the absence of the development (do nothing scenario). Where it has not been addressed in the EIAR, the baseline environment and its likely evolution can be readily assessed from the information on the file/inspection of the development site.
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
A description of the forecasting methods or evidence used to identify and assess the significance of effects is included in each technical chapter of the EIAR. Any difficulties encountered, or areas of uncertainty, are also identified in the technical chapters. Having regard to my review of the EIAR and to the environmental impact assessment carried out below, I am satisfied that there are no significant impediments to the assessment of environmental effects, by virtue of difficulties encountered or areas of uncertainty, except in respect of impacts on fen habitats. As stated, this issue can be addressed by the recommended omission of turbine T1.
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.
Vulnerability of the proposed development to environmental effects arising from the risks of major accidents and/or disasters is appropriately considered in Chapter 15 of the EIAR.
Article 94 (c) A summary of the information in non-technical language.
Volume 1 of the EIAR comprises a Non-Technical Summary (NTS) of the proposed development. I have read the report, and it summarises, in non-technical language, the information contained in the EIAR and likely environmental effects of the development. I am satisfied therefore that the EIAR complies with the requirements of the Regulations in respect of Article 94(c).
Article 94 (d) Sources used for the description and the assessments used in the report
The sources used to inform the description, and the assessment of the environmental effects of the development are set out in each chapter, typically at the beginning of the technical assessment under methodology. I consider the sources relied upon are generally appropriate and sufficient except in relation to concerns raised in respect of impacts on fen habitat for the reasons stated in the EIA.
Article 94 (e) A list of the experts who contributed to the preparation of the report

A list of the various experts who contributed to the EIAR is set out in Table 1-3 of the EIAR. Where relevant, this information is repeated in the introductory sector of each chapter. Details include the name and qualification of the expert, their area of expertise and years of relevant experience. I have reviewed each of the technical sections of the report, and I am satisfied that it has been prepared by experts with competency in the technical subject areas.

Alternative Locations

11.2. Westmeath County Council's report to the Board states that the applicant's alternative sigh selection process failed to appreciate the significance of CDP Policy CPO 10.145, which directs large scale energy production projects to cutover cutaway peatlands in the county subject to environmental safeguards.

11.3. In response, the applicant refers to the emerging national policy context in the proposed revised National Planning Framework which requires local authorities to deliver regional renewable energy targets. In this context it is argued that the Policy CPO 10.145 is not practicable as peat bogland ins the County is affected by natural heritage designations and residential development, such that only 2.8% of the County (5,167ha) is available for wind farm development, with this figure further reduced by other constraints (Figure 1, applicant response document).

11.4. Chapter 3 of the EIAR sets out the applicant's approach to strategic site selection for the development. Factors considered include environmentally sensitive areas, wind speeds, proximity to and capacity of grid, housing buffers and relevant planning policies. The policy context includes that the Westmeath CDP supports the development of renewable energy sources to limit greenhouse gas emissions, in an environmentally acceptable way, albeit directing large scale energy production projects to cutover cutaway peatlands.

11.5. I am mindful of the arguments put forward by both the PA and the applicant. The policy context for the subject development is the existing NPF. However, as stated previously there is a substantial and robust EU national which supports the development of renewable energy in the State, including onshore wind energy. The context for this is a climate crisis and the urgent need to reduce GHG emissions. Polices of the Westmeath CDP support the development of renewable energy, including wind energy, subject to environmental safeguards. The direction of large-scale energy production projects to cutover cutaway peatlands precludes much of

the county for wind farm development and is arguably unnecessarily restrictive for developments which can take place in the wider area, without significant adverse effects on people or the environment.

11.6. In this instance, I am satisfied that the applicant has examined alternative sites and identified the subject site having regard to the location of environmentally sensitive areas, centres of population etc. in the County, with a view to minimising adverse effects. Further, given the pressing need to roll out renewable sources of electricity in the State, I consider that the approach taken to consider the subject development site as an appropriate location for wind energy is not unreasonable.

Appropriate Expertise

11.7. In their comments on the application, Meath County Council state that the Board should satisfy itself that the EIA was undertaken by appropriate experts. As stated above the EIAR clearly sets out the experts who have contributed to the EIAR and their qualifications. I have reviewed each of the technical sections of the report, and I am satisfied that it has been prepared by experts with competency in the technical subject areas. Whilst I may disagree with the conclusions drawn by some of the experts, for the reasons stated in this report, I can see no limitations or inadequacies in the appropriateness of the expertise.

Consultations

11.8. Third parties and elected members raise issues in respect of consultation. This matter has been addressed in the Planning Assessment section of this report and for the reasons stated I am satisfied that the applicant has carried out a very reasonable public consultation exercise, that the purpose of the public notices has been served and that the public have had an opportunity to participate in the decision-making process, and to make submissions on the proposed development in advance of decision making.

Compliance

11.9. Having regard to the foregoing, and subject to recommendations in respect of the omission of turbine T1, I am satisfied that the information contained in the EIAR, and supplementary information provided by the developer is sufficient to comply with

article 94 of the Planning and Development Regulations, 2001. Matters of detail are considered in my assessment of likely significant effects, below.

11.10. **Design Flexibility**

11.11. The issue of design flexibility has been considered in principle in the Planning Assessment of this report. For the purpose of environmental impact assessment, the applicant has assessed both the minimum and maximum parameters of tip height, turbine foundations, foundation size and power output. It is argued that the approach allows for an assessment of all permutations within the range. Further, the applicant has had regard to whether there are any differences in the significance of the effects for other permutations within the range. The summary of consequences of alternative designs are summarised by environmental topic in Table 2-2 of the Planning Statement. In general, I am satisfied that the approach taken by the applicant has enabled the assessment of likely environmental effects arising from each of the proposed turbine types, and for the permutations within the range. However, for the reasons stated in the Planning Assessment, notably the absence of design flexibility sought by the applicant from the Board under section 37CC of the Planning and Development Act, 2000 (as amended), I consider that the Board are precluded from granting permission for design flexibility in the manner presented by the applicant (i.e. two turbine options and a 'design envelope' for all permutations within the range.

12.0 Assessment of Likely Significant Effects

12.1. This section of the report sets out an assessment of the likely environmental effects of the proposed development environmental parameters set out Section 171A of the Planning and Development Act 2000 (as amended)

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

- Issues raised in the appeal/application.

- Examination of the EIAR.
- Analysis, Evaluation and Assessment: Direct and indirect effects.
- Conclusion: Direct and indirect effects.

12.3. **Population and Human Health**

12.4. **Issues Raised**

12.5. Issues raised in respect of population and human health are the effects of the development on population profile, justification for the employment benefits, impacts on residential amenity (e.g. proximity, noise, shadow flicker) and property values, landscape and visual effects, impacts on primary schools, property values, effects during construction (e.g. noise, disturbance, traffic), and health effects, including those with hearing aids and autism (e.g. wind turbine syndrome, noise, infrasound, shadow flicker, sleep disturbances and headaches).

12.6. Other issues, raised with the potential for indirect effects on population and human health, include impacts on tourism, cultural heritage, water, flooding and risk of accidents. These are addressed in different technical chapters of this environmental impact assessment.

12.7. **Examination of the EIAR**

Context

12.8. Chapter 4 of the EIAR deals with Population and Human Health and Chapter 11 Shadow Flicker.

12.9. Chapter 4 has been prepared having regard to the issues raised in the community consultation process and in the scoping consultation with statutory bodies. The methodology for impact assessment has regard to the Guidelines on the Information to be Contained in EIAR's (EPA, 2022) and other government and industry guidelines (section 4.22). The EIAR also refers to the conclusions of other technical chapters of the Report, for example, in respect of traffic or landscape effects, to assess likely effects.

12.10. In Chapter 11 deals with shadow flicker. The methodology for assessment has regard to government guidelines on wind energy (WEDG, 2006 and dWEDG, 2019) and industry best practice guidelines on the assessment of shadow flicker. The

numerical modelling of turbines and receptors assumes a worst case scenario based on the sun shining during all daylight hours over the course of a year with no obscuring features present, the face of the rotor always aligned towards the dwelling, that the rotor is always turning (i.e. wind between 4m/s and 25m/s) and a 'greenhouse' approach where the full length of each façade is modelled as a 'window'. Shadow flicker is modelled for the two turbine options (Table 11-4 and 11-5).

12.11. The government's WEDG 2006 recommend that shadow flicker at neighbouring properties, within 500m, should not exceed 30 hours per year or 30 minutes per day. The 2019 draft WEDG recommend elimination of shadow flicker through design or automated turbine shutdown with conditions to ensure that no dwelling or affected property will experience shadow flicker.

12.12. Section 4.29 of the EIAR sets out the details of the Community Benefit Scheme. Consistent with the terms of the Renewable Energy Support Scheme, it provides a contribution of €2/MWh to provide a community benefit fund. From the fund, €1,000 will be provided to all dwellings located within one km of the development and a minimum of 40% of the fund will be paid to not-for-profit community enterprises.

Baseline

12.13. The EIAR defines a study boundary of a 1km radius from the proposed development site, for the assessment of population and human health effects. The key receptors within this boundary are local residences (Figure 4-3), including those in the village of Clonmellon. For the assessment of shadow flicker, there are no dwellings within 500m of individual turbines, and 171 and 211 inhabited residential buildings within the 1,550m and 1,620m respectively, of the proposed turbines (shadow flicker study areas scenario 1 and 2, Figures 11-1 and 11-2). The closest receptor to the development site is ref. no. 124 (a property with a financial involvement in the wind farm), with a setback 705m.

12.14. Three electoral divisions which are represented within the 1km buffer zone (Figure 4-1). Reflecting the rural area, population density is low, with a small percentage increase 2016 to 2022, similar to changes in County Meath and County Westmeath. Household size is slightly above levels in County Meath, Westmeath and the State. Age structure indicates a slightly higher percentage of persons in the 45-64 age

cohort and slightly lower in the 25-44 age cohort compared to that of County Meath, Westmeath and the State. (The EIAR describes tourism assets within the area of the site, which is considered in the Landscape and Visual Impact Assessment).

12.15. The EIAR refers to health trends provided by the Department of Health 'Health in Ireland, Key Trends' (2022) and to the reported self-perceived health status for the study area, County Meath, Westmeath and the State (Table 4-14), with the study area having high levels of good and very good health status.

12.16. The assessment of cumulative effects has regard to the long list of all proposed and permitted developments within the vicinity of the development site (Appendix 1-1), but focuses on the following wind farm projects within 20km of the proposed development, Coole Wind Farm, ABP-309770, Bracklyn Wind Farm, ABP-311565, Ballivor wind farm, ABP-316212 and Dryderstown wind turbine, PA ref 122054 (see Planning History) on the grounds that they are within 20km of the development site and utilise the same road networks as the proposed development.

Potential Effects

12.17. The EIAR identifies potential effects of the development on population and human health and in respect of shadow flicker. Predicted effects are summarised in Table PHH 1 below.

Table PHH 1: Summary of Potential Effects

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do nothing	• Existing land uses will continue, lost opportunity to harness wind energy capacity, employment opportunities, economic activity and financial payments (e.g. rates, development contribution, CBF).
Construction	• Population, demographic change, employment and economic effects: Wind farm could create 1.2 jobs per MW capacity and therefore 63-184 jobs during construction. Limited workforce in area, workers likely to travel from surrounding towns and city. Short term positive effect on the local economy and employment opportunities. • Landuse, settlement patterns, baseline population and demographic trends: Existing land uses in proximity to the development site to remain broadly the same. 19.62ha to 20.09ha of forestry to be felled. Some impacts on communities and roads along delivery route. Some short-term disturbance to electricity network in the area. • Human health: Risk of health and safety hazards for construction workers and the public including increased traffic, transport of heavy or bulky materials, noise and dust emissions, excavation. Minor

	short-term increase in emissions to air, including vehicular and fugitive dust, but not significant and imperceptible impacts at dwellings (removed). Short term slight effects on air quality with rolling programme during construction of cable route. Potential for short term construction noise (from plant, equipment, site activities). No adverse effects from vibration (rock breaking), as site is removed from sensitive receptors. Potential for effects on human health from contamination of surface water (movement of soil, introduction of contaminants), changes to surface water flow patterns and groundwater levels, and movement of contaminated soils (none found in site investigations). Risk of landslides or slope instability considered to be low (relatively flat terrain and stable geology).
Operation	• Population, demographic change, employment and economic effects: Research indicates 0.3 to 0.4 jobs per MW of installed capacity during operation and therefore 15-23 long term jobs. Small proportion to be based in study area. Slight and long-term positive effect of wind farm on population and employment. Wind farm will contribute to achieving national renewable energy targets. Development contributions will provide funds to MCC and WCC and benefit council services. CBF will provide investment into the local community. Substation and grid connection will form part of the national electricity grid with long term slight positive economic effect. • Landuse, settlement patterns, baseline population and demographic trend: Once operational, the prevailing land use will be restored to agriculture. Small area of greenfield agricultural land will be changed to artificial hardstanding/ electricity infrastructure for the substation. Grid route will be underground and no long-term adverse impact. • Human health: Net positive impact on air quality long term (displacement of fossil fuel). Potential for adverse effects on human health and safety including falling ice, accidents, fire (low risk). Peer review of research found no link between wind turbines and health effects, including wind turbine syndrome and infrasound. No evidence in research of link between wind turbine noise and illness or chronic conditions but association between wind turbine noise and individuals reported feeling annoyed. Operational wind farm noise levels will meet the derived day time and nighttime noise limits at all residential properties. No potential for effects on human health from electromagnetic radiation from turbines or underground electricity cables (EMFs significantly below ICNERP guidelines). • Shadow flicker: o Scenario 1, smaller turbine (Figure 11-3/Table 11-5 for zone of potential shadow flicker, sun shining and wind blowing during 100% daylight hours). Applying the average sunshine hours/year: ▪ Shadow flicker > 30 hours/pa for 18 receptors, to a maximum of 43.2 hours/year (receptor no. 142). ▪ No property experiencing more than 24.3 minutes per day of shadow flicker. o Scenario 2, larger turbine (Figure 11-4/Table 11-6 for zone of potential shadow flicker, sun shining and wind blowing during 100% daylight hour). Applying the average sunshine hours/year:

	▪ Shadow flicker >30 hours/pa for 23 properties, to a maximum of 46.1 hours/pa (receptor no. 142). ▪ No property experiencing more than 25.7 minutes per day of shadow flicker.
Decommissioning	• Population, economy, land use and settlement patterns: Similar to construction but reduced magnitude. Substation, to be taken in charge by EirGrid and underground cable route to remain in situ.
Cumulative	• Potential for cumulative effects with other wind farms permitted within 20km, in particular traffic effects during construction. During operation, the scale of wind farm development in the wider area will contribute to some wider cumulative landscape and visual impacts due to their close proximity to each other. However, it is not considered to be a significant impact on population or human health. Positive cumulative effects reducing CO_2 emissions, with moderate effects on climate change mitigation. • Shadow flicker – Turbines to be controlled to eliminate shadow flicker. No potential for cumulative effects.

12.18. The EIAR considers the potential for different environmental effects arising from the permutation of sizes between turbine types, foundations and turbine hardstandings and concludes that there will be no measurable effect on population or human health except that the larger turbine size would produce more renewable energy and result in an increase in Community Benefit Fund.

12.19. **Mitigation**

12.20. The EIAR refers to a number of designed in mitigation measures to offset effects on sensitive receptors (e.g. layout and setback), and to site specific measures for construction and operation. These include:

- Construction and decommissioning, to be planned and controlled by CEMP, and to include all works and deliveries along TDR, measures to mitigate effects on water quality, management of contaminated soil (if found) and invasive species.
- Consideration of all access points in advance of cable installation, to maintain local access as much as possible, when finalising temporary road closures and diversions,
- Construction noise to be subject to standard noise limit (65 dB LAeq, 1hr).
- Anti-vibration sensors (ice), appropriate health and safety measures during operation (e.g. high visibility clothing), engineering safety checks on turbine design, construction and commissioning,

- Wind farm to operation in line with standard noise limits, and
- Compliance with international and EU standards on EMFs.

12.21. Mitigation measures for shadow flicker are the installation of programmable shadow flicker controls on individual turbines (SCADA electronic control system), with the applicant committed to a zero-shadow flicker strategy.

12.22. **Residual Effects**

12.23. With the provision of mitigation measures, where relevant, the EIAR predicts that the following residual effects.

- Population and demographic trends – Temporary slight population increase during construction and imperceptible effects long term.
- Socio-economic, employment and economic activity – Slight positive employment effects, community benefit fund, rates and development contributions, with overall moderate effect.
- Land use, settlement patterns, baseline populations and demographic trends – Short term disruption of existing land uses during construction and decommissioning. Restoration of the vast majority of existing land uses during operation and post-decommissioning, with Imperceptible effects.
- Human health – With the implementation of mitigation measures, impact on human health during construction and operation predicted to be negligible.
- Climate – Long term positive effects due to the provision of clean renewable energy and displacement of 1.7m to 1.8m tonnes of CO_{2eq} over the 35-year life of the wind farm.
- Shadow flicker – None.

12.24. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.25. I have examined, analysed and evaluated chapters 4 and 11 of the EIAR. I am broadly satisfied that the assessment is consistent with the published guidelines on the assessment of effects on population and human health, as set out in the EPA Guidelines on EIA and EIAR. As stated, the effects of the development on landscape and tourism are addressed in the landscape and cultural heritage sections of this report.

12.26. Given the relatively modest footprint, nature of the development and its location in a rural area with a low population density, I am satisfied that the construction and operation of the development will not give rise to significant adverse effects on employment in the area, settlement or land use patterns, baseline population or demographic trends. There may be some short-term opportunities for employment during construction and to a lesser extent during operation and there will be local economic benefits associated with the Community Benefit Fund and development contributions. In coming to this conclusion, I acknowledge that the applicant has referred to published research regarding likely employment benefits and has concluded that effects will be slight. Issues raised in submissions are addressed below.

Residential amenity

12.27. The proposed development is situated such that turbines are setback by >700m from sensitive receptors, with the nearest property at 705m (an involved property, no. 124). This is just short of the recommended 4xtip height (i.e. 4x180 = 720m), for visual amenity purposes, set out in the dWEDG 2019. All other residential receptors are >720m from a turbine (closest receptors are =no. 142 (west of T5) and no. 115 (south of T3) at 725m and 724m respectively. In the landscape section of this report, I have concluded that significant local landscape and visual effects will arise in broadly two locations, the immediate area of the site and when viewed from elevated, and typically more distant views. Notably when viewed from the local public road network, due to a mix of topography, vegetation and orientation, at times the turbines will be not visible and at others, glimpsed, or from more open views, they will appear more substantial. These effects are an inevitable consequence of the introduction of large-scale wind turbines into the largely flat pastoral landscape, and the development will result in a significant change in local landscape character. Notwithstanding this, at the separation distances proposed I am satisfied that the turbines will not be overly dominant or overbearing on any property or that they individually or collectively would seriously detract from the residential amenity of any property. Regarding comments that the turbines should be set back 10 x tip height, I consider this to be neither necessary nor consistent with either the adopted or draft WEDG. Nighttime lighting to satisfy IAA and Department of Defence requirements,

will be modest (required for the limited number of turbines) and will have an upward orientation with no significant impacts on residential or rural amenity.

12.28. The proposed substation is situated north of, and opposite, an existing farm and to the northwest of an existing dwelling (no. 18, Figure 11-1, EIAR). I would accept that during construction, the farm and dwelling are likely to be affected by way of increase in construction traffic and associated construction noise. However, the proposed access to the sub-station site is removed from the dwelling, construction works are short term, and substantial landscaping (Substation Landscaping Plan, drawing no. PL29) is proposed which will substantially screen the substation from the public road and dwelling.

Noise

12.29. This matter is addressed in the air and climate section of this report. For the reasons stated, I am satisfied that the background noise survey carried out, is consistent with good practice and is indicative of the quiet rural environment in which the development is situated, as influenced by road traffic noise and typical rural activities. Further, the proposed noise limits have regard to this context and are in accordance with WEDG 2006, providing a lower noise limit, at lower wind speeds (when the effect of the turbine will be more evident), for quiet environments (see Table 9-6, and noise limits of 40dB at NSR1, 2, 7, 9, 10, 12 etc). Whilst I would accept that there are incidences of wind energy giving rise to adverse effects on residential amenity, by way of noise, these cases are few and site specific. In this instance, the applicant has demonstrated that the proposed wind farm can operate within the noise limits set out in the WEDG 2006. If permission is granted, the applicant will be subject to these noise limits. Any exceedances would be in breach of the permission granted, and subject to enforcement action.

12.30. Having regard to the foregoing, I am satisfied that the subject development is not likely to give rise to significant adverse effects on residential amenity by virtue of turbine noise.

Shadow Flicker

12.31. In response to submissions, the applicant re-iterates the findings of the Shadow Flicker assessment, summarised above, with a zero-shadow flicker approach proposed.

12.32. The applicant's assessment of shadow flicker is conservative and transparent, estimating likely effects from both turbine models, based on the sun shining and wind blowing, during 100% daylight hours and after applying the average sunshine hours/year. Further, the applicant proposes to exceed the shadow flicker guidelines set out in the 2006 WEDG and to operate the wind farm in accordance with the draft 2019 guidelines. These guidelines advocate no shadow flicker at any existing nearby dwelling or other relevant affected sensitive property, with the turbines shut down during any periods of shadow flicker. The approach taken by the applicant is consistent therefore with the more stringent guidelines on the operation of wind turbines. The effectiveness of such measures is demonstrated in the applicant's willingness to enter into a condition requiring the absence of shadow flicker and to the 2019 draft guidelines which recommend such an approach.

Impacts on national schools

12.33. Nearest national schools to the proposed development are situated in Clonmellon and Delvin (including St. Mary's Special School in Southhill), with schools >2km from the nearest turbine. At this distance, neither school would be affected by noise or shadow flicker effects. Further, schools are situated within existing urban areas and/or separated by intervening vegetation, again at distance, and no impacts on amenity are likely to arise.

Property values, population and employment effects

12.34. In response to submissions the applicant the bulk of research on the effect of onshore wind farms on property prices suggesting little or no negative impact. In research which has found negative impacts, they are identified as generally disappearing over time. The applicant refers to three research projects carried out in Ireland, the USA and Scotland, which support the applicant's assertion.

12.35. I have reviewed two of the reports referred to by the applicant. The first is a 2023 University of Galway paper I have reviewed the University of Galway paper referenced by the applicant, Centre for Economic Research on Inclusivity and Sustainability, 2023, Research on Wind Turbines and House Prices along the West of Ireland. It refers to key studies carried out with mixed conclusions on effects, particularly with location of research (with greater incidence of effects in Europe that the US/Canada). The West of Ireland research looked at c.64,000 property listing,

with 225 within 1km of a turbine between 2016 and 2012 and concluded that house prices were affected (-14.7%), within 1km of a turbine, with greater effects on number/density of turbines. Further, the paper concluded that effects decay over time, becoming insignificant after 10 years. The second Scottish paper (Impact of wind turbines on house prices in Scotland, Climate Exchange 2016) considered 500,000 properties between 1990 and 2014, within15km of at least one wind turbine. It found no evidence of a consistent negative effect on house prices, with most results showing no significant effect on the change in price of properties within 2km or 3km or finding the effect to be positive. Further, the report states that the results persist, under a variety of assumptions, including whether visibility of turbines is accounted for.

12.36. Having regard to the foregoing, and mindful of the research presented later in the EIAR in respect of largely positive attitudes to wind farms in the State and by tourists, the evidence presented would suggest, at worst a short-term effect on property prices and recovery in the longer term. Further, neither research provides clarity on the situations in which effects arise e.g. proximity, orientation, view etc. In this instance, non-involved residential properties are >720m from any wind turbine and are typically separated from it by a mix of topography, substantial roadside vegetation and/or woodland. Further, no adverse effects are predicted by way of noise or shadow flicker. Taking all of these factors into account (evidence base and site-specific context), I am satisfied that there is little potential for significant adverse effects on property values in the area of the site.

12.37. For the same reasons, I do not consider that the development would have a significant impact on the area, to make it unattractive to live in, with consequential effects on population profile.

12.38. The applicant has provided an evidence based approach to likely short term and long term employment likely to be associated with the wind farm (European Wind Energy Association Report, Wind at Work, 2009; Institute for Sustainable Futures document, 2015 – see section 4.55, EIAR), and it is acknowledged that no significant local economic effects will arise.

Effects during construction

12.39. The EIAR identifies short term effects on the local population during the construction phase of the development. The development site is largely removed from residential properties and construction noise, dust etc. is unlikely to be a significant issue. However, there will be an increase traffic on the public roads, associated noise, disruption, and risks to surface water and groundwater. The CEMP sets out standard best practice construction measures, which include noise limits for construction noise, a rolling approach to construction of the cable route and a traffic management plan for the delivery of abnormal loads and for other works along the public road and detailed measures to prevent effects on water quality (no adverse effects are predicted on groundwater levels). With the implementation of the full suite of measures, I am satisfied that significant adverse effects will not arise except for traffic related effects in the immediate area of the site (local road L5542) during construction (see Traffic section).

Health effects

12.40. In response to the submissions, the applicant refers to anecdotal reports of negative health impacts in people living in close proximity to wind turbines, but the absence of support for these reports in peer reviewed literature. This literature is listed in section 3.3.1 of the applicant's response to submissions and in 4.243 of the EIAR.

12.41. The literature cited includes national, European and international studies, and peer reviewed independent government studies. I have reviewed the research referred to, where it is available online[5], including the HSE Position Paper on Wind Turbines and Public Health (2017). The research typically concludes that there is no evidence of health-related effects arising from exposure to wind turbines e.g. by way of noise (including audible, low frequency and infrasound), ground-borne vibration, electromagnetic frequency etc., including for conditions such as chronic pain, high blood pressure, tinnitus, migraines. However, some of the papers accept that some psychological effects can arise e.g. fear and anxious anticipation of negative impacts of wind farms causing stress and increased levels of annoyance in particular with excessive levels of noise. Recommendations made typically refer to the appropriate

[5] The following papers were not available - Wind Turbine Syndrome, Renewable UK, 2010 and A Rapid Review of Evidence, Australian Government 2010.

siting of wind turbines and operation within noise limits, for example, with the WHO nighttime noise guidelines referred to, to prevent impacts on sleep.

12.42. Having regard to the body of evidence cited, and to the siting of the proposed turbines at >700m from any dwelling, the landscape context for the development which limits views of turbines from many local residential properties and the operation of the turbines in accordance with strict noise limits, absence of shadow flicker etc., I am satisfied that the proposed development will not give rise to any significant adverse effects on public health. However, for those that are concerned regarding effects or oppose the development, I would accept that psychological stress and/or annoyance may arise.

12.43. **Conclusion: Direct and Indirect Effects**

12.44. Having regard to my assessment of the proposed development on population and human health, it is considered that the main significant direct and indirect effects after the application of proposed mitigation measures are:

- Significant local landscape and visual effects, with the introduction of large-scale wind turbines into the rural environment. Effects will in part be mitigated by a combination of the topography, roadside and intervening vegetation and siting of turbines at distance from dwellings.
- Significant short term residual effects on the local road network during construction (L5542), with effects mitigated in part by the management of construction traffic and provision of alternative routes, as set out in the Construction Traffic Management Plan.

12.45. **Biodiversity**

12.46. **Issues Raised**

12.47. Parties to the application raise issues in respect of matters set out in scoping reports by statutory bodies, including the differences of opinion between the DAU and the applicant regarding survey approach, inappropriate location of T1, T2 and T3 between Lough Shesk, Freekans Lough and Newtown Lough, omission of Lough Shesk pNHA from Biodiversity chapter, effect on sites of county importance which provide important stepping stones for protected sites, impact on unspoilt natural

environment/rich biodiversity, loss, degradation and disturbance of habitats within and outside of the site, impact on protected species, including bats, Marsh Fritillary Butterfly and rare plant (Round-leaved Wintergreen), impact on Cavestown woodland area and ancient/long established woodland, impact on bird species and need for further survey work (including Whooper Swan, Golden Plover, Barn owl, sand martin, meadow pipit, migratory path of Greenland White-fronted geese, hen harrier, kestrels, mallard, merlin, mute swan), impact on woodcock and unacceptable loss of habitat, longer term monitoring of effects on birds, inadequate assessment of impact on bat species, collision risk for bird and bats, cumulative effects with other wind farms (including Golden plover, Hen harrier) and introduction of invasive species.

12.48. **Examination of the EIAR**

Context

12.49. Chapter 5 of the EIAR deals with Biodiversity. Appendices 5-1 to 5-11 provide background information, including survey work for habitats, birds, bats and aquatic ecology, collision risk modelling and the proposed habitat and species management plan. The assessment has regard to the issues raised in the informal scoping exercise carried out with statutory bodies. It has been prepared having regard to the Guidelines on the Information to be Contained in EIAR's (EPA, 2022) and other government and industry guidelines on the assessment of effects on biodiversity (page 5-5 and section 5.126).

12.50. In Table 5-1, Summary of Consultation Response, the DUA recommend that the bird survey should include the use of avian radar systems to detect nocturnal migrating birds and, separately, the use of avian acoustic sound meters to record and interpret sonograms to determine particular migratory and non-migratory species traversing the site. Comments are also made in respect of the location of the development potentially in the path of migrating Greenland white-fronted geese and for survey work to account for Leisler bat (which mostly fly at high altitude), for mitigation measures to adequately address collision risk and barotrauma (bats), address impacts on amber and red listed species, areas of high nature value and compliance with Article 10 of the Habitats Directive (protection of stepping stones and wildlife corridors) in particular given the presence of Marsh Fritillary butterfly on the site.

12.51. The baseline environment, for the assessment of likely effects, has been determined by desktop assessment and field survey, with field surveys summarised in Table 5-2. The Board should note that much of the background bird survey work was originally conducted for a larger area than the development site and the associated appendices to the Baseline Bird Survey Report (Appendix 5-2) refer to Crowinstown wind farm site, a townland to the south of the subject development. However, the survey work covers the area of the proposed wind farm.

12.52. Limitations identified in the assessment methodology were:

- For the non-breeding season, survey effort was slightly less than the 72 hours required by NatureScot guidelines (2017) i.e. 66, 71 and 61 hours for VPs 1, 2 and 3. Sub-optimal conditions for some VP survey work (weather) but with the 2km viewing arc visible in most cases. Some minor gaps in the VP survey coverage of buffer habitat.
- Black-headed gull, Eurasian teal, great cormorant and mallard were recorded as primary species in the first year of survey only. This precludes a quantitative assessment of collision risk for subsequent years, but a qualitative assessment is possible.
- No dedicated barn owl or Kingfisher survey. However, secondary survey work was carried out for these species.
- No nocturnal bird surveys, on the grounds that the NPWS did not recommend such survey work during the survey period, despite being consulted, the low level of nocturnal activity predicted and difficulty in obtaining robust data from avian radar and acoustic detectors.
- Slight alteration to layout of turbines following completion of bat ground level static detector surveys.
- Ecobat tool offline and alternative methodology used for the assessment of bat activity relative to other survey sites
- Electro fishing not conducted at one of the 13 no. riverine sites (due to sites being dry at the time of survey). In addition, low summer river levels could have affected biological water quality samples.

12.53. The limitations were not considered to be a significant as survey effort was still high, and that survey data is representative of the wind farm site and is sufficient to inform robust assessment.

Baseline

12.54. National sites of nature conservation interest are identified in Table 5-5 together with qualifying interest, distance from development site and connectivity. Proposed NHAs which overlap with European sites, are considered under the respective European site e.g. Lough Shesk pNHA is considered under the River Boyne and River Blackwater SAC (see AA section of this report).

12.55. Dominant habitats on the development site include improved agricultural grassland (106.33ha), mixed broadleaved woodland (49.15ha), conifer plantation (25.86ha), hedgerows (>2.4km) and treelines (>2km). Also present, within the northern site, are Annex I Transition Mire and Quaking Bog habitat (PF3), cutover recolonising bog (PB4) and wet woodland (WN7). Within the southern site is possible ancient woodland (WN2) (Figure 5-5). These, and other key ecological features identified as occurring on the site or within the zone of influence of the development, are summarised below.

Table BD 1 – Key Ecological Features

Key Ecological feature	Feature information and value
Designated sites (Figure 5-4a)	• National importance - Lough Glore (birds), Lough Ramor (birds) and the Royal Canal pNHAs (otter).
Habitats, Appendix 5-9 (Habitat Survey Results), Table 5-6 and Figure 5-5a-h	• County/regional importance: o EU annex I habitats comprising transition mire and quaking bog (Annex I habitat H7140), within the northern cluster (PF3, Figure 5-5a), o Mixed broadleaved woodland (WD1) and possible ancient woodland (PAW) type within the main wind farm site and southern cluster (WN2), o Upland eroding river (FW1) and lowland/depositing lowland river (FW2), o Wet willow alder ash woodland (WN6), o Bog woodland (WN7). • Local importance: o Eutrophic lake (FL5) (southern cluster), drainage ditches (FW4), other artificial lakes and ponds (FL8), o Dry and calcareous grassland (GS1), dry meadows and grass verges (GS2), and wet grassland (GS4), o Cutover bog (recolonising) (PB4), o Conifer plantation (WD4) and scattered trees and parkland (WD5),

	○ Hedgerows, treelines and associated features (e.g. drainage ditches) (WL1, WL2, WL1xWL2, WL1xWL4) and scrub (WS1). • Site value – Includes improved agricultural grassland (GA1, GA1xED2) (see Table 5-11 and 5-6).
Birds (Appendix 5.2) Importance based on level of protection, amber/red listing and presence on/use of survey area relative to population in national, regional local context etc. Green listed species and data not presented.	Birdwatch Ireland data indicates that the area is not particularly sensitive to wind farm developments. Important ecological features (IEF) are identified as: • National importance: ○ European golden plover (Annex I, Red list) – Large flocks recorded. Important for wintering season only. ○ Mallard (Amber list). National importance for winter season and regionally important breeding population. • County/regional importance: ○ Common snipe (Red list) – For breeding and winter seasons. Likely one breeding pair present, c. 875m from T4 (2020 survey), which is the minimum separation distance required to avoid disturbance. ○ Eurasian curlew (Red list) – For winter season, not recorded in breeding season. ○ Eurasian teal (Amber list) – For breeding and winter seasons. ○ Eurasian woodcock (Red list) – For the breeding season, local importance for non-breeding season. Breeding woodcock surveys (in different years) indicated possible and/or probable territories in vicinity of T3, T4, T5. ○ Great cormorant (Amber list) – For winter season, local importance for breeding season. ○ Hen harrier (Annex I, Amber list) – For winter season. ○ Merlin (Annex I, Amber list) – For winter population. ○ Mute swan (Red list) – County/regional importance (breeding population), local importance (winter population). ○ Northern lapwing (Red list) – For winter and breeding populations. Likely one breeding pair present, c.1.2km from nearest source disturbance (minimum separation distance to avoid disturbance is 180m). ○ Peregrine falcon (Annex I, Green list). For winter and breeding populations. ○ Whooper swan (Annex I, Amber list) – For winter population. ○ Eurasian widgeon (Amber list) – Wintering population. ○ Lesser black-backed gull (Amber list) – Wintering and breeding population. ○ Barn owl (Red list) – Species nesting or roosting near Rosmead House. ○ Common gull (Amber list) – Breeding population. ○ Linnet (Amber list) – For resident population only. • Local importance: ○ Black-headed gull (Amber list) – Breeding and winter seasons. ○ Common kestrel (Red list) – Breeding and winter seasons. Breeding raptors survey confirmed and/or probable territories c.800m T4 (2020), c.1.3km NE T4 (2021) and c.1.7km E T6 (2021). ○ Yellowhammer (Red list) – Population of local importance. ○ Eurasian coot (Amber list) – Breeding. Breeding walkover survey confirmed breeding of species c.700m NE of T3 (2021). ○ Shelduck (Amber list) – Winter population.

	○ Meadow pipit (Red list) – Population of local importance (winter and breeding). ○ Grey wagtail (Red list) – For resident population only (possibly breeding on site). ○ Redwing (Red list) – For the winter season only (precautionary). ○ Goldcrest, greenfinch, house martin, house sparrow, sand martin, skylark, starling, swallow, willow warbler (all Amber list) and swift (Red list) - Local importance for resident population only. 'At risk' flight activity within the potential collision risk zone Common kestrel, Common snipe, European golden plover, Eurasian curlew, Great cormorant, hen harrier, mallard, merlin, northern lapwing, peregrine falcon, Whooper swan, Black-headed gull (Table 5-7 and 5-8). Assessment uses a worst-case collisions risk scenario i.e. 99m hub height and 162m rotor diameter. NB this would give a sweep zone of 18m above ground (lowest point of sweep) to 180m (highest sweep point).
Terrestrial mammals (Table 5-11 and Figure 5-7)	• Regional/county importance: ○ Pine marten. Evidence of activity c.190m NW of T7 and in PAW habitats c.280m NE of T5. No dens (breeding places) within 100m of development. Woodlands provide foraging and breeding habitats for species. Locations not mapped. ○ Eurasian otter. Evidence of activity on the Stonyford River (southern cluster) and Darcy's Crossroads stream (northern cluster). All sites >1km from development. No breeding areas identified in 150m of any of the survey sites and no holts, couches or latrines near any proposed infrastructure. Locations not mapped. • Local importance: ○ Badger. Activity and/or setts south of T4 (PAW habitats), south of T5 and SW of T8. No setts within 100m of proposed infrastructure or northern cluster. Woodland and hedgerow habitats provide foraging and breeding habitats for species. ○ Red squirrel. Signs of foraging in southern cluster, in conifer plantation habitat, in and around T5. No breeding places within 100m of development. Woodlands provide foraging and breeding habitat. ○ Irish hare/ West European hedgehog. No hares or hedgehogs recorded in surveys but suitable foraging and breeding habitat in survey area.
Bats (Appendix 5.3, Baseline Bat Reports 2023)	• Mean bat landscape suitability index across the proposed development is 22.89 out of 100 (with range from 41 to 0 for individual species, Table 7, Appendix 5-3). • Previously recorded bat roosts included one 2.3km NE main wind farm site (common pipistrelle), with core sustenance zone nearly overlapping with proposed site. • All confirmed roosts, within the wind farm site, are outside the direct footprint of the development. Potential roost trees nearby to T4 but located in potential ancient woodland that will not be felled. • No known, potential or confirmed roosts adjacent to cable corridor or substation. • Eight bat species recorded at the main wind farm site (ground level static surveys in approximate location of turbines), brown-long eared bat, common pipistrelle*, Daubenton's bat, Leisler's bat*, Nathusius' pipistrelle*, Natterer's bat, soprano pipistrelle* and whiskered bat (* = 'high collision risk species). Most frequently recorded species soprano pipistrelle, then common pipistrelle, then

	Leisler's bat. All four high collision risk species were recorded during 'at height' surveys. • Regional/county importance o Nathusius's pipistrelle – Very low levels of activity. No evidence linear habitats were used for foraging/commuting. No roosts recorded. o Whiskered bat – Very low levels of activity. No evidence the habitats represent important foraging or commuting features. No roosts recorded. • Local importance: o Soprano pipistrelle – Moderate levels of activity, linear habitats used for foraging and commuting. No roots present in footprint of works. o Soprano pipistrelle (Annex IV, Wildlife Act 1976, as amended, red list least concern) – Moderate levels of activity, linear habitats used for foraging and commuting. Two minor day roosts present in wider area. o Leisler's bat – Moderate level of activity, no evidence that species used the linear habitats for foraging/commuting. High levels of at height activity. No roosts recorded. o Brown long-eared bat – Very low levels of activity. No evidence the habitats represent important foraging or commuting features. Two minor night roosts present in wider area. o Daubenton's bat – Very low levels of activity. No evidence the habitats represent important foraging or commuting features. Suspected maternity roost in wider area, c.350m from development. o Natterer's bat – Very low levels of activity. No evidence the habitats represent important foraging or commuting features. Some likely night roosts and a suspected maternity roost in wider area, not near works footprint.
Other protected fauna	• County importance: o Marsh Fritillary – Many larval webs recorded in a discrete area of breeding habitat and where Devil's bit scabious present (c.190m SW of T1, Figure 5-8). • Local importance: o Common Frog – Found in a single pond, P1 (Figure 5-2). However, likely damp habitats afford breeding and foraging opportunities for species throughout the site. o Smooth newt – Found in a single pond, P7 (Figure 5-2). However, likely damp grassland, drainage ditches and ephemeral puddles afford breeding and foraging opportunities for species throughout the site.
Fisheries and aquatic ecology (Appendix 5-4, Aquatic Ecology Reports, 2023)	• Watercourses and aquatic survey sites in the vicinity of the development are typically small, lowland depositing channels which have been modified historically as part of arterial drainage works (Figure 5-2). • Biological water quality is calculated as good at four sites (A4, B3, B5 and B6), moderate for three sites (B4, B7 and B8) and poor for four sites (A1, A3, B1 and B9) and bad for one site (B2) (Figure 5-2, EIAR and 4.1, Appendix 5-4). • Salmonids present at seven survey sites (with Atlantic salmon at A4, B5, B6, B7 and B9), with Athboy River, D'Arcy's Crossroads Stream and Stonyford River, providing important salmonid habitats in the survey area. Stonyford River also significant contributor of Brown Trout to main Boyne channel. Sites B3 and B6 high value salmonid nurseries.

	• Lamprey ammocoetes (likely Brook Lamprey) widespread in vicinity of proposed development and recorded at A4, B3-B7 and B9. • European eel recorded in low densities at A4 and B6. Eel eDNA recorded at Newtown Lough. • White clawed crayfish (single juvenile) and eDNA was detected at A4 only. Crayfish plague detected at B5 and B9. • Otter signs at B6, B3 and B5. No breeding (holts) or resting (couch) areas identified. • No evidence of Freshwater Pearl Mussel (eDNA) or Kingfisher within 150m of any aquatic survey site. • County/regional importance: o Atlantic salmon – QI for River Boyne and River Blackwater SAC and part of SAC population. o Brook lamprey. o European eel – Very poor conservation status and found near the development site. o White clawed crayfish. • Site importance o Brown trout (red list least concern) – Species has the best possible conservation status.

Potential Effects

12.56. The EIAR identifies potential environmental effects of the development on biodiversity for the different phases of the development. These are summarised in Table BD 1 below.

Table BD 2: Summary of Potential Effects

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	• Existing land uses likely to continue, including intensively managed agriculture and forestry. Agricultural runoff likely to continue to be emitted to watercourses and stock likely to put pressure on hydraulic conditions (modification of riverbank).
Construction	• Designated sites o Direct – No direct effects on Lough Glore, Lough Ramor or Royal Canal pNHAs (removed from site). o Indirect – No indirect effects on Lough Glore pNHA or Lough Ramor pNHA as conservation interests (coot, common snipe, northern lapwing, Eurasian curlew, pochard, Eurasian teal, tufted duck and common kestrel and great cormorant), will not be significantly affected (see below). Potential for *significant negative, indirect effects, at a national scale*, on Royal Canal pNHA (remote upstream hydrological connection) sedimentation/pollution of watercourse or reduction in water quality via acidification arising from felling of conifers, impacting on riparian habitats, plants and animals and otter prey. • Habitats and flora o Direct – See Table 5-12 for temporary and permanent habitat loss. Most of the terrestrial habitats to be lost, temporarily or

	permanently, are of lower value and common in the wider landscape. ○ *Significant negative effect at a local scale* with temporary/permanent loss of: ▪ Mixed broadleaved woodland (WD1 no PAW lost) – 3.12ha/11.36ha, ▪ Oak as hazel woodland (WN2, no PAW lost) – 0.04ha/0.02ha). ▪ Bog woodland (WN7) – Permanent loss 0.02ha, ▪ Recolonising pockets of cutover bog (PB4) – 0.07ha/0.12ha), ▪ Hedgerows (WL1) - 53.6m/402.62m, ▪ Hedgerow x drainage ditch mosaic (WL1 x WL4) – Permanent loss 6.43m, ▪ Hedgerow and treeline mosaic (WL1 x WL2) – 65.478m/20.74m, ▪ Treelines (WL2) – 37.23m/61.66m), ▪ Dry and calcareous grassland (GS1) – 0.21ha temporary loss. ▪ Dry meadows and grassy verges (GS2) - 0.09ha temporary loss. ▪ Wet grassland (GS4) - 0.15ha temporary loss. ▪ Scrub (WS1) – 0.18ha/0.01ha) – 0.18/0.01ha. ○ NB it is stated that there will be no loss of Annex I transition mire and quaking bog within the PB4 cutover bog or WN7 bog woodland habitat lost. ○ Loss of lower value commercial plantation (WDF), 3.12ha temporary/2.3ha permanent, and plantation type mixed broadleaved woodland (WD1) (above), with no PAW lost), and creation of open habitats is predicted to have a *significant, positive, permanent effect at the local scale*. ○ Indirect – Potential for smothering of habitats (e.g. sediment washout from cleared areas, deposition areas) with Annex I transition mire and fen PF3 habitat sensitive to this impact, with *significant effects at the county/regional scale* for this habitat. Potential damage to hedgerows (WL1) and treeline (WL2) habitats from construction/excavation and dust with *significant negative effects, at the local scale.* Risk of spread of invasive species e.g. Japanese Knotweed, Cherry Laurel situated along cable corridor/TDR nodes, with *significant negative effects at the local scale*. • Birds ○ Direct ▪ Nest damage/destruction – No nests for important ecological feature (IEF) bird species within footprint. Potential for common snipe, Eurasian woodcock and yellowhammer to breed within 500m of development. ▪ Habitat loss – Most habitats to be lost are generally of low value to biodiversity. However, following effects predicted: • Eurasian woodcock and common snipe confirmed breeding in proximity to site, with potential for *significant, long-term effects at county/regional scale* (loss of breeding habitat).

	• No effects on Barn Owl, likely breeding in Rosmead House, c.360m from T8. No tussocky habitats to be removed (key foraging habitat). • Loss of hedgerows and improved agricultural grassland, and therefore loss of breeding or foraging habitats for IEF passerine species e.g. Yellowhammer and for open grassland IEF species such as skylark and meadow pipit, with *significant, long-term effects on the local scale* on Yellowhammer, skylark and meadow pipit. • *Neutral effect* on woodland birds (conifers would be replaced), including for goldcrest, a woodland specialist, where impact is *unlikely to be significant* due to very low numbers using development site. • Foraging and nesting habitats for hen harrier, merlin, common kestrel could improve with forest clearance*, with significant positive effects.* ▪ Disturbance/displacement – No significant effects along cable corridor and substation site due to habitats effected (e.g. manmade, agricultural grasslands) and existing noisy environment. No likelihood of significant effects on most IEF bird species as not recorded breeding in the ZoI of the project, recorded in low numbers and high levels of similar habitat in wider area. No significant effects on birds nesting in ZoI, but outside of disturbance buffer (northern lapwing, Eurasian coot, common kestrel and barn owl). Potential for *significant, short-term effects* of construction related disturbance to breeding common snipe and Eurasian woodcock at *county/regional scale (*proximity is less than required buffer). Disturbance to foraging and roosting wintering birds less *unlikely and not significant*, due to low numbers of sensitive birds recorded in proximity to the development, not vulnerable to construction related disturbances in the winter or occur in open habitats away from where most construction activity will occur (paragraph 5.361). o Indirect – No potential for indirect effects e.g. pollution of wetland habitats, with habitat loss for qualifying bird species by virtue of embedded mitigation measures to prevent effects on any wetland site. • Terrestrial mammals o Direct – No mammal dwellings recorded in footprint of proposed works or zone of influence for significant effects (50m red squirrel dreys, 100m for pine marten dens, 50m active badger setts), with *no likely direct effects* on these species. *No direct effects* on Irish hare (little risk of disturbance of mothers, movement ability of young). Potential for *significant direct effects* to hedgehogs at a *local scale* via destruction of hibernacula and direct mortality, during winter months. o Indirect – *No significant indirect effects* on badger, Irish hare or pine marten due to loss of potential foraging, commuting or sheltering habitat given the habitats to be removed are widespread in the study are and wider landscape. *No significant indirect effects* from noise, vibration, machinery movement and human presence as no badger, pine marten or red squirrel dwellings

	recorded in 100m of development footprint, and abundant displacement foraging habitats. *Significant indirect effects at a local scale on* hedgehog if disturbed from hibernation. • Bats o Direct – No bat roosts in works footprint or along cable corridor, so *no likely direct effects* on bat roosts. No trees along TDR requiring trimming, are classed as having potential bat roost features. o Indirect – Could arise from loss of foraging/commuting habitats and if lighting is used for nighttime work. Limited nighttime work is proposed as part of embedded mitigation measures. Species using the proposed development site, common pipistrelle, soprano pipistrelle and Leisler's bat, are less sensitive to light than the less commonly recorded species. The removal of linear features used regularly by common pipistrelle, soprano pipistrelle and Leisler's bat could disrupt connectivity *significantly* throughout the development site, with the potential for *significant indirect effects*. • Other protected fauna o Direct – No impact on breeding smooth newt as recorded in a pond outside of the works footprint. Spawning common frog could be affected when breeding opportunistically outside in wet habitats, with *significant negative effects at a local scale. Unlikely that significant effects* will arise for breeding marsh fritillary as breeding area avoided and separated from development site by c.190m. o Indirect – Indirect effects on amphibians and marsh fritillary as a consequence of loss of foraging habitats (drainage ditches, eutrophic ponds, wetter parts of improved agricultural grassland), unlikely given availability of habitats in the wider area and abundant displacement habitats for marsh fritillary. *Therefore, unlikely significant indirect negative effects*. • Fisheries and Aquatic ecology o Direct – No important ecological aquatic features within development boundary. *Direct effects unlikely* on Atlantic salmon, Brook lamprey, European eel and white-clawed crayfish. No otter holts or kingfisher nests within 150m of any aquatic survey site, so *direct effects* of disturbance on breeding/resting otters or breeding kingfisher. o Indirect – Impacts on water quality during construction with negative effects on aquatic receptors e.g. siltation, reduced oxygen, changes to pH, and prey availability for otter and kingfisher. Predicted likely, *significant effects at a county/regional scale* for Atlantic salmon, Brook lamprey, white-clawed crayfish, European eel and otter. (See AA for effects on kingfisher).
Operation	• Designated sites: o Direct - Potential effects of collision risk on bird species of conservation interest (Lough Glore pNHA - coot, common snipe, northern lapwing, Eurasian curlew, Eurasian teal, pochard, tufted duck, common Kestrel; Lough Ramor pNHA – great cormorant). ▪ Insufficient flightlines to carry out CRM for common snipe and great cormorant, *significant direct effects* on common snipe, great cormorant or Lough Ramor pNHA therefore *unlikely*.

	▪ Eurasian coot migrates exclusively at night (no night time survey). Eurasian teal, pochard and tufted duck are known to make movements at night. ▪ *Collision risk* for Eurasian coot is *unlikely* (11.9km distance from Lough Glore, relatively small numbers at Lough Glore, low number of days on which birds migrate to lough, large arc of approach to lough and relatively small swept motor area). Similar risk for migrating teal, pochard and tufted duck (species also have less recorded fatalities with wind farms and may migrate during the day). ▪ Number of years per collision, 2.64 Eurasian curlew, 4.69 northern lapwing and 2.06 common kestrel. No information on population of Eurasian curlew and common kestrel at Lough Glore pNHA. Most recent data for curlew at Lough Glore is zero, therefore no collision risk. Site synopsis for common kestrel is unclear if population is breeding, resident or wintering. No data on size. *Significant effects unlikely* on breeding population as species tend to maintain breeding territories <7km$^{2.}$ Potential for some effects of collision on resident or wintering birds, but low level of collisions for species therefore *unlikely significant effects*. Potential for *significant effects* on pNHA population of northern lapwing is *unlikely* due to pNHA on edge of core 12km winter foraging range. o Indirect – Risk of short-term increase in runoff (with sedimentation) from felling to create bat mitigation buffers, runoff from hardstandings, pollutants (e.g. hydrocarbons, cement) and changes in pH of downstream waterbodies, with potential for *significant effects at a national scale* for mobile ex situ otter (Royal Canal pNHA). • Habitats and flora o Direct – No new effects during operation. o Indirect – Transition mire and quaking bog habitat (PF3, Annex I) and bog woodland (WN7) are thought to be largely surface water fed, but on a precautionary basis it is assumed there may be some groundwater dependency. Potential therefore for inappropriate drainage to affect the hydrological levels of the habitat with *long term, negative effect at the county/regional scale.* • Birds o Direct – No potential for significant effects from met mast (to be removed), underground cable route or from low, stationary substation. o Disturbance/displacement and barrier effects – Cited studies show in general species are no displaced by wind turbines beyond 500m to 800m, and in some cases not displaced at all. Potential for *significant, negative, long term at county/regional scale* from disturbance /displacement effects for common snipe and woodcock (breeding territories near/within the proposed development). Barrier effects on these species are unlikely, or at worst *negligible at a local scale* (dispersed turbines, statistically non-significant evidence of effects on waders). No significant effects on other IEF bird species, as whilst they may be displaced/disturbed, there is wide availability of more optimal,

	alternative foraging habitats outside the development site and lack of breeding/communal roosting within/nearby the site. ○ Collision risk (Appendix 5.8). The following species are identified as potentially at risk of collision (minimum of 5 no. flights and/or minimum of 10 birds/season, within collision risk zone). The evidence base for each species indicates that collision is a relatively uncommon event/or uncommon in Ireland. Having population trends, predicted collisions will have *no significant effects* on the wintering population at *the national or county/regional scale* for any of the species. ▪ Eurasian Golden plover – Collision risk analysis predicts 3.047 collisions per annum. ▪ Eurasian curlew - Collision risk analysis predicts 0.41 collisions per annum. ▪ Common kestrel - Collision risk analysis predicts 0.57 collisions per annum. ▪ Northern lapwing - Collision risk analysis predicts 0.25 collisions per annum. Lough Glore pNHA is likely to be outside the core foraging range for wintering lapwing and it is unlikely that birds from the pNHA are from the population at Lough Glore, with *no significant effects likely.* ▪ Mallard - Collision risk analysis predicts 0.19 collisions per annum. ▪ Peregrine falcon - Collision risk analysis predicts 0.08 collisions per annum. ▪ Whooper swan - Collision risk analysis predicts 0.19 collisions per annum. ○ Indirect – No potential for indirect effects on by virtue of pollution of wetland habitats, with indirect effects on bird species, with embedded mitigation measures which prevent adverse effects on wetland sites. • Terrestrial mammals ○ Direct – Inappropriately timed vegetation removal could cause *significant effects on hedgehog at the local scale*, if it destroys occupied hibernacula. ○ Indirect – Mammals are tolerant of operational wind farms, with little disturbance/displacement. Most are nocturnal and human activity is during the day. Mammals also thought to habituate to low levels of noise from operational turbines. Vegetation removal for bat mitigation measures could result in short term displacement of foraging, commuting or sheltering mammals in any adjacent areas. As PAW habitats will not be felled, are likely to be preferentially used and as an abundance of suitable displacement habitats are in the wider area, this is *unlikely*. Disturbance of hedgehog during hibernation could result in *significant indirect effects at a local scale* (mortality). • Bats. ○ Direct - Potential effects from collision risk and barotrauma (death/injury from sudden changes in air pressure) are assessed for the following species: ▪ Common and soprano pipistrelle – Overall risk based on population vulnerability to wind farms and site risk, the

	species are given an overall risk assessment of 'medium-12', with a *likely, significant effect on populations of both species at the local level.* ▪ Nathusius' pipistrelle - Overall risk of 'high - 18', of direct effects from operation wind turbines with an *unlikely, significant effect on populations*, given the very low levels of flight activity at the proposed development. ▪ Leislers' bat - Overall risk of 'high - 15', of direct effects from operation wind turbines with a *likely, significant effect on populations at a local level.* ▪ Daubenton's bat, Natterer's bat, whiskered bat and Brown long-eared bat – Evidence indicates these species are at low risk of direct effects from wind farms. Activity for these species was low across the site for all seasons. Operational phase impacts *unlikely to be significant.* o Indirect – *Unlikely significant effects* on bat species with operational lighting, given minimal lighting of turbines and less sensitive nature of bat species occurring on the site to light (Leisler's bat, common and soprano pipistrelle). • Other protected fauna o Direct and indirect – None on common frog, smooth newt and marsh fritillary butterfly (mf habitat avoided). No known common frog or smooth newt breeding areas located in bat felling buffer. • Fisheries and aquatic ecology o Direct – No IEF aquatic habitats or species located in development site. *Unlikely that significant effects would arise.* o Indirect – Potential effects on waterbodies by way of pollution, siltation etc. with *significant effects at a county/regional scale* on Atlantic salmon, brook lamprey, European eel, white clawed crayfish and otter.
Decommissioning	• As per construction, but slightly lower magnitude.
Cumulative	• Other developments – Full list of wind farms and other projects within 20km of the development site are shown in Appendix 1-1. Other wind farm development includes Bracklyn wind farm (consented, 5km, south), Ballivor wind farm (with the Board 4.8km south) and Dryderstown single wind turbine (consented, 6.7km southwest). • Construction – Potential for *secondary cumulative effects on freshwater ecology at a county/regional scale* for Atlantic salmon, brook lamprey, European eel, white-clawed crayfish and otter. • Operation o Water quality - Potential for *secondary cumulative effects on freshwater ecology at a county/regional scale* for Atlantic salmon, brook lamprey, European eel, white-clawed crayfish and otter. o Birds (displacement, collision and barrier effect) – Given the separation distance between the subject development and proposed/permitted wind farms/turbine, there is no realistic potential for significant cumulative barrier or operational displacement upon IEF bird species. In combination collision risk with Dryderstown turbine unlikely (single turbine). Quantitative cumulative collision risk (Table 5-14) is stated to be conservative and indicates 22.874/yr golden plover; 0.41/yr Eurasian curlew; 3

	common kestrel (c.3/yr, breeding and 0.425/yr wintering) northern lapwing, 0.204/yr; mallard, 0.304/yr; peregrine falcon; and 1.632/yr whooper swan, with significant cumulative collision risk is *unlikely* during operation based on overall population numbers. ○ Bats – Potential for additive effects of the proposed development in combination with Bracklyn, Ballivor and Dryderstown wind turbines on some local bat populations. With implementation of bat mitigation buffers, any significant cumulative collision effects will be mitigated. However, taking a precautionary approach, potential for *residual effects of low significance on local populations* of high collision risk species, Leisler's bat, common, soprano and Nathusius' pipistrelle. • Decommissioning – Similar to construction phase but lower magnitude.

12.57. The EIAR identifies no significant direct, indirect or cumulative effects for the different turbine permutations proposed, for example, with minimal change in habitat loss (<0.1ha per habitat type) and worst-case scenarios have been assessed. Collision risk assessment has been carried out for both turbine types (Appendix 5-8) with the worst-case results presented in the main text of the EIAR (and referred to below).

12.58. **Mitigation**

12.59. Mitigation measures are set out in section 5.628 of the EIAR. These include best practice measures during construction to prevent *water pollution* and include buffer zones from watercourses, emergency response, wet weather protocols, management of surface waters (drainage, flood risk), sediment controls, off-site disposal of foul water/waste and monitoring of surface water. Site specific measures include monitoring of groundwater prior to construction of T1, and mitigation measures to ensure no effects on groundwater for nearby ground water dependent terrestrial ecosystems. Measures will be included in a detailed CEMP.

12.60. Mitigation measures for *habitats, flora and fauna* include replacement of treelines and hedgerows within the site, to maximise ecological connectivity, restricting access to the footprint of the works corridor, use of root protection zones, dust suppression, construction works to be undertaken outside of the main bird breeding season, pre-construction survey work, and employment of an Ecological CoW for the duration of the construction phase. A Habitat and Species Management Plan will address invasive and non-native species (Appendix 5-10).

12.61. During operation, mitigation measures include on-going best practice measures to protect water quality and the following site-specific measures:

- Active management of bat mitigation buffer zones to prevent common kestrel foraging activity (e.g. management of vegetation),
- Bird monitoring programme and turbine curtailment, if significant effects on bird populations arise, during 'at risk' times, as discussed and agreed with NPWS,
- Provision of bat mitigation buffers around individual turbines, taking into account the vegetation context for the turbine and maximum turbine dimensions, to make the environment less attractive to bats (i.e. commuting and foraging features) (see Table 5-15 of EIAR),
- Monitoring of bat mitigation buffers for three years and where significant effects on bat species arise, feathering of blades (pitching blades out of the wind to reduce rotation speeds below 2 r.p.m while idling) and curtailment.

12.62. Mitigation measures for decommissioning are similar to those for construction. Compensation measures are set out in Appendix 5-10, Habitat and Species Management Plan. These include offsite planting of replacement forestry, *in situ* replacement of hedgerows and treelines, compensatory territories for common snipe (two new wetland areas, biodiversity enhancement zones 'A' and 'B' to encourage/promote breeding snipe) and Eurasian woodcock (0.7ha to replace 2.5ha of broadleaved woodland, biodiversity enhancement zone 'C'), protective fencing for watercourses and planting to enhance riverine habitat, enhancement of transition mire and quaking bog habitat and habitats and provision of swift tower and bat boxes, log piles.

12.63. Proposals for monitoring include general pre-construction confirmatory surveys, water quality monitoring during and post construction, bird flight activity and collision monitoring (carcass searching) (three years, with further monitoring if required and to be agreed with NPWS), pre-construction confirmatory surveys for bat species and post construction monitoring by static detector survey and fatality monitoring (three years, again to be extended if required).

12.64. **Residual Effects**

12.65. Residual effects are set out in Table 5-17 of the EIAR. With the implementation of designed in mitigation measures, proposed mitigation, monitoring and compensatory measures, no significant effects on biodiversity are predicted except for loss of Eurasian woodcock territories. These will be partially compensated with some *significant displacement effects at a local scale*.

12.66. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.67. I have examined, analysed and evaluated chapter 8 of the EIAR, and all the associated documentation presented in the relevant appendices, plans and drawings. I am satisfied that the applicant's understanding of the baseline environment, by way of desk and site surveys is largely comprehensive and that the key impacts on biodiversity have been identified. I would disagree with the applicant's assertion that there is potential for effects on the conservation interests of the Royal Canal. The Royal Canal is significantly removed from the development site (>15km) and is not hydrologically connected to it. Issues raised by parties to the application are considered below.

12.68. **Impact on Lough Shesk pNHA (including Lough Shesk, Newtown Lough and Freekan Lough**

12.69. In response to submissions the applicant refers to the strict level of protection afforded to European sites and the inclusion of Lough Shesk entirely within the boundary of the River Boyne and River Blackwater SAC, which was fully considered in the NIS including connectivity to the proposed development site.

12.70. Lough Shesk pNHA is situated to the west of the development site and d'Arcy's Crossroads stream. It lies entirely within the boundary of the River Boyne and River Blackwater SAC. The development site red line boundary overlaps with the designated site (pNHA and SAC), but no works are proposed within it. The River Boyne and River Blackwater SAC is selected as an SAC for habitats which include alkaline fen, with the main areas of alkaline fen concentrated in the vicinity of Lough Shesk, Freekan Lough and Newtown Lough. The applicant has therefore assessed the likely effects of the development on Lough Shesk and Newtown Lough in the NIS, with appropriate assessment providing a higher bar than EIA for development proposals. I am satisfied that the approach by the applicant is reasonable and for the same reasons I have considered the likely effects of the development on the

pNHA, Lough Shesk, Newtown Lough and Freekan Lough in the AA section of this report.

12.71. **Loss, degradation and disturbance of habitats, loss of biodiversity and effects on sites of county importance**

12.72. In response to submissions, the applicant states that the development site lies outside of any designated site of natural heritage interest, that fen vegetation occurs elsewhere in the State (NPWS Article 17 maps), impacts on sensitive habitats (e.g. high value woodland, fen habitats) are considered in the EIAR, the layout of the development avoids these habitats and minimises loss of hedgerows and treelines, hedgerows and treelines will be replaced and an extensive suite of mitigation measures will be adopted to enhance high value habitats (e.g. fen habitat) and consider *ex situ* habitats. For Marsh Fritillary butterfly, it is stated that best practice marsh fritillary surveys were implemented to avoid negative impacts on the species, with breeding locations shown in Figure 5-8, EIAR.

12.73. The proposed development is situated in a rural area, adjoining a national and European site. Further, habitats on the site include Annex I fen habitat (H7140 transition mire and quaking bog), ancient/long established woodland and the site is host to numerous species, including protected species. The application for the subject development has identified and assessed the likely effects of the development within this context.

12.74. Of note, the footprint of the development lies outside of protected sites and largely restricted to habitats of local or site interest e.g. with most habitat loss from improved agricultural grassland, broadleaved plantation woodland and conifer plantation and no stated loss of Annex I habitats or identified ancient woodland. In addition, the Habitat and Species Management Plan sets out detailed arrangements for the replacement of hedgerows and treelines (maintaining connectivity to adjoining areas) and for the protection and enhancement of high value habitats including detailed measures to enhance transition mire and quaking bog habitat (H1740) within the landholding, with targets for presence of typical indicator species and management of grazing regime. Notwithstanding the foregoing, I would have the following concerns:

12.75. *Location of T1, T2 and T3*

12.76. Turbines T1 to T3 are situated in a wider environment in which fen habitat occurs. This is detailed in the applicant's Fen Habitats Survey, 2022 (Appendix 16, Habitat Map) and Technical Note: Annex I potential habitat survey, 2023 (Appendix C, Habitat Map 2023). Both documents are appended to Appendix 5.9, Habitat Survey Results. Fen habitat includes the following (see Figure 5-5-e, EIAR):

- Annex I habitat H7140/PF3 Transition mire and quaking bog to the southwest of T1,
- An area of cutover bog habitat, PB4, to the south of T1. The conclusions of the technical note state that the non-Annex I habitats present include WN6 wet willow-alder-ash woodland/ WN7 bog woodland, GS4 wet grassland and PB4 cutover bog, and that PF3, transition mire and quaking bog is present within the habitat (confined to cutover areas) corresponding to Annex I habitat 7140.
- An area of woodland corresponding to both wet willow-alder-ash woodland (WN6) and bog woodland (WN7), to the south of PB4 (above). The Technical Note states that there were some cutover sections within the woodland with PF3 transition mire and quaking bog habitat, with the habitat corresponding to Annex I habitat 7140.
- Outside of the site boundary, a narrow band of Annex I fen habitat on the fringe of Newtown Lough, including H7230 Alkaline Fen, H7210 *Cladium* fens and H7140 Transition mire. The fen habitats are transitional in nature with adjoining wetland habitats, which in this instance includes wet grassland (GS4) and wet woodland (WN6).

12.77. As indicated in the fen survey reports, fen habitats typically occur in mosaic form with transition from one related habitat to another. Further, the habitats are typically dependent on a high-water table, with the Fens Habitat Survey stating that the hydrology of the fen habitat is as of '*paramount importance*' to their ecological functioning. The NPWS Article 17 Habitat Assessment Report 2019 indicates the fen habitat, 7140, whilst geographically widespread within the State but uncommon. Further, it is stated that the habitat can occupy a physical transitional zone between bog and fen vegetation and a representational stage between groundwater fed fen and rainwater fed bog. Pressures and threats on the habitat include conversion to

other land uses, pollution (ground and surface water), drainage, modifications to hydrological flow, abstraction (from ground or surface water), over grazing and natural succession.

12.78. Recognising the dependence of the 7140 habitats, and the mosaic of habitats with which this occurs, on the water environment the Fen Habitats Survey 2022, states that '*Consideration should be given to understanding the hydrological regime of the fen habitats within the proposed site, and any potential impacts of proposed activities, in order to avoid further degradation and loss of habitat*'.

12.79. Section 3.1 of the Peat Landslide Hazard Risk Assessment also refers to the fen habitats on site. It describes these as a wetland system with a permanently high-water table, receiving precipitation and groundwater and tending to accumulate in areas of low relief. On page A-17 the report refers to the effect of access tracks on peat drainage, with the potential to disrupt drainage, retarding or concentrating flows, and to artificial drainage, removing the volume of water entering the bog and transferring it to the edges more rapidly. The EIAR in section 5.437 refers to the transition mire and quaking bog habitats and bog woodland on site, as thought to be largely surface water fed, although on a precautionary basis it is assumed that there is some groundwater dependency.

12.80. Having regard to the foregoing, there is a lack of clarity in the EIAR regarding the nature of the water regime which maintains the fen habitat (i.e. groundwater, surface water, combination) and, therefore, hydrological connectivity to and dependency (or not) on the movement of ground and surface water in the wider area.

12.81. The proposed development will introduce substantial infrastructure immediately adjacent to this area with turbine T1 situated north of BP4 (Figure 5-5-e, Drainage Layout Drawing PL10, Turbine Layout Sheet 1, Drawing PL05-1). Further, the turbine foundations, crane hardstanding and access road between T3 and T1 introduce and/or redirect drains to the south, east and northeast of the fen habitats, potentially altering surface water flowpaths, that drain towards d'Arcy's Crossroads Stream. Further, dewatering of turbine foundations will impact on local groundwater levels. In this regard, the Carbon Calculator (Appendix 8-1), indicates a water table depth around foundations of 3m, removal of drainage from foundations and hardstandings before restoration, and a water table depth of 1m after restoration,

with 1 year before hydrology is restored. Whilst mitigation measures are proposed to address potential effects (see Water section), these are proposed on an absence of a clear understanding of how fen habitat is maintained on site, or an explanation of how the proposed mitigation measures will prevent changes to hydrology/hydrogeology of the fen habitat.

12.82. Should the Board decide to grant permission, I would recommend therefore that turbine T1 is omitted. This would remove substantial physical infrastructure, and drainage works in the area of fen habitat. Mitigation measures set out in the Habitat and Species Management Plan should nonetheless be required, for fen habitat, in accordance with the principles set out in the NBAP, with a view to ensuring that this habitat which remains close to the infrastructure associated with T2 and T3, is adequately protected for the duration of the development.

12.83. *Article 10 Habitats Directive and Marsh Fritillary Butterfly*

12.84. Article 10 of the Habitats Directive requires that Member States, with a view to improving the ecological coherence of the Natura 2000 networks, endeavour to encourage the management of features of the landscape which are of major importance for wild flora and fauna or which function as stepping stones between habitats. In this instance, the area of the development site which comprises Annex I habitat (PF3), transition mire and quaking bog, is also the area where Devil's Bit Scabious was abundant and where Marsh Fritillary larval webs were recorded. Marsh Fritillary butterfly is an Annex II listed species under the Habitats Directive. Any impact on the hydrology/hydrogeology of the transition mire and quaking bog habitat, could have indirect effects on this habitat and Marsh Fritillary Butterfly.

12.85. **Impact on protected species (including aquatic species, mammals, and Round-leaved wintergreen)**

12.86. In response to submissions the applicant states that dedicated surveys were carried out for rare and protected species and effects fully assessed in the EIAR. An extensive series of mitigation measures are recommended and with the application of these, there is no potential for significant effects. Further, extensive measures are proposed to enhance habitat within the site (Appendix 5-10), with potential for a net positive effect. Round-leaved wintergreen was searched for during dedicated botanical surveys by an expert botanist and none found in the search area. Further,

the habitat near Lough Shesk pNHA where the plant is likely to be present is not predicted to be affected by the proposed development.

12.87. Having regard to the consultation carried out as part of the preparation of the EIAR (scoping request), desktop and field surveys carried out (including habitat, aquatic ecology and fen surveys) I am satisfied that the rare and protected species occurring within the zone of influence of the proposed development have been properly identified. Further, having regard to the relatively modest footprint of the development, located largely on habitats of low conservation value (e.g. improved agricultural grassland, conifer plantation), the extensive area of alternative habitat which will remain and subject to the implementation of the full suite of mitigation measures, which include the following, I am satisfied that no significant adverse effects will occur for protected species, including aquatic species (birds and bats are considered below).

- Pre-construction survey work,
- Clearance of trees and woodlands outside of the main breeding season,
- Replacement hedgerow and tree planting,
- 50m buffer distances to water courses, and
- Standard construction practices to prevent water pollution.

12.88. Whilst the data search carried out by the applicant yielded Round-leaved wintergreen occurring in the 10km grid square overlapping the main wind farm site (year of record 1987, Appendix 5-7), I note that these species were searched in the habitat and botanical surveys and were not found on site. I am satisfied therefore that there will be no adverse effect on this species of flora.

12.89. **Impact on historic woodland**

12.90. In response to submissions, the applicant states that the native woodland and potential ancient and long-established woodland datasets were consulted at an early stage in the design process and used to prepare field surveys and for the EIAR. The native woodland inventory indicates habitats almost entirely outside of the planning boundary for the proposed development (west of it), with small sections of bog woodland and mixed oak-hazel-ash woodland present as bounding habitats only (i.e. not within the development footprint) (Figure 5-5d). It is stated that the development (including bat mitigation buffers) was carefully designed to avoid possible ancient

woodland, and a suite of mitigation measures are included to protect root protection zones.

12.91. Native woodland and potential ancient and long-established woodland datasets are not shown in the EIAR but are shown in the An Taisce submission. The areas would appear to lie outside of the development site, with the exception of the small area identified in the 2010 Ancient and Long-Established Woodland Inventory, situated between T5 and T8. Notwithstanding this, the applicant proposes horizontal directional drilling under this area for the underground internal cable route. If the Board were minded to grant permission, I would recommend a detailed method statement for these works, in the context of the mapped extent of potential ancient/long established woodland. Subject to this, I am satisfied therefore that the applicant has identified areas of potential native/historic woodland and has avoided these and that there will be no direct or indirect effects on this habitat.

Differences of opinion between the DAU and the applicant (nighttime survey work)

12.92. In response to third party submissions, the applicant states that the differences of opinion referred to are assumed to be that avian radar systems and avian acoustic meters be used to investigate nocturnal night activity, particularly in relation to migration. Further, it is stated that the DAU consultation response was received after bird surveys were complete, the bird survey work had been carried out in accordance with NatureScot (2017) guidelines, NPWS were consulted throughout multi-year bird surveys and had an opportunity to shape the survey work. The avian survey methods referred to by NPWS are not standard practice measures and are recommended by NatureScot (2017) if there is likely to be high levels of nocturnal activity of important bird species. Based on the results of multi-year bird surveys, there was no indication this was the case. The avian radar systems and acoustic meter suffer from limitations (Table 2.1 AA Screening Report). As a precaution nocturnal migration was accounted for in the collision risk model (additional levels of nocturnal flight activity for certain species) and considered for species with no recorded diurnal flights (e.g. Eurasian Coot). (See AA section of this report also).

12.93. Having regard to the foregoing, I note that the NPWS comments to the applicant, based on a scoping report, were made in September 2022. The Bird Survey work

was carried out over three years, Year 1 (June 2019 to March 2020), Year 2 (May 2020 to March 2021) and Year 3 (April 2021 to September 2021). The comments by the NPWS therefore post-date the survey work. As stated by the applicant, the applicant actively engaged with the public body during the survey period and no submission has been made by the DAU of the application to the Board.

12.94. Bird surveys identify Eurasian coot, a species which migrates exclusively at night, and Whooper swan, and teal which are known to make movements at night, as occurring in the zone of influence of the development site. Other birds occurring in the wider area, which are identified as the conservation interest of Lough Glore pNHA and which are known to make movements at night, pochard and tufted duck.

12.95. The year 3 bird survey report, breeding walkover survey 2021, identified a single coot within 500m of the development site as confirmed breed locally at Newtown Lough (Appendix 2, Figure 2.1/2.1.1). Occurrence within the study area for the site by Whooper Swan was also low (e.g. two sightings in VP survey in year 1, five in year 2 and none in year 3). Teal was recorded more frequently, but once in each VP survey (year 1 and 2), with birds typically feeding, and to a lesser extent breeding, on a loughs c.500m from the survey area. Pochard and tufted duck, were not identified in the bird surveys.

12.96. NatureScot 2017 '*Recommended bird survey methods to inform impact of assessment of onshore wind farms'*, acknowledge the limitations of automated sensing devices such as radar (difficult to distinguish between species), and recommend use of such survey methods to assess sites where there is likely to be a high nocturnal activity of important species, especially if an SPA qualifying species is potentially affected. NatureScot guidelines therefore also refer to nighttime survey work and indirect methods of assessment e.g. type of habitat change occurring, prey abundance, to estimate presence and/or provide an assessment of likely effects

12.97. As indicated in the AA section of this report, the development site is situated c.16km to the east of Lough Derravaragh SPA. Conservation objectives for this site include Whooper swan, pochard, tufted duck and coot. Having regard to the Bird Survey carried out, I do not consider that there is any evidence of high rates of nocturnal activity by any of the species referred to warrant additional survey work (avian radar systems, avian acoustic sound meters). Further, I note that the applicant has carried

out qualitative assessment of likely effects on these species and has adopted a generally conservative approach. For example, applying a correction factor to the diurnal levels of whooper swan flight activity to account for any regular nocturnal flight. I also that the DAU has not made a submission on the application to the Board. I consider that it is reasonable to infer from this that they are satisfied with the conclusions of the survey work.

12.98. Impacts on bird species are examined further below, and ex situ effects on bird species of conservation interests for European sites are examined in the AA section of this report.

12.99. **Impact on bird species**

12.100. In response to submissions, the applicant states that representative survey work for the wind farm site, in line with NatureScot (2017) best practice guidelines for wind farms, was carried out and by competent experts, with the level of survey work exceeding minimum requirements. This includes documented flightlines, shown in Technical Appendix 5.2. Further, it is stated that like most ecological surveys, the baseline bird surveys provide a representative sample of baseline conditions.

12.101. The applicant's assessment of likely effects on bird species is based on survey work carried out between June 2019 and September 2021. The survey spans a minimum of two years in accordance with NatureScot guidelines. Surveys include desk survey, to identify target species and field surveys comprising distribution and abundance surveys (including breeding walkover, breeding raptor, breeding woodcock and wildfowl distribution surveys) and vantage point surveys. Important ecological features (birds) are identified having regard to level of protection afforded to the species, population with the study area relative to ROI/local population, use of the site (e.g. breeding, wintering), flight activity etc. Flightlines are shown in Figures attached to each survey report and VPs record flight height. The approach taken is consistent with NatureScot guidelines and the applicant's assessment of importance of bird species, is not unreasonable having regard to the survey work carried out and species population trends.

12.102. I note a small number of anomalies in the EIAR. For example, the EIAR identifies Sparrowhawk (secondary target species) as probable breeding territory within the site (2020 survey) and confirmed breeding territory partially within the site

(2021 survey). This species is not referred to in Table 5-11 (Evaluation of ecological features within ZoI), but the presence of the species is referred to in the text of the EIAR. Further, I note that the effects on Sparrowhawk are not assessed in the EIAR, including collision risk (sufficient data is available for collision risk assessment, as a minimum of five flights and/or a minimum of 10 birds per season is easily exceeded). Notwithstanding this, sparrowhawk is not a species identified as at significant collision risk with wind farms and are, in population terms, widespread (green conservation status). I do not consider therefore that the omission is significant. Similar issues arise with Yellowhammer. However, this is a species is a passerine and not likely to be impacted by wind farm development.

12.103. I am satisfied, therefore, that the EIAR accurately identifies the likely significant effects, in advance of mitigation measures, during construction and operation. Notably, during construction significant effects are predicted to be greatest for Eurasian woodcock and common snipe, with potential for effects on breeding territory (habitat loss) and disturbance. Absence of effects on other species is largely due to absence of breeding on the site, the small footprint of the development, the presence of similar habitat in the wider area and the limited effects of construction activities in this context. Mitigation measures include construction works to be undertaken outside of the main bird breeding season and pre-construction survey work, with appropriate exclusion zones.

12.104. During operation, collision risk is identified for species associated with high sensitivity to wind farm development e.g. target raptor species, species that are not particularly manoeuvrable in flight such as gees and swans, and those with unfavourable conservation status i.e. European golden plover, Eurasian curlew, common kestrel, northern lapwing, mallard, peregrine falcon, and whooper swan. Other species, including those occurring in nearby natural heritage sites are excluded based on insufficient flightlines and therefore absence of any likely significant effects (e.g. common snipe, Lough Glore pNHA, and great cormorant, Lough Ramor pNHA). Collision risk modelling is summarised in Table 3-3 of the Collision Risk Model Report (with slight differences arising with different Turbine types). It is also summarised in Table BD 2 above. The Board should note that for wildfowl and waders, which could be active at night, an additional 25% of nocturnal

hours were added to daylight hours to give a more accurate representation of the available hours for the species.

12.105. Consequence of collision risk are considered in section 5.456 of the EIAR Following NatureScot guidelines, significant effects are predicted where the number of predicted deaths due to the proposed development are likely to result in substantial differences to projected rates of population decline or recovery over the 35-year operational life of the wind farm. Having regard therefore to collision risk data, local and national population trends, no significant effects are predicted for any of the species identified. This includes for conservation interests of Lough Glore pNHA. The applicant's conclusions are not unreasonable in the context of the analysis of collision risk and population trends for the species in the county and in the State. I do not consider therefore that collisions with turbines are likely to have any significant adverse effects on bird species. However, I note, and support the inclusion of the applicant's proposals to monitor bird casualties, with curtailment of turbines if required at 'at risk' times. This approach is prudent and should be required by conditions of the permission (i.e. implementation of mitigation measures). I consider the specific species or issues referred to in submissions below:

- *Whooper swan* – In response to submissions, the applicant states that whilst it is possible, that Whooper swan, a winter migrant from Iceland (non-breeding), has been present in larger numbers, it is unlikely that they were present in consistently large numbers, otherwise they would have been identified in extensive surveys. It is also stated that the collision risk model showed that collision would not have an appreciable effect on the winter population of Whooper swan at the national or county/regional scale.

  The applicant has carried out detailed survey work for the development site in accordance with industry guidelines. These have identified Whooper swan in vantage point survey and in wildfowl distribution surveys (flying over the site, non-breeding season, feeding in a small lake adjacent to the wind farm site and roosting, feeding and commuting around the site in small numbers). I am satisfied therefore that the applicant has had appropriate regard to the likely effect of the development on this species and has properly included it in the collision risk assessment.

- *Barn owl* – In survey work it was determined that Barn owl is likely to breed within the ruins of Rosmead House. This building is situated c.360m from turbine T8 and outside of the disturbance distance for this species (100m). Further, no foraging habitats (tussocky grassland) will be removed as a consequence of the development and no direct impacts by way of habitat loss or indirect effects by way of disturbance are considered likely. I am satisfied that significant effects on Barn owl are not likely.

- *Hen harrier* – In response to third party submissions, the applicant states that effects on Hen Harrier were considered in the EIAR, including for collision risk, disturbance and displacement, with the assessment concluding that there is no ecological connectivity between the proposed development site and any European sites (see AA section of this report), no sensitive locations for hen harrier identified during extensive bird surveys and no potential for collision risk (very low flight lines through collision risk zone).

  Hen harrier were recorded infrequently in Bird surveys, with one observed in vantage point surveys (2019/2020), travelling high and then foraging over the site (norther cluster), below and at PCH for a proportion of the time. Given the low occurrence, significant issues of disturbance are unlikely. In the year 3 bird survey (2021), Hen harrier was briefly observed, with a bird soaring over farmland and remaining around the sand quarry for a period (SE northern cluster). Collision risk is not carried out for the species given the small number of flights carried out (i.e. < 5 flights and/or < 10 birds per season). In addition to the foregoing, a positive impact is predicted in the EIAR with the clearance of forestry improving foraging and nesting habitats.

  Given the low incidence of recording of Hen harrier, in the context of the substantial number of surveys carried out, I am satisfied that the application site is not a key habitat for the species, or that significant effects on it by way of disturbance, barrier effect or collision risk are likely.

- *Woodcock* – In response to submissions, the applicant states that this species is thought to have undergone significant decline, but no national population estimates are available, and the importance assigned to the species is likely to be precautionary. Felling of woodland to accommodate T3 could result in

the loss of a woodcock territory. A detailed Habitat and Species Management Plan (Appendix 5-10) outlines the establishment, monitoring and remedial actions required to secure success of compensatory afforestation. Measures are based on British Association for Shooting and Conservation guidance. Following implementation of these measures, residual effects are 'significant at a local scale', a low level of significance.

Woodcock is a woodland bird, with research in the UK[6] indicating that at a large landscape scale, breeding Woodcock abundance was correlated with total woodland area and woodland type, with more abundance in woods containing heterogenous mix of woodland habitats and in wood further from urban areas. Guidance by the British Association for Shooting and Hunting states that Woodcock seem to do best in large, well connected and diverse areas of wet woodland. Pressures include woodland loss and fragmentation.

There is no published Woodcock survey data for Ireland, but the species is Red listed, due to a decline in breeding population. The EIAR acknowledges this context and takes a conservative approach assigning the breeding population a county/regional value and determines that the development could have a direct effect during construction arising by way of nest damage/destruction and habitat loss and disturbance/displacement effects (proximity to breeding birds). Similarly, during operation in the absence of compensatory measures significant, negative, long-term displacement/disturbance effects are predicted at the county/regional scale for foraging woodcock with loss of habitat and nesting habitat. No collision risk is predicted given the limited number of flightlines through the collision risk zone. Best practice mitigation measures are proposed to prevent direct effects during construction e.g. clearance of habitat outside of the main breeding season (March to September inclusive). Further, in order to compensate for the loss of habitat, the applicant proposes provision of compensatory habitat, 0.7ha of new broadleaved woodland to be planted with glades created within an area of 1.3ha, situated to the south of T1 (Figure 1-

[6] Heward, C.J. et al *Habitat correlates of Eurasian Woodcock Scolopax rusticola abundance in a declining resident population.* Journal of Ornithology, June 2018

2-c, Appendix 5-10). It is accepted that the replacement territory will not fully compensate for the predicted loss of two territories (estimated to be c.2.5ha).

The approach taken by the applicant is not unreasonable, with the replacement planting situated in proximity to existing wet woodland, providing a heterogenous mix of woodland habitats. I note also that the Habitat and Species Management Plan provides for the active management of this habitat over the lifetime of the development to maintain its suitability for woodcock, with potential for a greater level of survey effort than existing.

- *Mallard* - Based on flight activity, peak winter count and peak breeding season count, Mallard is valued at county/regional importance (breeding population) and of national importance (winter population). Mallard is a wetland bird, typically confined to wetland habitats. Having regard to the distance of waterbodies from the development site, short term nature of construction works, the relatively small number birds within the 'displacement zone' and availability of alternative habitats in the wider area, the EIAR reasonably predicts no significant during construction or operation. Collision risk, considered above, is also demonstrated to be low.
- *Merlin* – Bird surveys recorded very low flight activity for this species e.g. a peak count of 1 individual in winter 2019/20 and winter 2020/21, with birds moving through the wider area while foraging, and no breeding birds recorded during surveys. Notwithstanding this, given the population of the species in the county, the species was considered of county/regional importance during the winter. Habitat loss/disturbance effects during construction were not considered to be significant, given the observed use of the site (i.e. flying over, no roosting, breeding etc.). However, with the clearance of forestry, it was considered that foraging and nesting habitats for the species could improve, with positive effects. During operation, disturbance, barrier effect and collision risk are not likely to be significant due to the limited use of the site (e.g. absence of breeding, roosting) and low flight activity. Again, these conclusions based on observed use of the site, bird behaviour and proposed clearance of forestry, are not unreasonable.

- *Mute swan* – Flight activity for mute swan was also recorded to be at a low level in bird surveys, with a peak count of 3 individuals in winter 2020/21. Wildfowl distribution surveys identified 3 individuals (breeding) in 2019 and 2 individuals' winter 2020/2021, with birds observed on wetland habitats within 500m of the site boundary. Again, having regard to population levels, the species was given a county/regional value for breeding population and a local value for wintering population. Habitat loss/disturbance effects during construction and operation were not considered to be significant, given the observed use of the site and habitats to be lost (e.g. no loss of wetland habitats) and lack of vulnerability to construction related impacts (winter) and short-term nature of construction works. During operation, disturbance, barrier effect and collision risk are not likely to be significant due to the absence of breeding, roosting or foraging in proximity to the development site and low flight activity. Given the detailed survey work carried out, the nature and extent of use of the site by this species, I am satisfied that significant effects on Mute Swan are unlikely.
- *Kestrel* – Kestrel have been identified in the VP surveys (2019/20 and 20/21), with reasonably high flight activity, in particular to the southeast and southwest of the northern cluster (Figure 1-1-15 (2019/20), Figure 1.6 (2020/21) and Figure 1.3 (2021) and breeding territories (confirmed and possible) but > 500m of the development site (Figure 1.6.1 (2020/21) and Figure 2.2.1, 3.1 and 7.1 (2021). Having regard to population levels, the species was given a local value for breeding and winter seasons. During construction no significant effects are predicted given distance of nesting habitats from the development site (>200m required buffer) and the habitats to be lost comprise are unlikely to comprise an important part of foraging areas (kestrel occur in different habitat types and tend to avoid densely planted forests, National Biodiversity Data Centre). This conclusion is not unreasonable given the low value of habitats to be lost during construction and the wide availability of similar habitats in the area. During operation, disturbance/displacement and barrier effects are not considered significant as given the relatively small numbers in the 'displacement zone', lack of breeding near the development site and wide availability of habitat outside

the proposed development and low collision risk predicted. Further, and having regard to the preferred habitat for the species, during operation, foraging and nesting habitats could improve with the clearance of forestry. Again, the conclusions of the EIAR are not unreasonable, notably given the location of likely breeding territories, small footprint of the development and alternative habitat in the wider area.

- *Greenland White-fronted geese* – In response to submissions, it is acknowledged by the applicant that these species may fly over the midlands en route to their breeding grounds. However, it is stated that 70% of migratory flights take place during the day and that the bird should have been detectable in the diurnal (daytime) VP surveys. It is also acknowledged that whilst surveys only provide a snapshot of baseline conditions, the same is true for all surveys and the required level of survey recommended by NatureScot (2017) has been carried out.

  Having regard to the detailed survey work carried out by the applicant, in accordance with NatureScot guidelines, including length of survey time, I am satisfied that if the development site is situated under an established route to their breeding ground, it is highly likely that it would have been identified in survey work. Further, no issues have been raised in respect of this species by any prescribed body.

Cumulative effects (birds)

12.106. In response to submissions, the applicant refers the Board to Chapter 5 of the EIAR, paragraphs 5.604 to 6.618 and the AA screening report/NIS, with no significant effects predicted.

12.107. The EIAR identifies no potential for cumulative effects on birds for the construction phase of the development. This is not unreasonable given the distance of other permitted wind farm developments from the development site and the absence of other substantial developments, permitted or proposed in the immediate area of the site.

12.108. Barrier and displacement effects are discounted given the separation distances. This approach seems reasonable given the 5+km separation distances to permitted wind farms (Bracklyn Wind Farm, Ballivor Wind Farm and Dryderstown

single turbine), the relatively small footprint of individual wind farms in a wider environment where similar habitat is present.

12.109. Collision risk as has been assessed using collision risk data from Bracklyn and Ballivor Wind Farms and qualitative data from the single turbine at Dryderstown. A simple additive approach is used and presented in Table 5-14. In general collision risk is typically low (including in the context of population levels) and not likely to have any significant effects.

12.110. For Golden Plover, NatureScot recommend an avoidance rate of 98% (for species not listed in their guidance note *Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model* 2018). The EIAR refers to this rate but considers it to be too low for the species given research which indicates that European golden plover collisions appear to be a relatively uncommon event relative to all bird collisions. Consequently, a collision rate of 99.8% is used, with a resultant collision rate of 3.47, or one collision every 0.3 years. The use of the higher avoidance rate substantially changes the potential effect of the wind farm on this bird species, i.e. reducing it by a factor of 10. If the lower avoidance rate of 98% is used, collisions rise to a maximum of 30.47 per annum, which has potential to have a significant effect at a regional level, alone, where the estimated winter population is 205 (likely underestimate) to 2,122 (estimated) wintering individuals (ROI population is 70,726 wintering individuals 2016/17). Further, there would be potential for significant cumulative effects with other wind farms in the area of the site, notably with Ballivor wind farm (Table 5-14). The application documents for Ballivor wind farm also use an avoidance rate in excess of the NatureScot guidelines, with an avoidance rate of 99.8% based on research in respect of casualties at operating wind farms (Blood Hill and Goole Fields). For Brackyn Wind Farm the NatureScot rate of 98% was used, conservatively.

12.111. Having regard to the foregoing, I consider that the evidence presented by the applicant would support the applicant's assertions that Golden Plover has a high avoidance rate, and that the higher rates used in the assessment are appropriate (direct effects and cumulative effects). This approach has been accepted by the Board in their recent decision to grant permission for Ballivor wind farm. Further, the 3.047 collisions per annum (direct) and c.23 per annum (cumulatively), having regard to county population levels, will not have a significant adverse effect on the species.

In addition, I note that mitigation measures include detailed post construction monitoring and curtailment of turbines should significant levels of collision mortality arise for IEFs.

Longer term monitoring of effects on birds

12.112. In response to third party submissions, the applicant states that the lifespan of monitoring was developed following NatureScot 2009 guidelines, proposed mitigation and measures will be agreed with the PA prior to implementation and there is scope, therefore, for more extensive monitoring.

12.113. The applicant proposes three-year post construction monitoring for effects on bird species, with extension beyond this period should this be required by the PA and NPWS. The applicant refers to SNH (2009) guidelines *Guidance on methods of Monitoring Bird Populations at Onshore Wind Farms.* However, this document refers to the likely sporadic nature of effects, lag effects from chronic disturbance, habituation effects etc. and therefore recommends that monitoring takes place over 15 years, after the wind farm becomes operational, with monitoring occurring in years 1, 2, 3, 5, 10 and 15 after the wind farm becomes operation. Should the Board decided to grant permission for the development, I would recommend therefore a standard condition requiring monitoring of effects on birds over this longer time period.

12.114. **Impact on bats**

12.115. In response to third party submissions the applicant states that the baseline bat studies followed NatureScot (2021) good practice guidelines, with eight species recorded in the area, and no confirmed bat roosts within the footprint of the development, or any direct effects on bat roosts including Rosmead House roost. It is stated that whilst there will be some loss of commuting and foraging habitat, this will be compensated for with replacement and additional hedgerows and treelines which will enhance connectivity and habitats for bats with no significant adverse effects on bat populations arising from habitat loss. Operational and cumulative effects are addressed in the EIAR, and an extensive suite of mitigation measures and post construction monitoring is recommended, with additional mitigation measures if required. Bat felling areas are in line with NatureScot (2021) guidelines

and are an effective mitigation measure to prevent collision of bats with operational turbines.

12.116. Baseline bat survey reports are set out in Appendix 5.3 of the EIAR. These include for the period 2022/3 survey and a previous 2019/2020 survey. The 2022/2023 survey was carried out in the appropriate period, between May and October 2022 and June to August 2023. Qualifications and experience of personnel are set out in the report and are appropriate for the survey work carried out. Field survey included habitat appraisal (with survey area limited by access to optioned lands), emergence survey following roost searches, transect survey and static detectors at/nearby the eight turbine locations (at ground level and height – static detector on met mast). Limitations of survey work include lack of access to structures identified as potential bat roosts (e.g. occupied dwellings/third party lands), impractical location of some static detectors (e.g. presence of livestock, location of turbines in woodland habitats requiring keyhole felling and relocation of T1). Survey limitations were not deemed to cause significant impact on outcome of the baseline survey. This view is not unreasonable given the strategy used to address potential limitations e.g. location of static receptors at nearby forest edges, which would be more representative of baseline environment prior to turbine operation.

12.117. Of the habitats occurring on the site, the most pertinent habitats for bats include hedgerows, treelines, woodland edges, edges/tracks/firebreaks and first and second order watercourses. With the prevalence of these habitats, the site was considered to be of 'high risk' for bats, and the project 'medium' size (eight turbines and proximity to other wind farms). Results of the desk and field survey work is summarised in Table BD 1 above, with eight species of bat recorded at the main wind farm site, with four of these high collision risk species (common pipistrelle, Leisler's bat, Nathusius' pipistrelle and soprano pipistrelle). Significant indirect effects at a local scale are predicted during construction as a result of the removal of linear features used regularly by common pipistrelle and soprano pipistrelle and Leisler's bat and significant direct effects are predicted during operation, also at a local scale, on common, soprano pipistrelle and Leisler's bat from collision risk, in advance of mitigation. The conclusion is based on the vulnerability of the species to

collisions, their presence on the site, and location of proposed turbines vis a vis their use of the site.

12.118. Having regard to the detailed survey work carried out, the consistency of its findings with previous survey work, I am satisfied that the assessment of likely effects is robust and that significant effects on bat species are likely limited to the local effects on common and soprano pipistrelle, and Leisler's bat (for construction and/or operation). I do not consider that additional survey work is required, or that the loss of habitat areas is significant. Mitigation measures are in accordance with NatureScot guidelines. Appropriately sized bat buffers will prevent significant collision risk and barotrauma and linear vegetation which is lost will be replaced and actively managed over the lifetime of the development. The development will have no adverse effects on the roost/use of Rosmead House by bats.

12.119. **Cumulative effects (bats)**

12.120. Cumulative risks to bats are considered in section 5.625 of the EIAR. Essentially, the EIAR considers that without mitigation the proposed development in conjunction with the other permitted/proposed wind farms in the area of the site, would have a likely cumulative effect on some local bat populations, most likely high collision risk species such as Leisler's bat, common and soprano and Nathusius' pipistrelle. Further, it is considered with the implementation of bat buffers, any significant cumulative impacts will be mitigated. However, given the difficult in predicting bat behaviour an overall residual effect of low significance on local populations of high collision risk species is, as a precaution, predicted.

12.121. The approach taken by the applicant in the assessment of cumulative effects is not unreasonable. Further, mitigation measures are proposed with curtailment of turbines during at risk times, should significant adverse effects arise.

12.122. **Aviation lights**

12.123. <u>Birds</u>

12.124. In response to submissions by third parties, PAs and prescribed bodies, the applicant states that turbine lighting is dictated by the requirements of Irish Aviation Authority and Department of Defence, who require fixed static lighting at near infra-red range. Further, the EIAR has assumed static lighting and has carried out the

assessment of likely effects on birds on this basis as part of the collision risk assessment. No significant residual effects of collision are predicted, and no further lighting mitigation measures are proposed. The approach taken is stated to be reinforced by NatureScot (2024) pre-application guidance for wind farms which states that it is reasonable to exclude consideration of the impact of turbine lighting on birds in most circumstances.

12.125. NatureScot's Information note on the *Effect of Aviation Obstruction Lighting on Birds at Wind Turbines, Communication Towers and Other Structures* (NatureScot 2024) advises that it is likely that collision risk at lit turbines for non-passerine taxa are likely to be relatively low in general, including resident breeding birds. Further, as birds can be attracted to lights (phototaxis), the guidance refers to evidence that would suggest that flashing lights result in fewer fatalities than static lights; white or green lights, fewer fatalities than red; and with reduced intensity and no turbine lighting also reducing fatalities (e.g. turning on lighting when aircraft are near). The pre-application guidelines also state that it is reasonable to exclude the impact of turbine lighting on birds with the exception of sites adjacent to protected areas where there are large concentrations of wintering waterbirds, or within migratory corridors/bottlenecks etc.

12.126. Having regard to the advice set out in best practice guidelines, I am satisfied that the applicant's approach to the provision of turbine lighting, in the interest of aviation safety is acceptable and not likely to have any significant impact on birds.

12.127. <u>Bats</u>

12.128. In response to third party submissions, the applicant refers to section 5.690 of the EIAR which states that no night working is proposed, but if necessary cowled light would be used in line with Bat Conservation Ireland 2013 guidance, to minimise potential disturbance effects on bats (and other species). It is also stated that no additional survey work was undertaken because no likely significant effects were predicted on bat species, to warrant further examination. It is argued that the approach taken is consistent with NatureScot advice which does not advise developers to carry out any additional survey or assessment to determine impact of turbine lighting on bats.

12.129. Bats are nocturnal animals. Artificial lighting of bat roosts, access points and foraging pathways can be damaging e.g. by delaying or preventing emergence from roosts (less foraging time/wrong foraging time), avoidance of foraging ground (as it is lit, with loss of foraging territory). Bat Conservation Ireland's guidance note *Bats and Lighting*, makes recommendations in respect of minimising light impacts for bats. In principle, the applicant's approach to no/limited nighttime working, directional/cowled lights are consistent with these guidelines and the NRAs Guidelines for the Treatment of Bats during Construction of National Road Schemes.

12.130. NatureScot guidelines '*Bats and onshore wind turbines – survey, assessment and mitigation* (August 2021), identifies risks to bats from wind farms, and does not refer to aviation lighting as a risk factor. Similarly, the UKs publication Bats and Artificial Lighting at Night (Bat Conservation Trust, 2023), makes no reference to wind turbines or aviation lighting. I am satisfied therefore that the proposed development poses no significant to bat species by virtue of construction or operational lighting (for aviation purposes).

12.131. **Invasive species**

12.132. In response to submissions by third parties and prescribed bodies, the applicant states that no Japanese Knotweed is present within the proposed development but has been identified nearby to the proposed underground connection route and a full suite of mitigation measures to prevent its accidental spread are included in Appendix 5-10.

12.133. In addition to the foregoing, I note that the EIAR identifies other invasive species along the cable corridor, access track to the southern cluster and at various locations along the TDR (cherry laurel, winter heliotrope, snowberry). Further, the aquatic survey work identifies Crayfish plague at sampling location A4. Mitigation measures for invasive species are set out in the EIAR (Chapter 5 and Chapter 17) and include a pre-construction walkover survey of the works corridor to confirm any invasive/nonnative species present since baseline survey work has been carried out, method statement to be prepared and followed in relation to construction works to prevent spreading. In addition, the Habitat and Species Management Plan addresses Invasive Species in section 11 and sets out reasonable measures to eradicate and/or holt the spread of invasive species via prevention, containment,

treatment and eradication by specified method. I am satisfied therefore that with the implementation of these measures, invasive species on the site will be managed and controlled appropriately.

12.134. **Conclusion: Direct and Indirect Effects**

12.135. Having regard to my assessment of the proposed development on biodiversity, it is considered that the main significant direct and indirect effects after the application of proposed mitigation measures are:

- In the absence of further information on the hydrology and hydrogeology of the site, the potential for significant adverse effects on the fen habitat, including Annex I Transition mire and quaking bog habitat, by virtue of the proposed groundworks and drainage infrastructure and the potential for indirect effects on Annex II Marsh fritillary butterfly. This effect can be avoided by the omission of turbine T1.

12.136. **Land and Soil**

12.137. **Issues Raised**

12.138. Issues raised in respect of land and soil are in relation to depth of peat, loss of peat (with consequences for habitat, archaeology, carbon sink, natural heritage), peat stability, implications of drainage strategy for peat and stability of turbines, quarrying and subsidence and flooding (associated with quarrying).

12.139. **Examination of the EIAR**

Context

12.140. Chapter 6 of the EIAR deals with effects on land, soils and geology. The associated appendix is Appendix 6-1, Peat Landslide Hazard Risk Assessment (PHLRA). The assessment is undertaken in accordance with government guidelines and industry best practice (section 6.9). Baseline studies include desk studies, findings from walkover survey and peat probing at three turbine locations (T1, T2 and T3). The geographical study area is the proposed development and a 2km offset in accordance with industry guidelines. The study area for the TDR route is the existing road network. The evaluation of impact has regard to the magnitude of

effect (degree of change) and environmental importance of receptor affected (sensitivity) (Table 6-1).

Baseline

12.141. Land uses within the site comprise a mix of agriculture (mostly grazing), and forestry. There is an active quarry to the southeast of the northern cluster. Soils in the study area are shown in Figure 6-1a. These comprise largely Elton series of fine, loamy drift with limestones, with good agricultural potential (underlying T4, T5, T6 and T8). Two other soils are found on site, River Alluvium beneath T2 and Peat underlying T1, T3 and T7 (see Figure 1, PLHRA). Soils beneath the sub-station are Elton soils and under the TDR route, largely engineered fill/made ground. Subsoils are fen peat (T1 and T3), cutover peat (T7) and a mix of limestone sand and gravel and limestone till for remaining turbines. Bedrock geology for the wind farm site and substation is Lucan Formation (mixed of limestones and shales with chert bands, Figure 6-3). The bedrock is described by GSI as a locally important aquifer which is moderately productive in local zones. Bedrock geology for the TDR is various sequences of carboniferous limestones and a shale and sandstone.

12.142. The site lies in an area of low landslide susceptibility (GSI, 2023). The Peat Landslide Hazard & Risk Assessment (PLHRA) (Appendix 6-1) identifies the site as lying in a low-lying area, with an undulating topography and no significant hill slope gradients. Its findings, based on peat depth (established in 153 probes), peat condition survey and slope analysis (Table 1, 2 and Figures 5 and 6, PLHRA) include:

- There was no peat found at T7 (mapped as cut bog).
- The fen peat to the north of the site beneath T1 and T3 varied in terms of thickness and coverage (0.1m to 4.0m, with 70% of the area surveyed having no peat or peat thickness of <1.5m).
- Peat development in the immediate vicinity of T1 is limited and in the immediate vicinity of T3 is variable.
- The thickest peat is associated with particular flat topography (<1° slope).
- As expected for fen peat, it is developed in a relatively low-lying area.

12.143. Based on the above and a risk assessment, the PLHRA concludes that the risk of slope instability due to peat in the northern fen peat area in the vicinity of T1 and T2 is low to negligible (Figure 7).

Potential Effects

12.144. Likely significant effects of the development, as identified in the EIAR, on land and soils, are summarised in Table LS1 below.

Table LS1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Land use is likely to continue in existing pattern (forestry, agriculture).
Construction	• Wind farm site and substation - Loss of forestry and agricultural land. Removal of soils and subsoils to facilitate construction of turbines and associated infrastructure, with re-use on site. Excavation of peat (T1 and T3) to create a suitable area for foundation base. *All resulting in slight significant effect*. • Borrow pits – Excavation of soils, subsoils and bedrock, with reuse of materials in the wider site, with *slight significant effect*. It is estimated that all required aggregate material can be won on site. However, to ensure a robust assessment, it has been assumed that the type of aggregate required for construction will be imported (Table 6-3), with 76,735m^3 (138,123 tonnes) of aggregates required. • Grid connection – Temporary disturbance to land use during cable laying, s*light significant effect.* Importation of materials e.g. bedding layer of sand, for cable trenches. Reuse of excavated materials (backfilling of trenches or borrow pit), with *slight significant effects.* Small risk of contamination of soils and bedrock with fuel leaks/spills from construction industry, small and shallow trench, so risk is *imperceptible.* • TDR – No change to land use (to follow existing roads). No excavations, effects on soils or risk of contamination. • Contamination – Risk of contamination of soils and bedrock with fuel leaks/spills from construction machinery, *with slight significant effect*. • Peat slide (risk to human health) – Turbines T1 and T2, *slight to moderate*. Other turbine locations, *slight*. (NB effects are slight adverse).
Operation	• Small number of vehicles/equipment required for maintenance of wind farm site and cable route, with potential for fuel and oil leaks and spills, with magnitude of effect considered to be negligible, with *imperceptible significant effects.* • With embedded mitigation measures in construction phase e.g. design and implementation of drainage management, risk of peat instability is negligible and potential significance of effect is *slight.*
Decommissioning	• As per construction.

Cumulative	• No other major planned developments in the vicinity of the site or on surrounding lands, with potential for significant adverse cumulative impacts on land, soils or geology.

12.145. **Mitigation**

12.146. Mitigation measures for the construction, operation and decommissioning of the proposed wind farm are set out in section 6.120 – 6.138 of the EIAR. Construction measures included are standard best practice measures to protect soil structure, prevent erosion/dust and prevent pollution events. Detailed measures for works in all areas of peat include specific drainage measures to maintain existing flows in adjoining peat habitats, appropriate design to minimise sedimentation into natural water courses and appropriate maintenance of drainage systems. Operational measures include those to prevent pollution/contamination of soils, maintenance of drainage regimes, with demarcation of zones of sensitive drainage or hydrology for inclusion in a management plan for drainage and Peat Hazard Emergency Plan. Decommissioning measures are similar to construction. Proposed measures will be included in a CEMP. Periodic monitoring of ground conditions during all phases, particularly after heavy rainfall events, is recommended.

12.147. **Residual Effects**

12.148. With the implementation of mitigation measures, the EIAR considers that residual environmental effects during construction, operation and decommissioning will reduce to imperceptible or slight, with no significant effects.

12.149. The EIAR refers to the potential for unplanned events to impact on land, soil and geology. It identifies a single risk of instability in the area of T1 and T3 due to fen peat. It refers to the removal of peat in the area of turbine foundations, which will reduce the depth of peat on site, and to surface indicators of peat slide potential, which would act as warnings for turbine stability. These include cracking of peat land surface, crack patterns, change in levels or slumping of foundations and concrete bases. It is stated that these would be visible during site inspections and should such indications arise, remedial measures could be implemented to prevent a failure event. It is considered that the potential effects of such an event, which could only occur at the location of T1 and/T3 would not be significant.

12.150. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.151. I have examined, analysed and evaluated chapter 6 of the EIAR and the associated documentation, including technical Appendix 6-1 on PLHRA. I am satisfied that the applicant's understanding of the baseline environment, in respect of land, soil and geology, by way of desk and site surveys is largely comprehensive and that the key impacts on have been identified and appropriately assessed. Issues raised by parties to the application are considered below

12.152. **Depth of peat, loss of peat and peat stability**.

12.153. Peat soils occurring within the development site are mapped in Figures 1 and 2 of Appendix 6.1, with cutaway bog in the location of T7 and nearby access tracks and peat in the vicinity of T1 – T3. More detailed survey work referred to in the EIAR identified that there was no peat beneath turbine T7 (mapped as cut bog) or T2 (River alluvium). Peat depth surveys were carried out in the vicinity of T1 and T3, with a total of 135 peat probes at different depths. The surveys indicate a range in peat depths, from 0.1m to 4m, with 70% of the area having no peat of peat depth of >1.5m and with peat generally limited to flat expanses (Figures 5, 6 and Appendix A of PLHRA). Turbines T1 and T3, turbine hardstandings and access roads (where shown) are situated in typically areas of low peat depth. For T1 depth appears to range from c.0.1m-1m and for T3 depth appears to range from c.0.1m to c.3m. The colours of mapped peat in Figure 6, for T3, are not directly consistent with the key, however the text of the PLHRA states that in the area of T3 peat depth varies considerably with no real pattern, from 0.4m to 2.6m. In order to construct the proposed development, soils, subsoils and bedrock will be excavated at turbine locations, hardstandings, hardstanding's access roads etc., including peat occurring in the northern cluster (area of T1 and T3). It is stated in the application documents that soils and bedrock will remain on site and be re-used to build infrastructure items such as access tracks, hardstanding areas and foundations (cut and fill).

12.154. Having regard to the foregoing, I am satisfied that the loss of peat is neither excessive nor significant, with the layout of the development avoiding areas of more significant peat depth (e.g. southwest of T1). Further, whilst I would accept that it plays a significant natural role as a carbon sink, the loss in this instance is modest in comparison to the quantum of renewable energy that the wind farm will generate.

12.155. The PLHRA carries out a risk assessment of the locations that were probed in the areas of peat development, with 43 classified as low risk and 92 as negligible. The criteria used for the assessment include depth of peat, slope and substrate (underlying the peat). Risk rating in the vicinity of T1 and T3 is shown in Figure 7. (I note that no risk scores are calculated for access tracks). The PLHRA concludes that whilst peat development in the area is limited and risk scores are low/negligible, good practice mitigation measures should be applied to minimise the risk of adverse effects on peat and hydrological receptors. Measures include having regard to the particular ground conditions and specific works at each location, the use of floating track across areas of deep peat and drainage measures that do not create areas of concentrated flow or cause over or undersaturation of peat.

12.156. Having regard to the relatively shallow levels of peat on site, the low slope observed on site, in particular in the areas of T1 and T3, and notably the conclusions of the PLHRA, I am satisfied that there is no significant risk of peat slide/failure as a consequence of the development, subject to the full and detailed implementation of the proposed mitigation measures. Notwithstanding this conclusion in respect of peat stability, as indicated in the Biodiversity section of this report, I am not satisfied that the applicant has demonstrated and understanding of the likely consequences for peat habitat on site, by virtue of the imposition of infrastructure within it and the arrangements for drainage, in the context of the hydrology and hydrology which maintains the fen habitats on site.

12.157. **Implications of drainage strategy for peat/stability of turbines**

12.158. The applicant has acknowledged the risk of site drainage to impact on peat stability. Detailed mitigation measures are put forward to maintain existing drainage arrangements. However, as stated I am not satisfied that these have been adequately assessed in the area of T1, with regard to maintaining the fen habitats on the site. Notwithstanding this, given the relatively flat nature of the site, and relatively modest depths of peat and size of proposed foundations (relative to peat context), the risk of stability issues for turbines would seem low. Further, the EIAR includes tell-tale signs of potential peat failure/slide and provides mitigation measures for the event of such indicators arising and instructions for site staff in the event of a peat slide or peat instability indicators (Peat Hazard Emergency Plan).

Subject to the implementation of these measures, I am satisfied that the drainage strategy provides no significant risk to stability of turbines.

12.159. **Quarrying**

12.160. The applicant proposes two borrow pits to provide stone for construction material. Borrow pits have an area of 90m x 90m and depth of 5m, with the availability of proposed aggregate material to be confirmed with site investigations. The borrow pits will be opened during construction of the development and restored after construction, with surplus excavated subsoil. In principle, the approach taken by the applicant is not unreasonable and reduce traffic movements on the public road network. I note that no drainage arrangements for the borrow pits are shown in drawings Proposed Borrow Pit 1 and 2 (drawing no. PL21-1 and 21-2). However, in principle controls are described in the EIAR (see section 9.5.2 and 9.5.3 of CEMP which deals with surface water management at borrow pits and dewatering). Subject to these measures I do not consider that localised flooding will be significant. Whilst the borrow pits remain in use, they will be required to comply with relevant health and safety legislation, and this will include a risk assessment for slope stability. Having regard to the foregoing, I am satisfied therefore that the development is not likely to give rise to any significant risk of subsidence.

12.161. **Conclusion: Direct and Indirect Effects**

12.162. Having regard to my assessment of the proposed development on land and soil, it is considered that the main significant direct and indirect effects after the application of proposed mitigation measures are:

- In the absence of further information on the hydrology and hydrogeology of the site, the potential for significant effects on peatland and the habitats and species that they support.

12.163. **<u>Water</u>**

12.164. **Issues Raised**

12.165. In submissions, concerns are raised regarding lack of information on wells within 2km, flood risk, impact of construction on water table and drinking water, impact on Stonyford River during construction and contamination of surface water

during operation. (Irish Water recommendations are addressed in the Material Assets section of this report).

12.166. **Examination of the EIAR**

Context

12.167. Chapter 7 of the EIAR deals with water. Associated appendices nos. 7-1 to 7-7 include a Site-Specific Flood Risk Assessment (A7-3) and Drainage Report for Turbine T1 Area (A7-4). Also relevant is the CEMP (A2-2) which includes pollution prevention measures, arrangements for drainage and surface water management, water quality monitoring, emergency response and details of watercourse crossings to protect waterbodies. The assessment is undertaken in accordance with European and national legislation which protect surface and groundwater resources and manage flood risk, and relevant technical guidelines (Appendix 7-1). It has regard to issues raised in scoping reports (Table 7-1) and provides an assessment of the existing water environment within c.2km of the development, an assessment of the potential impact of the development of surface and groundwater and mitigation measures to offset potential adverse effects. Data on the study area is sourced from published sources, site walkovers, localised detailed drainage survey (T1) and site-specific flood risk assessment. Table 7-8 and Figure 7-1-b indicate four existing watercourse crossings which will be upgraded as part of the development and two new watercourse crossings to be provided. No works are proposed along the majority of the TDR, with minor works in a number of specific locations e.g. topsoil stripping and placement of hardcore, with no potential for hydrological impacts (Appendix 14-1).

Baseline

12.168. The wind farm site, cable route and substation are generally flat to gently undulating, with a very gradual slope from west to east across the wind farm site. The lowest point is along Darcy's Crossroads Stream to the north west of the site, near T1 and T2, and the highest point is southeast of T3. Effective rainfall for the site is estimated to be 599mm/yr. Consistent with soil types, annual recharge varies, with a greater groundwater recharge coefficient used for most soils (85%) and a lower coefficient for areas of peat (4%) (average annual recharge varies therefore from 509mm/yr to 24mm/yr).

12.169. The wind farm site is situated in the Boyne_SC_050 surface water catchment, and part of the cable route and substation in the adjoining Boyne_SC_06 surface water catchment (Figure 7-2). EPA watercourses are shown in Figure 7-1 of the EIAR and include:

- Darcy's Crossroads Stream (D'Arcy's Crossroads Stream_010). This runs along the northwestern boundary of the wind farm site (east to west). This includes a section of the stream that runs along the northern boundary of the site referred to as Killacroy Stream in the EIAR and in the Drainage Report for Turbine T1 Area (Figure 5-2-b and Appendix 7-4). Surface water flow for the northern cluster is towards Darcy's Crossroads Stream. For the period 2016 – 2021, WFD status for the waterbody was 'Moderate' with the river 'At Risk' of not meeting water quality objectives under the Directive. EPA biological water quality ratings (Figure 7-3) for the period 2015 to 2020 indicate Q3-Q4 rating (slightly polluted).
- River Stonyford (Stonyford_010). This runs in a south-westerly direction, to the west of the wind farm site, and then turns to joins the River Boyne c.19km to the southeast of the site. Surface water flow for the southern cluster is towards this river. For the period 2016 – 2021, WFD status for the waterbody was 'Moderate' with the river 'At Risk' of not meeting water quality objectives under the Directive. EPA biological water quality ratings (Figure 7-3) for the period 2015 to 2020 indicate Q3-Q4 rating (slightly polluted).
- Newtown Lough Fen, situated to the east of the Northern cluster. NB the Board should note that the EPA, on catchments.ie, indicates that outfall from Newtown Lough is to the northeast to Athboy River (Athboy_030) i.e. it discharges away from the development site.
- Athboy River (Athboy_030). This runs south of the substation site, joins with the outfall from Newtown Lough, and turns east to drain into the larger Athboy River waterbody. The River will be crossed twice by the proposed cable route (Figure 7-1-b), referred to in the EIAR as Kilskeer Stream and Clonmellon Stream. For the period 2016 – 2021, WFD status for the waterbody was 'Good' with the river 'Not At Risk' of not meeting water quality objectives under the Directive.

12.170. The aquatic baseline survey work which included biological water quality sampling (Appendix 5-4, Figure 4.1), indicates 4 sites with Q4, Good/unpolluted status on Athboy River (A4), D'Arcy's Stream Crossroads (B3 & B5) and Stonyford River (B6). The other sampling sites achieved moderate to poor status. Primary threats to water quality in the survey area were eutrophication, siltation and/or historical modification (hydromorphology).

12.171. Within the development site are field drains and small streams (not mapped by the EPA) and small surface water ponds across the study area (Figure 7-1-a and 7-1-b).

12.172. The detailed drainage report for the area surrounding T1 (Appendix 7-4) provides a baseline report to assess whether there will be any changes in drainage during the construction of T1 which could impact on the drainage to the nearby Annex I habitat areas and the River Boyne and River Blackwater SAC (considered in the AA section of this report). Surface water features in the area of T1 are shown in Figure 2-1. The site walkover findings state that Killacroy stream is located 25m to the north of the centre point of T1, the stream flows in the western direction some 550 m where it joins the Darcy Crossroad Stream. A man-made ditch, c.90m to the west of T1, at time of applicant's site survey was filled with standing water, with no flow or connectivity to Killacroy Stream. No significant ponded areas were identified in the vicinity of T1.

12.173. The bedrock aquifer underlying the site is Moderately Productive in local zones and groundwater vulnerability across the site is largely 'High', with smaller areas 'Moderate' (Figures 7-4, 7-5 and Table 7-9) (typically associated with areas of peat, Northern cluster).

12.174. The Proposed Development is underlain by the Athboy Groundwater Body, including the Proposed Substation at Clonmellon. The proposed cable route extends north through the Newtown Lough Fen GWDTE (Figure 7-2). It is noted by the applicant that the cable route will be within the roadway and will not impact on the Groundwater Body. The GWDTE is 310m from the main Wind Farm Site, near T3 in the Northern Cluster (see Figure 7-2). Both GWBs have Good Status and are Not at Risk of failing to meet WFD water quality objectives.

12.175. There are no karst features or public water supplies within 5km of the proposed development and cable route. Nearest groundwater supply wells are >2km from the development site, with the nearest well c.2.1km to the southwest at Delvin town (Figure 7-6).

12.176. The Site-Specific Flood Risk Assessment (Appendix 7-3) states that the national indicative fluvial mapping predicts that the northern cluster is situated within Flood Zone A (probability of flooding >1% per annum) and Flood Zone B (probability of flooding between 1% and 0.1%) (Figure 4-1, Appendix 7-3). Consequently, a detailed hydraulic model was developed to assess flood risk. It shows that only the proposed turbine T1 and access road leading to it lie within Flood Zone A, with the remaining turbines and substation in Flood Zone C (Figure 6-6, Appendix 7-3). Flood depth at T1 is 0.14m (1% AEP MRFS). The maximum flood depth along the access road to T1 is 0.18m. A wind turbine is acceptable development within an area of flood risk (ABP PL09.306500), if the base of the turbine is elevated at least 300mm above the 1% AEP MRS flood level. The SSFRA found risk of pluvial and groundwater flooding to be low.

Potential Effects

12.177. Likely significant effects of the development, as identified in the EIAR, are summarised in Table W1 below. Determined significance of effects has regard to the criteria tables set out in Appendix 7-6 and 7-7.

Table W1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Agriculture, forestry and associated drainage practices likely to continue. Pressures on water environment likely to continue (eutrophication, siltation and hydromorphology). Enhancement measures would not take place.
Construction	• Erosion and sediment – Increase in sediment laden water from construction works, with effects on surface and/or groundwater. *Slight to Moderate* (surface water), *Slight* (groundwater). • Pollution risk – Potential for pollution event with effects on surface water and groundwater e.g. from machinery, leaks and spills, cement. *Slight to Moderate* (surface water), *Slight* (groundwater), *Slight* (local domestic wells). Limited effects with migration through vertical and lateral migration. Most identified water supplies are of unknown use and are poor yield. Impact unlikely as areas of exposed bedrock/ gravel will be localised. Any leakage/spill will be accidental only and of limited volume.

	• Dewatering – Potential reduction in groundwater levels from dewatering of borrow pits and other deep excavations, with *Not Significant* effects due to localised and short-term nature of any dewatering works required. • Designated sites – Increased risk of indirect effects on downstream European sites, River Boyne and River Blackwater SAC/SPA, with hydrological/hydrogeological connectivity, from increased sedimentation/ pollution of water bodies. *Moderate* (surface water), any leakage/spillage would be accidental and of limited volume. *Slight to Moderate* (groundwater) – Limited due to vertical and lateral migration. Potential for effects on groundwater levels in SAC/SPA through temporary lowering of groundwater levels e.g. turbine bases, with *Slight to Moderate effects*. • Fluvial flooding – Increase in surface water runoff in the catchment with tree felling, access track construction, construction of turbine foundations/ other hard surface. Associated indirect risk of soil erosion and sediment release to waterbodies. *Not Signiant to Slight* – small increase in run off from surfaced areas relative to catchment. • Groundwater levels and flows – Dewatering of borrow pits and other deep excavations (e.g. turbine bases), with potential to impact on local groundwater levels. Groundwater level impacts not anticipated to be significant due to local hydrogeological regime and short-term nature of dewatering. *Not significant.* • Works in proximity to Killacroy Stream (T1) – The Drainage Report for Turbine T1 Area (Appendix 7-4), identifies risks of possible damage to rive channel with works in proximity to stream (e.g. destabilising banks), risk of pollution from concrete handling, accidental spillage, discharge of surface and groundwater from the excavation (siltation), entry of stream water into excavation (resulting in collapse) and fluvial flooding of the excavation by the stream under flood conditions.
Operation	• Erosion and sediment – Newly excavated drains and track dressings may be prone to erosion (vegetation not established). Potential for sedimentation or erosion from linear features on steeper slopes. Operational works will be for short duration. *Not significant-slight* impact (surface water). *Not significant* (groundwater) – limited due to vertical and lateral migration. • Pollution risk – Maintenance of access tracks, wind farm site. Storage of fuels/oils on site for turbine maintenance. *Not significant – Slight*. • Fluvial flooding – Access tracks and hardstandings may affect potential infiltration and groundwater conditions as well as increased sub-surface flow paths around infrastructure. Increase in risk of flooding. Drainage will be installed to service new sections of access track, which could alter recharge *Not significant – Slight*.
Decommissioning	• Similar to construction.
Cumulative	• Given the distance of the proposed development from other wind farm development (c.4.8km), no significant adverse cumulative effects are predicted.

12.178. **Mitigation**

12.179. Section 7.154 sets out proposed mitigation measures to avoid and reduce impacts throughout the different phases of the development. They are divided into avoidance measures and prevention and reduction measures.

12.180. Mitigation by avoidance is provided by the layout of the development by avoiding constraints and a 50m buffer distance between watercourses and ponds. For T1 where the turbine is situated within 50m of the adjoining watercourse (with Killacroy stream 25m north of the centre of T1), the Drainage Report for Turbine Area 1 sets out site specific measures which include:

- A detailed CEMP for works in proximity to the stream bank and handling of concrete (to include that there would be no machinery located between the excavation area and river bank during construction works).
- Separating and managing clean and dirty water and silt fencing (Figure 4-1).
- Interceptor drains to collect surface water upstream of works with collected clean water carried under the wind farm infrastructure by cross drains at regular intervals such that the original hillside flow is not impeded.
- Directing dirty water to appropriately sized settlement pond with diffuse outfall from these, with ponds constructed above ground to prevent any flushing out in the event of fluvial flooding.
- Constrution of access tracks on permeable material and to follow local ground gradient where possible.
- Preconstruction monitoring of turbidity in stream, with daily checks during construction, and surface water quality sampling on a weekly basis during construction.

12.181. In addition, whilst the EIAR does not anticipate significant dewatering of turbine bases or borrow pits (short term, works, localised), in the area of T1 it is proposed to install a groundwater monitoring borehole to confirm ground conditions (predicted to be low permeability superficial deposits underlain by the Lucan Limestone bedrock). Should significant dewatering be required during the construction of the turbine base at T1, sheet piling will be placed between the construction area and the SAC, so that there would be no change in the groundwater level at the SAC. Any ingress of water would be pumped to a localised sump and

ingress, and where ground levels permit, and sump water will be diverted to flow naturally back onto the land to infiltrate back into ground.

12.182. Other good practice measures are set out in the EIAR (sections 7.170-7.181) for the prevention of pollution/sediment and to manage surface water and arrangements for water quality monitoring (section 7.182), with surface water quality monitoring to be continued at the 13 no. riverine survey sites assessed for biological water quality during the aquatic baseline survey. A Private Water Supply Action Plan is included in the CEMP, to identify, address and remedy impacts on private supplies.

12.183. During operation, any activities which would involve construction type activities e.g. track maintenance, will be subject to the same mitigation measures as construction. Mitigation measures during decommissioning will be as per the construction phase.

12.184. **Residual Effects**

12.185. With the implementation of mitigation measures, predicted effects will be *Slight to Not significant*. In addition, it is predicted that the development will not cause a deterioration of the status of any surface or groundwater body under the WFD and will not undermine the attainment of good status.

12.186. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.187. I have examined, analysed and evaluated Chapter 7 of the EIAR and all of the associated documentation and submissions on file. I am satisfied that the applicant has largely presented a good understanding of the baseline environment, by way of desk and site surveys and has identified the likely key effects on the water environment. IFI did not make a submission on the application. In scoping consultations, potential for impacts on fisheries waters was noted (Table 1-5) and recommended conditions to prevent adverse effects on these. Parties to the application raise the following issues which I address below:

12.188. **Information on wells, impact on drinking water**

12.189. In response to submissions, the applicant states that water supply in the application area is provided through the Ballany Public Drinking Water Supply scheme and refers to the publicly available data on private wells and public supply

wells (presented in the EIAR), the acknowledged potential for pollution during construction to affect surface and local groundwater bodies during construction and the mitigation measures set out in the EIAR to prevent any negative effects. It is stated that there is no requirement for long term dewatering to warrant a well survey (no direct impacts predicted), but notwithstanding this a Private Water Supply Action Plan is included in the CEMP.

12.190. As indicated by the applicant the proposed development is removed from any public drinking water supply (public supply, group scheme etc.). There are no groundwater supply wells, identified in the GSI well database, within the 2km study area, but just outside this area, the closest well lies to the south of Delvin, c.2.1km to the southwest of the development (Figure 7-6). No specific wells are identified by third parties to be at risk of pollution/contamination.

12.191. The GSI's characterisation of the underlying Athboy groundwater body states that in the majority of groundwater flow is expected to occur in the upper broken weathered zone, 3m, with additional flows commonly found in the upper 10m. Aquifer recharge is largely diffuse, with slope, thickness and permeability of the soil and subsoil determining the amount or recharge reaching the aquifer. Further it is stated that due to the generally low permeability of the aquifer a high proportion of the recharge will then discharge rapidly to surface water courses via the upper weathered layers of the aquifer, effectively reducing the available groundwater resources in the aquifer.

12.192. Having regard to the characteristics of the groundwater body, groundwater inflows are likely to occur within the depth of the proposed foundations/borrow pit, potentially necessitating removal (via pumping) of groundwater, to facilitate construction of limited footprint of the development, and the potential for effects on groundwater levels and groundwater quality.

12.193. The applicant proposes best practice construction methods to prevent pollution of groundwater and these, with natural dissipation and attenuation as water moves laterally and vertically through soils, will ensure that the risk of significant pollution events to any well water supplies is highly unlikely. If dewatering is required at turbine foundations and borrow pits, the applicant diffuse discharge to surface, with water returning to the same local area. Having regard to these

measures and given the relatively modest footprint of the development and short-term nature of works, impacts on wells beyond the site boundary are highly unlikely. Notwithstanding the foregoing, the applicant proposes a Private Water Supply Action Plan, should adverse effects arise.

12.194. **Fen Habitat**

12.195. The proposed development proximate to a sensitive environment, hosting rare fen habitat (Appendix A – D, Technical Note: Annex I potential habitat survey). The habitat is maintained by high levels of water, with potential contributors from both ground and surface water.

12.196. The proposed development will place substantial physical infrastructure within the vicinity of this habitat notably T1, the access roads between T1 and T3 and the access road between T3 and T2. The applicant's assessment of the effect of the development on the water environment acknowledges that changes to surface water flows and local groundwater conditions has potential to impact on fen habitat. Consequently, mitigation measures aim to maintain surface water flows, for example, via interception upstream of works and dispersed discharge downstream, provision of cross drains under infrastructure (T1) and permeable material for access tracks. Impacts on groundwater are not considered likely to arise, although localised effects are acknowledged in the Carbon Calculator (see Biodiversity section). Notwithstanding this, monitoring of groundwater levels is proposed, with sheet piling placed between the site (T1) and the River Boyne and River Blackwater SAC.

12.197. Whilst the applicant's mitigation measures are not unreasonable, they are proposed without explanation of (a) how the fen habitat within the site in the vicinity of T1 is maintained by the existing pattern of flows within ground and surface water, (b) what will be the effect of the proposed drainage arrangements (for all phases of the project) on these existing flow paths and (c) in this context, what are the appropriate mitigation measures to maintain the hydrological/hydrogeological conditions for fen habitat.

12.198. In the absence of clear, informed and robust information on the hydrology and hydrogeology of the fen habitat on site and the effect of the development on hydrology and hydrogeology, I am not satisfied therefore that the absence of effects

of the proposed development on this sensitive habitat, which includes Annex I habitats, has been adequately demonstrated.

12.199. **Impact on Stonyford River**

12.200. In response to submission, the applicant refers to the extensive suite of measures set out in the EIAR and AA which protect water quality during all phases of the development and to the conclusions of the EIAR and AA which predict no adverse effects on water quality.

12.201. The EIAR has identified surface water bodies in the vicinity of the site which are at risk of physical damage and for adverse effects on water quality, arising during the different phases of development, including construction. As stated by the applicant an extensive range of measures are proposed to avoid any adverse effects on these water bodies, including Stonyford River and its tributaries. These measures include avoidance with construction works taking place >50m from water bodies (where possible), no instream works, active management of surface water, directing contaminated water to appropriately sized settlement ponds, diffuse discharge from settlement ponds, wet weather protocol where works will be temporarily suspended, use of silt fencing, silt traps etc. Monitoring of water quality before, during and after construction is also proposed, to be agreed in advance of works.

12.202. The applicant's measures are both best practice and comprehensive and I am satisfied that with the implementation of these, water quality in surface water courses in tea rea of the site, including Stonyford River and its tributaries, will not be generally at risk of significant adverse effects, from any phase of the development. This includes the potential for contaminated run off from wind turbines, as referred to by one of the observers and for which no supporting evidence has been submitted.

12.203. Notwithstanding this general conclusion, I would have reservation regarding the proximity of T1 to Killacroy stream. The stream is situated c.25m north of the centre point of T1. The drawings for T1 indicate a maximum diameter of 28.5m, leaving a distance of 10.75m to the stream. Further, the Drainage Report for Turbine T1 Area indicates a requirement for an additional working, of c.5m, outside of the area of the foundation excavations to construct the turbine (Figure 3-1 or Report). This would bring the works area to within 5m of the stream and, as stated in the

Drainage Report for T1, excavation and plant movement in close proximity to a river channel have the potential to result in the destabilisation of riverbanks and cause soil erosion into the watercourse. The Report recommends, that no machinery should be located between the excavation area and riverbank during construction works. It also recommends a site-specific CEMP for construction at this location due to the proximity of the Stream. If the Board are minded to grant permission for the development, this aspect of the development should be controlled by condition, requiring a site-specific CEMP for construction works in this area.

12.204. **Flood risk**

12.205. The applicant's Site-Specific Flood Risk Assessment has been undertaken in accordance with the government's Guidelines for Planning Authorities for Developments and Flood Risk Management (2009). It includes hydraulic modelling to determine the flood levels within the site and is carried out to identify and quantify the risk of flooding to land, property and people and to provide sufficient information to assess whether the development is appropriate at a specific site. The report identifies no record of past flooding at the site, or within 500m of it. However, the OPWs National Indicative Flood Maps indicate that the northern part of the site is within Flood Zone A and B (Figure 4-1), with T1 and T3 within Flood Zone A and T2 just outside of Flood Zone B (fluvial flooding). The Flood Risk reports concludes therefore that the site is, at high risk of fluvial flooding (NB the NIFMs are not site specific and are used in the preparation of Stage 1 Flood Risk Assessments to identify areas where further assessment is required). The Report also identifies the site as at low risk of flooding from rainfall (numerous ponds on the site) and groundwater (ponds could cause flooding with rising groundwater). The site includes 'benefiting lands', lands which benefited from OPW arterial drainage works.

12.206. The report states that wind farms are not identified in Table 3.1 of the government's Flood Risk guidelines, but that recent Board decision have considered turbines and access road to be water compatible development (suitable for flood Zones A and B), with the turbine base elevated above predicted levels and sensitive infrastructure located in Zone C.

12.207. The risk of pluvial and groundwater flooding is addressed through mitigation measures, siting infrastructure at least 25m from ponds. A detailed flood risk

assessment is carried out in respect of fluvial flooding, with different modelled flows in Killacroy stream and d'Arcy's stream and different factors used to test sensitivity of outcomes (Table 6-5 Modelled Outcomes). The flood risk assessment determines that turbine T1 and parts of the access road to T1 are situated on lands at risk of flooding (Figure 6-7), with the depth of water at T1 of 0.14m and for the access road to T1, 0.18m, for the 1 in 100 year annual exceedance probability (1% AEP), mid-range future scenario. I note that predicted flood levels for the 1 in 1000-year event, +20% for climate change, are not substantially greater than these levels (Table 6-5).

12.208. It is proposed that the base of the turbine will be elevated above the 1% AEP MRFS and allow at least 300mm freeboard from the highest modelled flood event. Remaining infrastructure is within Zone C.

12.209. Having regard to the detailed analysis carried out in the site-specific flood risk assessment, the largely conservative approach taken, the modelled outcomes and the proposed elevation of turbine foundation above predicted flood levels (1% AEP), I am satisfied that the development is not incompatible with its location in a flood risk zone. Further, given the modest footprint of the turbine, the only one situated in the flood risk zone, I am satisfied that the location of the T1 will not give rise to downstream flooding elsewhere.

12.210. **Water Framework Directive (WFD)**

12.211. Under the WFD the Board is obliged to ensure that development will not result in the deterioration in status of surface or groundwater, support the restoration of surface and groundwater to good status, protect and enhance the status of artificial or heavily modified bodies and achieve compliance with the standards and requirements for designated protected areas.

12.212. As previously indicated, the proposed development is situated in proximity to nearby WFD waterbodies (surface and ground), with potential for effects on these by way of direct damage, pollution and changes to water table. However, physical infrastructure is removed from surface waterbodies, typically with a 50m setback, depth and extent of foundations and borrow pits are relatively modest, and effects on groundwater will be localised. Further, detailed mitigation measures are proposed for the protection of surface water and groundwater during all phases of the

development, including for works at T1 which are within 50m of d'Arcy's Crossroads stream, with water quality monitoring commencing pre-construction works.

12.213. Having regard to these factors, which typically include best practice and proven measures of preventing water pollution, and subject to further conditions requiring works in proximity to fisheries to be in accordance with IFI standards, I am satisfied that there is no potential for adverse effects on water quality (surface or ground). Further, with the implementation of the measures proposed Habitat and Species Management Plan for the restoration of 1,440m of the riparian zone along the southern side of Killacroy Stream and D'Arcy's crossroads stream (to include stockproof fencing, hedgerow planting within the fencing >10m from riverbank), the development will contribute to protecting and/or improving good status of the waterbodies.

12.214. Potential Hydrological connectivity

12.215. Plans for the development clearly show hydrological connectivity between d'Arcy's crossroads stream and Newtown Lough e.g. Proposed Drainage Layout Drainage Drawing no. PL10 shows an arterial drain connecting Newtown Lough and D'Arcy's crossroads stream. On inspection, the southern part of this drain contained water flowing toward d'Arcy's crossroads stream, but the upper part was dry (photograph 34). The hydrological connection has not been identified in the application documents. However, there are no proposed changes to the arterial drain and as stated, no flow in the northern part, at time of site inspection and following rainfall.

12.216. **Conditions**

12.217. In response to submission, the applicant has indicated a willingness to abide by the conditions proposed by the PAs. Should the Board decided to grant permission, I recommend that conditions in respect of the implementation of all mitigation measures set out in the EIAR (and AA) be required, that all works be carried out in accordance with IFI guidelines, and that imported material be suitable to the peat soil/subsoil and bedrock of the site in terms of hydrochemistry.

12.218. **Conclusion: Direct and Indirect Effects**

12.219. Having regard to my assessment of the proposed development on the water environment, it is considered that the main significant direct and indirect effects after the application of proposed mitigation measures are:

- In the absence of further information on the hydrology and hydrogeology of the site and how this supports the fen habitat on it, the potential for significant adverse effects on fen habitats, including Annex I habitat Transition mires and quaking bog (H7140) and indirectly Annex II species Marsh Fritillary butterfly, arising from the introduction of substantial infrastructure and drainage works in the vicinity of T1.

12.220. **Air and Climate - Air quality, GHG emissions**

12.221. **Issues Raised**

12.222. Issues raised in submissions relate to greenhouse gas (GHG) emissions arising from the development/carbon footprint, the inclusion of traffic emissions in Carbon Assessment Tool, consideration of EC '*Technical Guidance on the Climate Proofing of Infrastructure in the period 2021-2027'* and particulate matter arising from diesel engines.

12.223. **Examination of the EIAR**

Context

12.224. Chapter 8 of the EIAR addresses air and climatic effects, with a focus on the effects of the development on air quality, greenhouse gas emissions and resilience to climate change. The associated Appendix 8.1 provides input data for the carbon calculator, for the two alternative turbine models. The assessment is carried out having regard to relevant legislation, air quality standards, government and industry and guidelines on air quality impact assessment. The GHG assessment is presented in terms of carbon dioxide equivalent (CO_{2e}).

Baseline

12.225. The proposed development is situated in a rural area, with 281 potential receptors within 500m of the cable route and development site boundary. Within the State, the site lies within Zone D with air quality within limit values for SO_2, PM_{10} and NO_2. Greenhouse gas emissions occur naturally (from the decomposition of organic

matter) as well as from the burning of fossil fuels. In section 8.135 the EIAR states that Ireland's GHG emissions value for 2022 was estimated to be 60.76 million tonnes of carbon dioxide equivalent (MT $CO_{2\ eq}$). This includes the CO_2 equivalent of other greenhouse gases which contribute to climate change e.g. methane. The carbon budget for Ireland for the period 2021-2025 is 295 MT $CO_{2\ eq}$, 2026-2030 200 MT $CO_{2\ eq}$ and 51 MT $CO_{2\ eq}$ for the period 2031-2035. Sectoral emissions from the electricity sector are 40 MT $CO_{2\ eq}$, for the period 2021-2026. Current evidence suggests that the climate is rapidly warming, reaching c.1° above pre-industrial levels in 2017, increasing at a rate of 0.2° per decade, with the potential for rising sea levels, storm surges, strong winds, warmer drier summers, extreme rain (winter) and flooding.

Potential Effects

12.226. Likely effects of the development on the environment on air quality, greenhouse gas emissions and resilience to climate change, as identified in the EIAR, are summarised in Table AC 1 below.

Table AC 1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Air quality – No change to existing background environment. • GHG emissions – No loss of stored carbon (e.g. peat, forestry). No opportunity for generation of renewable energy and attainment of European/national targets. • Climate change – Potential for extreme weather events to impact on existing forestry/agricultural environment e.g. with increased rainfall, fluvial flooding.
Construction	<u>Air quality</u>: • Wind farm site, substation, TDR: ○ Potential for dust and fugitive emissions arising from construction work e.g. earthworks, tree felling construction of access tracks, temporary storage of materials, HGVs on the public road. The development is considered to be a Major construction site, with potential for soiling effects at up to 100m from source, PM_{10} 15m and vegetation effects 25m from source. Sensitive receptors >722m from any turbine, and will not experience soiling, deposition or vegetation effects with *Negligible risk* of effects. ○ Increase in concentrations of NO_2, benzene and PM_{10} from construction vehicles and plant. Significance distance to nearest receptors, parameters of development fall below threshold for air quality assessment (predicted flows – section 8.108-8.111). Impact of combustion emissions *screened out* (no potential for effects).

	• Cable route: ○ Rolling construction programme, with no potential for significant increase in concentrations of emissions from construction vehicles and plant or for dust emissions. GHG emissions - Net emissions for construction and decommissioning are estimated to be 68,072 tCO_{2eq} (Siemens) and 71,100 tCO_{2eq} (Vestas) using the Scottish Windfarm Carbon Assessment Tool. Climate resilience. Wind farm, TDR and cable route - *Medium* risk of exposure to extreme rainfall, flood, flash flood, storms and wind, with potential for *major* impacts on health and safety, environment, finance, and *moderate* impacts on asset damage, engineering, operational, social and reputational areas during construction and operation.
Operation	Air quality - Wind farm, substation and cable route – No significant emissions to atmosphere. Back up/emergency generator for substation will generate infrequent emissions. Operational traffic very modest. *Overall positive and significant impact* on air quality due to displacement of fossil fuels. GHG emissions - Annual emissions for operation are estimated to be 50,674 tCO_{2eq} (Siemens) and 55,281 CO_{2eq} (Vestas) using the Scottish Windfarm Carbon Assessment Tool and 1.75 $MtCO_{2eq}$ (Siemens) and 1.9 $MtCO_{2eq}$ (Vestas) over the 35-year life of the development. Emission payback is 1.87 years (Siemens) and 1.82 years (Vestas). Net annual change in GHG emissions is -0.12% to -0.17% of annual carbon budget (Table 8-28) and -1.3 to -1.32% of sectoral budget (Table 8-29) with *significant positive effect*. Climate resilience: • Wind farm and cable route – *Medium, long-term* risk of exposure to extreme rainfall, flood, flash flood, storms and wind, in particular with implications for health and safety (e.g. lighting strikes, high wind speeds). Risk of soil being washed out from cable route. • Proposed development will play a part in the offset of CO_2 production (a known factor in the exacerbation of extreme weather events/ changing climate).
Decommissioning	Air quality: • Wind farm and TDR – Similar to construction but reduced in scale, *slight temporary effect*. Foundations, hardstandings, internal access roads and ducts to remain in situ. • Substation and cable route – To be left in place and to form part of national grid infrastructure. GHG emissions – Net emissions for construction and decommissioning are estimated to be 68,072 tCO_{2eq} (Siemens) and 71,100 tCO_{2eq} (Vestas) using the Scottish Windfarm Carbon Assessment Tool. Climate resilience - Wind farm, TDR and cable route - *Medium* risk of exposure to extreme rainfall, flood, flash flood, storms and wind, with potential for *major* impacts on health and safety. Proposed cable route infrastructure, substations and ancillary infrastructure to form part of national grid and remain in situ.
Cumulative	Air quality – Potential for cumulative impacts if construction coincides with other large-scale developments permitted or proposed in the area of the site (section 8.252) with *slight* increase in traffic emissions. During operation, in conjunction with other wind farms, *cumulative long term significant positive effects* on air quality and climate.

12.227. **Mitigation**

12.228. Mitigation measures are set out in the EIAR for each phase of the development in respect of air quality, GHG emissions and climate change. Standard best practice measures for the control of dust are proposed, for the construction and decommissioning phases of the development. These include the provision of a dust control plan as part of the CEMP. Site specific measures include for receptors in proximity to works, the cleaning of facades of dwellings if required, with the agreement of the landowner.

12.229. Measures to reduce GHG emission during construction include minimising travel, using less fuel intensive machinery etc. Measures to address vulnerability of the development to climate change hazards include the development of adaptive capacity measures, good construction practices for the management of sediment and surface water during construction, lightning safety procedures, monitoring of weather conditions and protocols for extreme weather conditions to protect human safety.

12.230. **Residual Effects**

12.231. With the implementation of mitigation measures, the EIAR predicts no significant direct, indirect or cumulative residual impacts from fugitive dust or vehicle emissions during construction and decommissioning, no residual impacts from climate change (resilience to extreme weather conditions) and positive effects on air quality and GHG emissions with the operation of the development. No effects are influenced by changes in the turbine range proposed.

12.232. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.233. I have examined, analysed and evaluated Chapter 8 of the EIAR, the associated documents and submissions on file. I am satisfied that the key impacts in respect of effects on air and climate have been identified. Notably, I am satisfied that by virtue of the location of the main construction sites, removed from nearby residential receptors and other large-scale developments in the area of the site, intervening vegetation/landform and dispersion, no significant effects will arise by virtue of dust or other particulate emissions (including from diesel engines). The proposed development will generate an increase in GHGs during construction, however these will be significantly offset by the development over its lifetime and the

proposed wind farm will make a substantial contribution to sectoral targets for the reduction of emissions. The applicant has identified risks and/or vulnerabilities of the project arising from climate change. Mitigation measures (for these and measures to reduce GHG emissions) are not detailed in the CEMP but can be addressed by condition. Parties to the application raise a number of issues in respect of air and climate, which I address below.

12.234. **Greenhouse gas emissions**

12.235. The applicant has utilised the Scottish Windfarm Carbon Assessment Tool, to identify the carbon dioxide equivalent associated with the construction and operation of the wind farm. The Carbon Assessment Tool is an online web tool and has been developed to calculate potential carbon losses and savings from wind farms on Scottish peatlands. Guidelines on the assessment tool states '*Losses of carbon are accounted for due to production, transportation, erection, operation and dismantling of the wind farm, backup power generation, loss of carbon-fixing potential of peatland, loss of carbon stored in peatland, carbon saving due to improvement of habitat and loss of carbon-fixing potential as a result of forestry clearance*'.

12.236. The applicant's input data to the assessment tool (Appendix 8-1) therefore includes data for the power rating of the two types of turbines proposed in the application, the estimated loss of peatland and forestry to be felled. Access tracks are referred to in the data to calculate peat loss (in this instance access tracks do not require excavation of peat). The model also includes an estimate of concrete required for construction.

12.237. From the information on file and the having regard to the Carbon Assessment Tool, I am satisfied that the applicant has carried out a reasonable assessment of the likely net reduction in GHG emissions arising from the development and that this overall reduction includes for the volume of concrete required to construct turbine foundations and hardstandings and for the loss of carbon due to production, transport, erection, operation and decommissioning of the wind farm.

12.238. In one third party submission, reference is made the use of SF6 gas. This is a synthetic gas used in the electricity and distribution system as an insulant. It is a potent GHG, and research indicates that it is most commonly released into the atmosphere by leaks. It is not clear whether or not the Scottish Carbon Assessment

Tool takes this into account. Notwithstanding this, the use of the gas is common practice in the industry and whilst it may impact on the carbon savings arising from the wind farm, its use is neither unusual or likely to be such significance to contradict the overall conclusions of the Carbon Assessment Tool or to question the government's policy approach to the development of wind energy in the State.

12.239. Meath County Council recommend that the Board clarify if the Carbon Assessment Tool includes/excludes traffic omissions. From the information on file and online in respect of the Carbon Assessment Tool, it is not clear if the assessment includes for traffic emissions during construction (e.g. it includes for the erection of the wind farm). Notwithstanding this, whilst construction traffic is likely to utilise diesel as a fuel and increase GHG emissions, this will be typical of any construction project for renewables and whilst reducing the net savings in emissions, is not likely to be significantly impact on overall savings in emissions arising from the development. Further, I note that the mitigation measures for air and climate include minimising travel, using less fuel intensive machinery, introducing Biofuel and HVO run machinery etc., all measures which will reduce the use of diesel and GHG emissions.

12.240. **Technical Guidance**

12.241. Meath County Council recommend that the Board consider the ECs '*Technical Guidance on the Climate Proofing of Infrastructure in the period 2021-2027'.* This technical guidance document provides guidance on quantifying GHG emissions and carrying out an assessment of the sensitivity of the proposed development to climate e.g. resilience to risks. Both of these factors have been assessed by the applicant and the development is broadly in line with the objective of the technical guidance i.e. to ensure that development is climate neutral (e.g. in terms of GHG emissions) and is resilient to the effects of climate change.

12.242. **Conclusion: Direct and Indirect Effects**

12.243. Having regard to my assessment of the proposed development on the air and climate (air quality), it is considered that subject to the implementation of the full suite of mitigation measures, no significant adverse effects will arise. Further, the development will have a long-term positive effect on air quality and climate, with the net reduction in GHG emissions over the lifetime of the development.

12.244. **Air and Climate – Noise and vibration**

12.245. **Issues Raised**

12.246. Issues raised by third parties in respect of noise are the adequacy of the noise assessment, requirement for independent baseline assessment and reference to a High Court Case (not identified) which determined that noise associated with wind turbines is a nuisance.

12.247. **Examination of the EIAR**

Context

12.248. Chapter 9 of the EIAR deals with noise and vibration. Associated appendices include details of the baseline noise survey (A9-2), the measured background noise (A9-3) and wind farm noise limits (A9-4). The assessment is undertaken in accordance with government and industry best practice, notably Code of Practice for Noise and Vibration Control on Construction and Open Sites Part 1 Noise (BS 5228-1), the Wind Energy Development Guidelines for Planning Authorities (DEHLG, 2006) and the UK Institute of Acoustics, Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IOA, 2013).

12.249. Vibration arising from construction of the wind farm is scoped out on the basis (a) standards for damage to buildings (15mm/s at 4Hz, rising to 20mm/s at 15Hz and 50mm/s at 40Hz), (b) predicted vibration levels from borrow pits and turbine foundation excavations of <15mm/s at 10m, and (c) nearest residential receptors at >500m from construction sites. Vibration from construction of the cable trenching is scoped out based on (a) predicted vibration levels of 0.7mm/s at 10m distance (tracked excavator, disc cutters and pneumatic breakers), (b) brief period of works (less than one day) and (c) rolling nature of works.

12.250. The EIAR (section 9.14 to 9.31) identifies the key sources/types of noise arising from the development as aerodynamic noise (swish sound), amplitude modulation (AM) of aerodynamic noise, infrasound and low frequency noise, mechanical (tonal) noise and ground borne vibration from the operation of turbines. The potential for adverse effects from infrasound and low frequency noise is scoped out on the basis of industry and government research which has found no evidence of adverse effects on sensitive receptors of infrasound or low frequency noise from

wind turbines. Tonal noise has been scoped out on the basis that modern wind turbines are highly unlikely to generate this type of noise, unless there is a mechanical fault in the gearbox. Adverse effects of ground borne vibration are scoped out on the basis of research which indicates absence of significant effects beyond 300m of wind turbines of greater hub height and the distance of the proposed wind turbines from nearest sensitive receptors >700m. The EIAR therefore focuses on aerodynamic noise and AM.

12.251. The study area for the construction and decommissioning noise is limited to the nearest Noise Sensitive Receptor, NSR, (Figure 9-1 and Table 9-1) in each general direction. The calculation for construction and decommissioning noise assumes no reduction for screening and assumes downward wind propagation. The study area for the operational noise is defined as the area where wind turbine noise from the proposed development is greater than 35dB$_{LA90}$. No other wind farms are situated in proximity to the site for the potential for cumulative effects to arise.

Baseline

12.252. A baseline noise assessment was carried out between Friday 16th September 2022 and Friday 28th October 2022 at six no. noise measurement locations (NML) that represent 19 no. NSRs in the study area (Figure 9-1, Table 9-3), with a minimum of 28 days and a maximum of 42 days at each NML. The data is used as a proxy for some NSRs where noise monitoring was not carried out (Table 9-4). NSR 19 is included for the assessment of construction noise only (substation). Prevailing background noise level curves have been established for each measurement location and are shown in Table 9-5 and Appendix 9-3. Operational noise limits adopted for the assessment of effects have regard to the WEDG, 2006, the EPA document 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in relation to Scheduled Activities, NG4' and ETSU-R-97 and are:

- 40 dB LA90 for daytime windspeeds where the typical background noise is less than 30 dB $_{LA90;}$
- 45 dB $_{LA90}$ for daytime windspeeds where the typical background noise is greater than 30 dB $_{LA90}$ or a maximum increase of 5 dB(A) above background noise (whichever is the higher);

- 43 dB L_{A90} for night-time periods or a maximum increase of 5 dB(A) above background noise (whichever is the higher); and
- At financially involved properties, 45 dB L_{A90} for daytime and night-time or a maximum increase of 5 dB(A) above background noise (whichever is higher).

Potential Effects

12.253. Potential noise effects of the development during construction, operation and decommissioning are set out in the EIAR and summarised below.

Table N1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Existing noise environment would remain largely unchanged. No other developments identified that would alter the noise environment.
Construction	• Wind farm and sub-station - Predicted noise levels for the majority of construction activities will not be significant i.e. <65dB L_{Aeq} (noise standard for significant effect set out in BS 52228- Annex E) – see Table 9-7. This includes for excavation of borrow pits. For some activities e.g. when access track construction activity is closest to NSR07, predicted levels could be significant (>65dB L_{Aeq}) for short periods (< a few hours to a few days). Once access track construction is >100m from receptor, noise levels will fall below significant. *No significant effects*. • Site traffic to and from the site – Noise impact from construction personnel is considered to be *low* and the same for both turbine options. Noise from HGV movements and turbine deliveries is estimated to be 60dB L_{Aeq} and therefore below threshold of significance. • Cable routes – Plant for cable laying indicated in Table 9-8, with predicted noise levels at distance shown. Predicted noise levels will occur for short periods of time at a very limited number of dwellings (8 no. within 10m of cable route, 48 no. in 25m). In some instances, predicted noise level is >65dB $L_{Aeq.}$ However, effects will occur for short duration (one/two days) when construction activity is closest to dwellings. Effects will, therefore, not be *significant*.
Operation	• Wind turbines: ○ A worst-case scenario has been modelled where predicted noise at nearest sensitive receptors is made assuming downward propagation from every turbine to every receptor at the same time. Both turbine types have been assessed (Tables 9-9 to 9-12). ○ Predicted wind farm noise immission levels (i.e. the sound pressure level experienced at a receptor location) at each NSL, for each turbine type, is presented in Tables 9-13 and 9-14. All predicted noise levels for both candidate machines to not exceed daytime or night time noise limits derived in accordance with the WEDG 2006. • Substation – EirGrid survey of existing110kV substation indicate noise levels of <40dB(A) at 5m from boundary of substation, with no tonal elements. Subject development has similar noise emissions and is c.150m from NSL19, and is *not likely* to result in significant effects i.e. noise will be c.20dB(A).

Decommissioning	• Similar to construction, but lesser impact. Turbines will be disassembled, foundations to remain underground and be reseeded. Access roads to remain or be removed (with both options having lesser noise effects than construction). Underground cables to be cut back and remain in situ.
Cumulative	• Given the distance of other wind farms from the development site (Bracklyn wind farm, c.5km to south and Ballivor c.5-15km to the south) and predicted cumulative noise levels (<25dB L_{A90}), no cumulative effects are predicted at construction or operation.

12.254. **Mitigation**

12.255. Whilst predicted noise effects from construction are not predicted to be significant, the applicant proposes mitigation measures to reduce noise effects. Measures include defined delivery hours/specific arrangements for HGV traffic and abnormal loads, approved access routes etc. Operational mitigation is not required due to the absence of predicted effects. Final choice of wind turbine will comply with noise limits specified. It is not envisaged that noise reduced modes will be require, however, these will be applied if necessary. The EIAR states that a change in hub height within the proposed range will not change the significance of the effects, so no mitigation measures are required, regardless of which turbine parameters are installed within the range set out.

12.256. **Residual Effects**

12.257. With the implementation of mitigation measures, no significant residual effects are predicted.

12.258. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.259. I have examined, analysed and evaluated Chapter 9 of the EIAR, the associated documents and submissions on file. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that key impacts in respect of likely noise effects, including cumulative effects, have been identified. Notably, I am satisfied that nearest noise sensitive receptors have been identified, background noise monitoring consistent with best practice guidelines (including the Institute of Acoustics Good Practice Guide to the application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise) has been carried out and prevailing background noise curves derived for each sensitive receptor, using the background survey data as a proxy for NSRs where monitoring was not carried out. I am also satisfied that a conservative approach has been taken, for instance, assuming a

downward propagation from every turbine to every receptor at the same time. Parties to the application raise certain concerns which I comment on below.

12.260. **Adequacy of the noise assessment**

12.261. In response to submissions the applicant states that the WEDG 2006 remain adopted, and design of the proposed development has been in accordance with these. It is noted that the guidelines are subject to a targeted view, and for the purposes of the noise assessment, it is considered that the draft guidelines may be subject to further revisions and do not represent best practice in relation to noise. As such the noise limits from the 2006 guidelines for the basis of the assessment as supplemented by ETSU-R-97 and IOA GPG.

12.262. As stated, I am satisfied that the applicant has followed industry best practice guidelines for the assessment of background noise, with average noise curves established for different wind speeds. The noise monitoring data has been used to derive noise limits for each sensitive receptor (with the noise monitoring locations used as a proxy for receptors, Table 9-4). For NMLs 1, 3 and 4, prevailing background noise is <30dB at three NMLs at low wind speeds (Table 9-5) and, in these wind conditions, the lower noise limit of 40dB is proposed (Table 9-6).

12.263. Operational wind turbine noise has been estimated based on predicted noise emissions for the two different turbine types and, conservatively, with all of the turbines moving together, at different wind speeds, for all wind directions. This is consistent with current best practice and the noise limits are as set out in the WEDGs. Noise levels, from the wind farm, at NSRs is indicated to be within the derived noise limits (Table 9-13) are typically well within predicted noise limits.

12.264. The 2006 WEDGs are considerably outdated. However, whilst more stringent noise controls are proposed in the government's 2019 draft guidelines, these have not been adopted and the 2006 WEDGs remain the statutory documents for the assessment of wind turbine noise. The proposed development will change the noise environment of the wind farm site, notably for noise sensitive properties closest to the wind farm. Notwithstanding this, predicted noise levels are well below 2006 WEDG guideline levels (Table 9-13). I am satisfied therefore that the noise assessment which has been carried out is adequate, and that there is no requirement for additional noise surveys. Implementation of the conditions of a

planning permission is a function of the planning authority, with breaches subject to relevant enforcement action. I also note that in the applicant has indicated that if required (but not excepted), noise reduced modes can be required.

12.265. **Noise nuisance**

12.266. Third parties refer to a recent High Court Case (not identified) which determined that noise associated with wind turbines is a nuisance. As stated in the Population and Human Health section of this report, I would accept that there are cases where wind farms have given rise to adverse effects on residential amenity, these cases are relatively few and site specific. In this instance, the applicant has demonstrated clear compliance with current noise limits. I am satisfied, therefore, that subject to compliance with these noise limits, significant adverse impacts on sensitive receptors will not arise.

12.267. **Human health**.

12.268. This matter has been addressed in the Population and Human Health section of this report where I have concluded that there is no evidence to support the conclusion that wind farms are associated with health effects, including those arising from infrasound and low frequency noise.

12.269. **Conclusion: Direct and Indirect Effects**

12.270. Having regard to my assessment of the proposed development on noise and vibration, it is considered that:

- Having regard to predicted levels of construction noise and vibration, standard construction noise limits, the distance of the development from sensitive receptors and/or the short-term nature of works (e.g. cable route), I am satisfied that no significant adverse effects will arise during construction from noise or vibration.
- Whilst the noise environment for area of the site will change, subject to the operation of the proposed development within the noise limits set out in the application documents, no significant adverse effects by way of noise will arise at noise sensitive receptors.

12.271. **Material Assets - Built Services and Infrastructure**

12.272. **Issues Raised**

12.273. Issues raised in submission are impact on Irish Water infrastructure, assessment of all construction materials, source of aggregates, impacts on eskers (indirectly), siting of turbines (on bedrock), impact on television, phone signals and utilities, end of life of turbine blades and compliance with the circular economy legislation.

12.274. **Examination of the EIAR**

Context

12.275. Chapter 13 of the EIAR deals with material assets. Appendix 13.1 comprises a Forestry Report. The assessment is undertaken in accordance with government and industry best practice guidelines on the information to be contained in an EIAR and guidelines on carrying out environmental impact assessment. The report therefore includes consideration of built services e.g. electricity, telecommunications. Impacts on traffic and transport infrastructure are addressed in Chapter 14, and the following section of this report. Effects on non-renewable natural resources dealt with in other Chapters (e.g. soils, water). The study area for the assessment is a c.1km radius of the red line planning boundary, with adjustments for the specific feature under consideration if necessary. The assessment methodology includes consultation with Irish Water, Meath and Westmeath County Councils, utilities, the Broadcasting Authority of Ireland, Irish Aviation Authority etc. (Table 13-1).

Baseline

12.276. The baseline environment comprises the land use of the site, predominantly a mix of agricultural land and forestry, and its underlying soils. There are areas of former peat excavation within the development site, which have subsequently been planted with forestry. The development site is situated c.2.8km to the northwest of the nearest airfield, Snug Beag airfield, Addinstown, Delvin. The airfield is not listed as an airport or aerodrome designated by the Irish Aviation Authority and there are no licensed aerodromes within 10km radius of the development site (Figure 13-2). The development site is within the 30 nautical mile range for Dublin Airport. In such circumstances any obstacle >600m elevation above sea level, AMSL (AMSL

elevation = site elevation + obstacle height) needs a formal assessment. Proposed turbines fall significantly below this (i.e. maximum height of 180m, with ground elevation of c.90m at the location (see Table 2-2). However, DAA have indicated that any obstacles >100m AMSL will required notification to IAA and provision of navigation warning lighting.

Potential Effects

12.277. Likely potential effects of the development, as identified in the EIAR, are summarised in Table MA1 below. The Board should note, in Table 13-3 the EIAR indicates the cut and fill balance for materials required for site works, with a total aggregate requirement of 29,880m^3 aggregate and 8,800m^3 of concrete. The volume of aggregate required 29,880m^3 (and the sum of aggregate and concrete, 38,680m^3) is significantly less than that indicated in Table 6-3 of the EIAR 'Estimate Aggregate Quantities'. This table indicates a requirement for 76,735m^3 of aggregates. Concrete requirement is broadly consistent with the requirement for 10,000m^3 referred to elsewhere (section 2.55, EIAR). In addition, the larger volume of aggregate (76,735m^3) and concrete (c.10,000m^3) is used in the assessment of traffic effects. I assume therefore that this upper figure is correct.

Table MA1: Summary of Potential Effects

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	• Land uses are likely to continue with forestry felled (and replaced) and agricultural practices possibly changing in time. Loss of potential to generate renewable energy.
Construction	• Land uses – ○ Agricultural land. Approximately c.74.13ha of application area (115.81ha) is agricultural land. T1, T2, T6 and T8 are in agricultural land and will result in the loss of 7.09ha. Small scale loss *not significant.* ○ Forestry. c.79.11ha of forestry in application area (Figure 13-3), with most comprising commercial forestry, with good growth rates and good quality timber (Appendix 13-1). 19.62ha- 20.09ha of existing forestry will be clear felled. Forestry affects 5 out of 8 turbines (Table 13-2). Forestry in area of T1 and T3 is poorer in quality and underlain by peat soils. T5 relocated away from possible ancient woodland and located largely in commercial forestry. T4 is in semi mature broadleaf forestry and T7 in former ash plantation (replanted with Sitka spruce). Forestry clearance work has the potential to impact on surrounding trees. However, earlier felling of areas is a temporal change, area to be removed is a small proportion of forestry habitat. Effects are *not considered to be significant.* Replacement planting to be carried out subject to

	licence, elsewhere in the State, if permission is granted. Tracks to be installed in forestry can be used for forestry vehicles. o Quarries and soils – Required aggregates will come from the borrow pits on site, where practicable, and topsoil and subsoils reused within the site. The only material to be imported to the site is concrete. Effects will be *slight*. • Telecommunications o Potential for damage to existing telecommunication cables during excavation of cable trenches and jointing bays, with disruption of services. Development designed to avoid impacts on overhead infrastructure and consultation with telecommunication operators has not identified any conflicts with their infrastructure. o Temporary sources of electromagnetic radiation from power tools/ electrical generators during construction. Equipment is required to meet EU Directives, such that emissions do not cause interference with other equipment. o Interference by tall cranes (similar to turbines e.g. signal scattering, electromagnetic fields, signal obstruction). No operators in the area with the potential for effects except RTE Broadcast services. • Electricity networks – Potential for effects on ESB underground and overhead lines, low, medium and high voltage (Figure 13-4). Detailed collaboration with ESB and EirGrid to continue and ensure that any movement or undergrounding of existing infrastructure is authorised and carried out with minimum disruption. All works to be undertaken in accordance with ESB standards. • Water supply and sewerage – No public water supply/sewerage in the site area. Private water supplies may require diversion or be temporarily disrupted. Potable water will be imported to site for workers and portaloos provided. • Waste – Construction waste will be generated and will require appropriate disposal.
Operation	• Land uses – No effects indicated in EIAR. • Air navigation – *No effects*, subject to compliance with requirements of DAA. • Telecommunications - Potential interference in communication systems by electromagnetic fields associated with wind turbine generator, signal scattering by blades and signal obstruction as it passes through area swept by blade or by tower – No operators in the area with the potential for effects except RTE Broadcast services. • Waste – Operational waste will be limited and will require appropriate disposal.
Decommissioning	• Turbine foundations, crane pads and access roads to be left in situ, to regenerate naturally.
Cumulative	• Land uses: o Agricultural land – Given the relatively small-scale loss of agricultural land and the lack of other developments in the area, no significant cumulative effects are identified.

	○ Forestry – Given the lack of other proposals in the area through the cumulative projects search it is considered that there will be no potential cumulative effects on forestry land uses. ○ Land use, quarries and soils – *No significant effects* identified, arising from the re-use of material within the site. • Air navigation – With the absence of other proposals in the area searched for cumulative projects, it is not considered that there will be potential cumulative effects on navigation. • Telecommunications – With the proposed design of the development and mitigation measures and the obligations on developers of other developments to ensure no interference, *no potential for cumulative effects*. • Electricity – No other proposals in the area for cumulative effects to arise. With other wind energy projects, the development will have *positive cumulative impacts* enabling transition to renewable energy sources. • Water, wastewater and waste - With the absence of other proposals in the area searched for cumulative projects, it is *not considered that there will be potential cumulative effects.*

12.278. **Mitigation**

12.279. Standard best practice construction measures are proposed to offset potential damage to telecommunications, electricity networks and water supplies during construction and operation and to properly dispose of waste arising. Site specific measures include replacement planting of forestry (elsewhere in the State), felling in accordance with government standards, maintenance of drainage channels and a protocol to be signed between RTE/2rn and the applicant**.** In addition, the applicant commits to comply with aviation requirements for turbine lighting.

12.280. **Residual Effects**

12.281. With the implementation of mitigation measures, no significant residual effects are predicted.

12.282. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.283. I have examined, analysed and evaluated Chapter 13 of the EIAR, the associated documents and submissions on file. I am satisfied that the key impacts in respect of likely effects on material assets have been identified. Having regard to the modest land take from resources which are widely available in the area (including other wind farms in the area of the site), the proposals for replacement planting, the construction methods to be used to prevent impacts on existing services, and to comply with the requirements of DoD and IAA, I am satisfied that,

subject to the implementation of proposed mitigation measures, no significant, adverse direct, indirect (including cumulative effects) will arise as a consequence of the development on material assets. I comment briefly on matters raised by prescribed bodies and third parties.

12.284. **Construction waste/end of life turbine blades**

12.285. The CEMP includes proposals for the management of waste arising during construction, with a Waste Management Plan (WMP) to be prepared in line with relevant national and EU requirements/guidelines. At the end of the life of the wind farm, it is stated in section 2.171 that turbines will be removed to ground level and components transported off site for re-use or recycling. This would be consistent with the principles of the circular economy. I note also the applicant proposes that the CEMP includes proposals for a Decommissioning Environmental Management Plan. I would recommend that a preliminary plan be submitted in the revised CEMP in advance of construction and updated prior to decommissioning. This matter can therefore also be addressed by condition.

12.286. **Impact on television, phone signals and utilities (including Irish Water)**

12.287. In assessing the impact of the proposed development on telecommunications and utilities the applicant has carried out desk top research and consultations in respect of services that may be affected by the development. It is stated in the EIAR the development has been designed to avoid overhead telecommunications infrastructure, and consultations with telecommunication operators has not identified any conflicts with their infrastructure. There is no public water infrastructure in the area of the site, but private water supplies may require diversion/temporary disruption if they are crossed during construction of the wind farm or cable route. As a risk of interference to broadcast services has been raised by RTE/2m a protocol will be signed by the developer should permission be granted. Mitigation measures include ongoing engagement with service providers during construction, review of latest records of services obtained from the relevant service providers ahead of construction works to ensure that all new developments between the period of assessment and pre-construction are captured. Where required, cable detection tools, ground penetrating radar, and slit trenches will be used as appropriate to find the exact locations of existing services. The final locations of the cable routes within

the public roads and on the verge along the public road will be selected following these investigatory works to minimise conflicts with other services.

12.288. The approach is not unreasonable and will require engagement with service provides, including Irish Water, and will in effect identify the exact location of utilities within the footprint of the site and avoid them in the construction of the development, in a manner agreed with utility providers. Design/construction of works to comply Irish Water requirements can be addressed by condition.

12.289. **Quantification of materials, use and source of aggregates, impacts on eskers, siting of turbines**

12.290. In response to submission, the applicant states that it is expected that material won from the on-site borrow pit and excess from cut and fill would result in all aggregate material being won from within the development site. (However, to ensure a robust assessment an estimate is required of the type of aggregate to be required for construction, to enable a robust assessment for the traffic assessment).

12.291. The application documents set out details of the estimated quantity of aggregates to be used in the development and an estimate of non-aggregate material, including concrete (Tables 14-11 and 14-12). The development will inevitably utilise finite natural resources. However, given the policy context and urgent requirement for an increase in the roll out of renewable energy, including wind energy, this is not unreasonable and is a necessary and relatively modest requirement. Further, the applicant has clearly demonstrated that the development will provide a net reduction in CO_2 emissions.

12.292. If resources on site are not available material will be imported from existing quarries in the area of the site. This approach is not unreasonable and would not result in any indirect effects on eskers i.e. materials will be sourced from existing quarry operations. Whilst the siting of turbines on bedrock would reduce the requirement for construction materials, there are numerous constraints on site which have informed the location of the turbines and site selection (for turbines) based on a requirement for placement on bedrock would not be reasonable or practicable in this context.

12.293. **Conclusion: Direct and Indirect Effects**

12.294. Having regard to my assessment of the proposed development on material assets, it is considered that whilst there may be some short-term disruption to utilities during construction, subject to the implementation of proposed mitigation measures, there is no potential for significant direct, indirect or cumulative effects to arise.

12.295. **Material Assets – Traffic**

12.296. **Issues Raised**

12.297. Issues raised in respect of traffic by planning authorities, prescribed bodies and third parties relate to the impact of the development on the structure, function and condition of the national and local road network, the volume of construction traffic over a long period (10-year permission), the location of the proposed access to the substation, the loss of vegetation along the TDR and the cumulative effect of the development with other wind farm development.

12.298. **Examination of the EIAR**

Context

12.299. Chapter 14 of the EIAR deals with traffic issues associated with the development. Appendices are:

- A14-1 - Turbine Delivery Route (TDR) Works Report. This includes a review of the preferred delivery route to the site from the port of Dublin (Dublin Port, M50, M4, N4, N52). It identifies the temporary works required at 13 no. 'nodes' to accommodate the turbines in transport and provides a swept path analysis for these (Figures 14-5a to 14-5n).
- A14-2 - Traffic survey results for the development (existing traffic flows).
- A14-3 - Construction Traffic Management Plan.

12.300. The main focus of the chapter is on the construction phase given the relatively small number of traffic movements to be generated during operation. Decommissioning will not involve any abnormal loads as turbines will be broken down into smaller parts. The results of the scoping exercise are presented in Table 14-1. The methodology for assessment has regard to industry and best practice guidelines and is based on baseline traffic surveys carried out in 2022 (A14-2). The traffic survey was carried out on the N52, east of T7 (Figure 14-2). The likely

significance of potential effects has been determined considering the magnitude of change in traffic movements and the sensitivity of receptors which would be affected by these changes. The assessment has considered the maximum turbine component parameters and therefore covers all turbine permutations identified in Table 2-1.

Baseline

12.301. The wind farm site lying to the west of the N52 can be accessed directly from existing agricultural entrances and access tracks off the national primary road and L5542 (to the northern and southern cluster). Existing agricultural accesses to the substation site, west of Clonmellon, are from the L6821. Four access points are proposed for the proposed development, site entrance 1, on the L5542 to serve the northern cluster, site entrance 2 on the L5542 to serve the southern cluster (T4-T7), site entrance 3 on the N52 to serve T8 and site entrance 4 on the L6821 to serve the sub-station (Figure 14-1).

12.302. The study area for the transportation assessment includes the N52 from the junction with the N4, to the east of Mullingar, to Clonmellon and the L5542 as the minor road from the N52 west to the site access locations, and the L6821 Killallon Road which extends west from the N52 at Clonmellon to the substation access. It is stated in the EIAR that the majority of construction traffic will travel to these sites along the above routes with much of the wider road network therefore excluded from the assessment.

12.303. Baseline traffic flows for the N52 (Table 14-2), during a typical weekday (24hrs), comprise an average two-way flow if 4,414 vehicles, with 12% comprising HGV traffic. Flows are similar in both directions and similar peak periods are observed for both northbound and southbound traffic in the morning and evening periods (Figure 14-3). An assessment of capacity of the N52 (Table 14-3) indicates spare capacity of 81%.

Potential Effects

12.304. Likely potential effects of the development are summarised in Table T1 below. Predicted trips are based on:

- An indicative construction programme is shown in Table 14-9, with the greatest number of vehicle trips taking place in months 5 to 11.

- Construction activities requiring vehicles trips (Table 14-10).
- Estimates of construction aggregates and non-aggregate material (Table 14-11 and Table 14-3). To ensure a robust assessment, the assessment assumes that no aggregates are generated from onsite borrow pits, but the full quantity imported to the site from local quarries.
- Minibus transport for construction workers.

12.305. The accumulated trip generation, for daily and hourly two-way movements during the 'worst case' month of construction (month 5), is shown in Table 14-15, with a daily total of 140 HGV two-way trips and 100 LGV two-way trips, and hourly figures of 12 HGV two-way trips and 50 LGV two-way trips. Vehicle trips are conservatively apportioned to the local road network (paragraph 14.86-14.88). Estimated cabling trip generation is shown in Table 14-6 with a stated maximum of 33 vehicle trips generated.

Table T1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Not addressed in Chapter 14. However, any traffic level increases likely to be in line with national/regional trends.
Construction	• Direct impacts – Projected traffic flows, baseline + development indicate an increase of 5% to the total flow of traffic on the N52, and an increase in 27% of HGVs (Table 14-18). Baseline flow plus development traffic in the context of capacity of N52 (Table 14-19) indicates that the development would not have a material effect on the capacity of the N52 within the study area. Environmental effects will therefore ***not be significant***. Applicant cannot confirm baseline flows on the L5542 or L6821 and it is assumed that the increase in traffic on the two roads, with low traffic volumes, will exceed the 30% threshold in the IEMA guidelines (section 14.96), with potential for environmental effects. • Effects on community severance – Substantial increase in traffic predicted on the L5542, but limited number of dwellings/urban communities/facilities separated by the L5542. ***Minor and not significant impact***. L6821 extends from N52 west from village Clonmellon, number of residences and community facilities alongside the road, some pavement and a zebra crossing. Predicted increase in vehicles will present increase in difficulty crossing the road. The additional 10 vehicles/hour is low. Overall ***minor and not significant impact***. • Road vehicle and passenger delay: o Turbine construction – The additional traffic will have a moderate impact on the L5542 and L6821 (e.g. delay caused by vehicle turning), but sensitivity is low as there would be some tolerances to severance and delay, existing flows are low, and roads do not extend through busy urban areas. Flows on the N52 will also have a modest increase in traffic (5%). Effects on the L5542, L6821 and N52 are ***minor and not significant***.

	○ Cable laying – For the N52 and L6821, effects of cable laying are predicted to be ***negligible and not significant****,* on the grounds of capacity in the N52, likely some level of tolerance for delays, no anticipated long delays (with lane closures), and short-term nature of works. For the L5542, full closure of the road during installation is likely (narrow width), with diversion for traffic and ***moderate and significant effects***. • Pedestrian and non-motorised user delay – Overall effects on the L6821 will be ***minor and not significant*** (likely to see greater levels of vulnerable road users but relatively low increase in vehicle numbers) and on the L5542 ***moderate and significant*** (minor road but greater increase in vehicle numbers than L6821). NB conclusion in section 4.130 differs to summary Table 14-21, Table records a minor and not significant impact on L5542. Worst case impacts summarised here. • Non-motorised amenity – Low number of non-motorised traffic on the L6821 and L5542, however, increase in traffic levels is predicted to be high compared to low baseline. Impacts on non-motorised amenity ***is moderate and significant.*** • Fear and intimidation – Increase in traffic most likely to cause increase in fear and intimidation along the L5542 (no pavements), but low number of pedestrians likely to be using the roads. ***Minor and not significant*** effect on the L5542. ***Negligible and not significant*** on the L6821. • Road user and pedestrian safety – Available information indicates no significant road safety issues in Co. Westmeath. Number of HGVs on the N52 would be less than 30% threshold, traffic could be easily accommodated within the available capacity of the road and road safety would not, therefore be compromised. Any impacts are limited and temporary. Embedded mitigation measures provide for movement of large components under suitable traffic management procedures. Overall effects on the N52, L6821 and L5542 are ***minor and not significant***. • Impact caused by hazardous/large loads – Impacts are predicted to be low and not significant (moderate sensitivity of TDR, movement outside peak hours, effects would be temporary and over a short period, movements would be under suitable traffic management procedures and in consultation with the relevant authorities). NB conclusion in section 14.151 differs to summary table 14-21 – Table records a ***moderate and significant impact****.* Worst case impacts summarised here.
Operation	• Vehicle trips will be less than 10 per week, with ***no predicted significant effects****.* Turbine locations comply with recommended setback distance from National and Regional Roads (section 14.153).
Decommissioning	• Similar to construction but with fewer vehicle movements. Turbines will be deconstructed and moved off site in smaller parts in HGVs. Foundations will be covered and allowed to regenerate naturally. Internal site access tracks to be left in situ. Underground cabling to be cut back and left in situ. On site substation to be taken in charge by ESB/EirGrid.
Cumulative	• If the development is built at the same time as other permitted or proposed development in the area, there is potential for cumulative effects (Table 14-20).

12.306. **Mitigation**

12.307. Mitigation measures for the construction phase of the development are set out in section 14.161. Measures are typically good practices for the management of construction traffic and the movement of abnormal loads. A site-specific construction traffic management plan has been prepared (Appendix 14-3). Measures include management of turbine delivery, with extensive public awareness in advance, timing to avoid busy periods, carried out with escort and relevant permits, management of traffic on local and regional road with appropriate lane closures and a diversion for traffic on the L5542.

12.308. **Residual Effects**

12.309. With the implementation of mitigation measures, no significant residual effects are predicted.

12.310. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.311. I have examined, analysed and evaluated Chapter 14 of the EIAR, the associated documents and submissions on file. Having regard to the information submitted, including the volume of traffic surveyed to be using the national and local road network in the area of the site, the conservative approach taken to the assessment of vehicle trips likely to be generated by the development, the capacity of the National road, and the with the implementation of mitigation measures for the management of traffic during construction I am generally satisfied that the key impacts in respect of likely effects on national and local roads have been identified and adequately assessed. Prescribed bodies, planning authorities and third parties raise a number of issues which I consider below.

Impact on the national road network

Location of development in study area for road improvement scheme

12.312. In response to submissions, the applicant states that meetings were held with the Roads Design Office (29th September 2022 and 16th February 2023) and as per the requirements of the Road Design Officer, a setback distance between the National road and the proposed turbines was provided. The minimum requirement is for this setback to equates to the height of the turbine to the tip of the blade plus 10%, or 198m based on the maximum height of the turbine within the range. The setback provided for by the Proposed Development from the closest turbine to the

N52 is 225m, 27m greater than the minimum requirement. The proposed development maintains adequate flexibility to facilitate the realignment of N52.

12.313. There is no information on file on the extent of the Constraints Study Area for the N52 Road Improvement Scheme (Cavestown to Kilrush). Notwithstanding this, the WEDG 2006 recommend a setback equal to the height of turbine and blade. The proposed setback for the development is in excess of this by c.27m. Having regard this setback distance, liaison by the applicant with the Roads Design Office, and the absence of concerns raised by them or the PA, I am satisfied that the proposed development will not have an effect on the proposed Constraints Study Area for the improvement works.

New entrance onto the N52 (Access no. 3)

12.314. In response to comments by TII, the applicant states that as part of the scoping exercise, the applicant consulted with TII and as advised, with relevant road authorities, in relation to the proposed access arrangements for the N52 (and L5542), wherein it was confirmed that the proposed route and access arrangements were generally acceptable. Further, correspondence was sent to TII following these meetings. It is stated that during construction any works to the N52 will be carried out in agreement with TII and the local authorities with details of all works agreed as part of the CTMP. During operation, the new access point will be used for maintenance work only with the small number of vehicle trips per week having no significant effect on the N52 and in this context the proposed sightlines are acceptable. The applicant refers to Bracklyn Wind Farm Limited (ABP-311565), where was granted on the basis that the impact arising on the national road will be on a temporary basis, during the construction phase and that this would be mitigated via the preparation of a traffic management plan.

12.315. The government's Spatial Planning and National Road Guidelines seeks to avoid the creation of new, or increased use of, access points from new development onto national roads where a speed limit of >50kph applies. Westmeath CDP requires a sightline of 230m on national roads (CPO 16.33).

12.316. The applicant proposes a new entrance to the N52 to provide construction access to T8 and thereafter for infrequent operation traffic. Node 7 Site Access Layout, N52 (Site Access Drawing no. ABP-314271-11.PL23-1) indicates 3x160m

visibility splays in both directions, with hedge trimming). The location of the access is within the 100kph speed limit zone. At the time of site inspection, I noted high speeds on this road, commensurate with the speed limit. In the vicinity of the proposed site access the public road is quite straight and verges are wide, with trees/hedgerows to the rear of the verge and there would appear to be some scope for increased sightlines above 160m.

12.317. The proposed development, in terms of principle and provision of sightlines, would be contrary to national and local policy objectives. However, the use of the proposed new access will be greatest during construction with a duration of up to 24 months and will be subject to a detailed Construction Traffic Management Plan (Appendix 14.3). Thereafter operational traffic movements are very modest. I am satisfied therefore that the creation of the proposed new access road on the N52 is not unreasonable on the grounds that it is a temporary use and will facilitate the construction of critical renewable energy infrastructure. In this regard, I refer the CAP 2024 which states that '*All relevant public bodies will carry out their functions in a manner which supports the achievement of the renewable electricity targets, including, but not limited to, the use of road and rail infrastructure to provide a route for grid infrastructure where this is the optimal solution'*. Further, should the Board grant permission, I would recommend a condition to require that the applicant carry out a Road Safety Audit for the proposed access, works to TII standards, and if necessary, arrangements for the management of construction traffic, for agreement with the planning authority.

Carrying capacity, safety and function of the national road

Carrying capacity

12.318. The applicant's traffic survey identifies base flows on the N52, with 4,414 two-way flows (12% HGVs = 529) in a 24-hour period and 3,700 (12% HGVs = 444) in 12 hours. AM peak is 8am to 9am and pm peak 3pm to 5pm. Capacity of the N52, based on Design Manual for Roads and Bridges (Volume 5, section 1, TA 46/97) is 23,048 (24-hour flow) and spare capacity, 81%. The additional flows likely to be generated by the development, using the applicant's conservative approach and during the 'worst case' month, are 140 HGV two-way trips and 100 LGV two-way trips daily. Whilst the proposed development will add a large number of HGV trips to

the network, effects are short term. Further, having regard to the spare capacity on the N52 in the area of the site, it is evident therefore that the additional traffic flows likely to be generated can be readily accommodated.

Cable trenching

12.319. In response to comments by TII, the applicant states that the cable connecting the wind farm site to the substation will be installed in the verge or carriageway of the N52, at a depth of >2m to ensure that it is located beneath the road pavement and any related infrastructure. The depth was agreed in principle with the Roads Design Office and will avoid any impact on future works. The cable will be installed by specialist machinery that will excavate the trench and lay the cable immediately. The cable is to be installed using a lane closure controlled by signals operating a shuttle system, with the length of the controlled section being kept as short as possible. A diversion route shall be signed from Delvin using the N51, turning onto the R154 to return to the N52 north of Clonmellon. Alternatively, traffic may remain on the N51 to reach the M3 south of Navan. All temporary traffic control shall be in accordance with TII standards.

12.320. As stated previously, CAP 2024 requires public bodies to carry out their functions in a manner which supports the achievement of renewable energy targets, including the use of road infrastructure to provide a route for grid infrastructure, where this is the optimal solution.

12.321. Having regard to the proposal to install the proposed cable in the public road, verge or carriageway, and the use and strategic function of the N52, I would accept that the development has the potential to impact on traffic flows and road condition, including future management and maintenance of the road. Notwithstanding this, undergrounding within the existing road corridor will mitigate the potential for other effects. In Chapter 3, Alternatives, the applicant considers alternatives to the underground cable route to the proposed substation at Clonmellon. Overhead cables were discounted on the basis of visual impact, and an alternative route for underground cables, on the basis of likely lesser effect on underground archaeology, drainage, habitat loss and surface water. Further considerations included minimising length, watercourse crossing points, environmental and heritage features and minimisation of traffic cand transportation disruption.

12.322. The proposed development, particularly the norther cluster, is situated in a sensitive landscape which is designated as a European site. Direct access to the substation via underground or overhead lines, would cross this sensitive area. Alternatives by road are longer and via minor roads. Having regard to the foregoing, whilst not ideal, routing in the public road network and via the N52, is not unreasonable, nor is it inconsistent with government policy. Further, the applicant has indicated alternative routes for traffic that can be addressed further in a Traffic Management Plan. Should the Board decide to grant permission for the development, this should be subject to condition addressing the requirements of TII i.e. that the design and location of the cable within the road corridor, including joint bays, is subject to their agreement, and provision of a detailed Traffic Managemente Plan that includes arrangements for alternative routes during the construction phase.

Preconstruction survey/condition of the public road

12.323. In submissions the planning authorities and TII have sought pre-construction condition surveys of haul routes and cable route, structural condition survey of all affected bridges/culverts, details of cable installation works across existing watercourses/bridges and means to address spills on the public road/a road cleaning programme for the construction phase. These requests are not unreasonable and will protect the condition, capacity and safety of the public road and can be addressed by condition.

Turbine haul route

12.324. In response to comments by TII, the applicant states that licences and permits to move abnormal loads shall be applied for by the relevant haulage company prior to movement. All structures along the abnormal load route will be reviewed and assessed to determine that they can carry the abnormal loads. The Applicant is agreeable to conditions seeking completion of a Road Safety Audit prior to commencement of development.

12.325. As indicated in the submission by TII, it is not clear from the application documents if the applicant's reference to abnormal loads refers to size or size and weight. To protect the condition, function and safety of the national road, it is reasonable that the movement of abnormal loads should be undertaken in

accordance with the relevant permits and provides for the repair of any damage caused by size and weight. The matter can be addressed by condition.

Access to Sub-station (Access no. 4)

12.326. In response to Meath County Council's submission, the applicant states that the location of the access to the substation is proposed to avoid an impact on the property to the south, make use of the existing agricultural entrance and reduce the amount of hedgerow to be removed.

12.327. I have inspected the application site and acknowledge that an entrance to the south-east of the substation site and would allow for a straighter aligned access road whilst providing adequate sightlines at the location. However, I consider that the location identified by the applicant appropriately minimises effects on the property to the southeast. It also reduces the visibility of the access road from the public road, as it would be routed behind a landscaped berm. Whilst the location of the access road at the proposed location would increase the length of underground cabling, this would not be substantial or unreasonable.

Impact on Local Roads

Impact on motorised, non-motorised traffic and amenity

12.328. In the EIAR the applicant has acknowledged that the proposed development will introduce a significant increase in traffic on the local roads that provide access to the wind farm site and to the substation. The effects of this are considered in terms of community severance, delay, amenity, fear and intimidation and road user and pedestrian safety, with moderate and significant effects on the L5542 in respect of (a) road and vehicular delay, during cable laying when the road will be closed and traffic diverted, (b) pedestrian and non-motorised user delay and (c) non-motorised user amenity. Mitigation measures are proposed, in respect of re-routing traffic, signage, management of construction traffic, etc. with no residual effects predicted. Given the duration of the development, the minor nature of this road, the substantial increase in traffic on this local road including HGV traffic, I consider that residual impacts on this road for all road users during construction will be significant.

Turbine delivery/works along L5542

12.329. The applicant has identified works at 13 no. nodes along the turbine delivery route from the M4. These are set out in Appendix 14-1. Works typically include temporary removal of signage/street furniture, trimming of hedgerows and trees (including where possible tying back branches). Along the L5542 the works include localised road widening (to turbine manufacturer's requirements) and re-routing, trimming of hedgerows and raising of tree canopy. Where the local road is rerouted, this is to avoid trees and/or bends in the public road but does result in some tree loss.

12.330. Having regard to the foregoing, I consider that the works will largely have no significant effect on the public road network, apart from the L5542. The short stretch of road from the N52 to the access to the northern cluster will change significantly. Whilst the alterations are not unreasonable, there are limited details on the arrangements for reinstatement of hedgerows/trees. Should the Board decide to grant permission, I would recommend a condition requiring details of road construction works and landscape treatment, to be agreed with the planning authority, in advance of construction.

Sightlines

12.331. The current Westmeath County Development Plan requires 90m sightlines in each direction for vehicular entrances onto local roads. Plans for the site access to the northern and southern cluster, both show 90m sightlines in each direction, setback by 2.4m (Node 13 – L5542 Site Access North, Drawing no. ABP-314271.PL27-1 and Node 11 – L5542 Site Access South, Drawing no. PL25-1). The provision of these sightlines is likely to required localised trimming of hedgerows but are otherwise consistent with standards.

Cumulative effects

12.332. The proposed development is situated c.5km north of two other wind farm developments, both of which have been permitted (ABP-311565, Bracklyn wind and ABP-316212, Ballivor wind farm). Should these developments be constructed, with the subject development, at the same time, there is potential for cumulative effects in the wider road network e.g. with an overall increase, short term, in traffic along the N52. Notwithstanding this, each of the developments considered include detailed arrangements for the management of construction traffic and are short term (with

less likelihood therefore of substantial overlap) and significant cumulative effects should not arise. Cumulative effects on minor roads, associated with the subject development will not arise due to distance between developments.

Bonds/Levies

12.333. Westmeath County Council recommend, in preference to a special development contribution, a specific condition requiring pre-surveying of affected roads, proposals for rending roads fit for purpose, pre-survey of affected roads, monitoring and repair and post construction survey and remedial works. In response to the submissions, the applicant is generally agreeable to the requests made by the PAs. The approach of the PA is not unreasonable and will provide for the maintenance of the public road during and after construction and can be addressed by condition.

12.334. **Conclusion: Direct and Indirect Effects**

12.335. Having regard to my assessment of the proposed development on traffic, it is considered that there will be an increase in traffic on the road network in the area of the site during construction works. Significant direct, indirect and cumulative effects will largely be avoided by detailed design, location (e.g. cable route) and management of construction, all of which can be agreed with the relevant planning/road authority, in advance of construction. However, residual short term, significant effects will arise for motorised and non-motorised traffic (delay and impact on amenity) on the L5542 for the 18-24 months construction period.

12.336. **Cultural Heritage**

12.337. **Issues Raised**

12.338. Issues raised in submissions by the planning authorities, prescribed bodies and third parties, in respect of cultural heritage are:

- The adequacy of the cultural heritage impact assessment and proposed mitigation measures,
- The inadequate preservation of known sites,
- No indicated use for lands within red line boundary,

- The impact of the development archaeological, architectural and cultural heritage including on recorded monuments WM009-004, WM009-018, ME023-010, vernacular bridge (NIAH 15400917/Snipe's Bridge), archaeological potential of wetland bogs, Newtown castle, Rosmead demesne, Ballinlough Castle, Clonmellon, Killua Castle, Clonyn Castle (Delvin), Delvin Castle, Fore Abbey, Lough Crew Cairns/Slieve na Calliagh, Lough Crew Cairns House and Gardens, Tower of Lloyd, Trim, Hill of Tara (tentative WHS), Skryne Church, Boyne Valley sites and Hill of Uisneach, and
- Cumulative impacts, including with other wind farms.

12.339. Should the Board decide to grant permission, Westmeath County Council recommend an archaeological condition which requires an archaeological assessment in advance of construction works, to include trial trench investigations in the location of surviving previous county boundary markers, proposed turbine bases and access roads, and a programme of palaeo-environmental research on the whole area of the wind farm.

12.340. **Examination of the EIAR**

Context

12.341. Chapter 11 of the EIAR deals with cultural heritage. Associated appendices include a Geophysical Survey Report for the substation site (A12.1) a Cultural Heritage Assets Gazetteer (A12.2) and Site Visit Photograph Gazetteer (A12.3). The assessment is undertaken having regard to national and industry guidelines (section 12.14). The assessment includes desk study, site assessment and geophysical survey (sub-station site). The study area comprises 1km from the development site boundary to inform the predictive model of unknown buried archaeology and a 5km radius of the site to inform the settings assessment (in conjunction with the zone of theoretical visibility). The following assets were screened out due to the architectural and technical interest of the asset or setting, and the absence of effects on these interests and/or setting:

- Carnybrogan, Co. Westmeath (NIAH, Reg. No. 15,400,916, Regional), vernacular house. Along local road to south of northern cluster.
- Graulty's Bridge, Mulliganstown, Co. Westmeath (NIAH, Reg. No. 15400901, Regional). Along local road to the west of the northern cluster.

- Snipe's Bridge, Cavestown, Co. Westmeath (NIAH, Reg. No. 15400917, Regional). On local road, immediately southwest of northern cluster.
- Effects on the setting of cultural heritage assets >5km, unless they are identified as particularly sensitive to change, and effects on the setting of cultural heritage assets < 5km that are beyond the ZTV and where there are no identified co-visibility points.

12.342. Significance of effect is based on importance/significance of the cultural heritage asset and magnitude of effect (Tables 12-2 to 12-5).

Baseline

12.343. The EIAR identifies no nationally designated sites of cultural heritage interest within the development site or 1km of the site boundary. Regional sites, listed in the NIAH, located within the development site, within 1km and 10km of the site boundary are shown in Figure 12-1. Of these, a smaller number of assets are carried forward for assessment in Table 12-6 and are Rosmead House, c.370m to the southwest of the nearest turbine, the Triumphant Arch associated with Rosmead House, 1km to the southwest of the nearest turbine, and Ballinlough House and associated features (from 0.9km to the east of the southern cluster. Other assets listed on the NIAH are excluded due to nature of the asset, limited visibility of the development, and absence of likely impact.

12.344. Archaeological sites and monuments within the development site and within 1km of the site boundary are shown in Figure 12-2. Assets occurring within or in proximity to the development site include:

- ME023-010 - An early medieval ringfort to the west of the substation site. The geophysical survey (Appendix 12-1) indicates anomalies, considered to be potential archaeology associated with the ringfort, in the form of a U-shaped enclosure adjacent to and southeast of the existing monument, with anomalies, likely to be archaeological in nature (e.g. spreads, pits and/or structures), and further anomalies to the east, including linear anomalies potentially representing ditches, pits and spreads.
- WM009-005 - A crannog (low circular mound), c.180m to the northeast of the development site boundary, located at Newtown Lough.

- WM009-004 - An unclassified castle, within the northern cluster, c.300m southeast of T1, situated on a low-rise overlooking Newtown Lough.
- WM009-018 - An unclassified ringfort located c.40m to the east of T5's foundation. This is suspected to be a tree ring within the boundary of Rosmead House, as a feature of the demesne, rather than a ringfort.
- Eight ringforts within the 1km buffer of the site (ME023-010, ME023-009, ME022-029, WM009-017, WM009-016, WM009-014, WM009-040 and WM009-033), with the assets relatively spread on the elevated segments of land around the development site.

12.345. The ringfort proximate to the substation boundary (ME023-010) is stated to be potentially a rare type of rath ringfort, with traces of three earthen banks, separated by fosses, located on a rise.

12.346. The EIAR states that there was no LiDAR data available for the site, and only satellite imagery and aerial photography has been examined with no further archaeological sites found. No previous archaeological investigations within or proximate to the site boundary have been carried out.

Potential Effects

12.347. Likely significant effects of the development as identified in the EIAR, are summarised in Table CH1 below.

Table CH1: Summary of Potential Effects

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	• Not considered in EIAR but land uses likely to continue without significant direct, or indirect effects on assets of cultural heritage interest.
Construction	• Cable route and substation - Location of the cable route would avoid the Early Medieval Ringfort (ME023-010) and the cluster of archaeological potential within the U-shaped annex identified in geophysical survey. The access track and grid connection route, in combination with the substation, would truncate three potential archaeological anomalies detected during the survey (linear feature, large and small pit). Potential for direct effects therefore on the remains associated with ME023-010. However, features may be of lowest significance e.g. agricultural features and pits. Effects would therefore be *slight to moderate*. • Wind farm - Potential for direct effects on: o Archaeological remains of the potential Early Medieval Ringfort (WM009-018). Remains will not be truncated by groundworks during construction. T5 is located c.20m from the feature's buffer zone, with no direct effects on the feature. Tree felling would involve cutting down trees and leaving roots in place within the ringfort and its Zone

	of Notification. Removal of trees would have a *significant beneficial impact*. Potential impacts on unknown archaeological remains with *slight adverse significance* (remains considered to be of relatively low significance). ○ Unknown features associated with Rosmead Estate. May have extended further northeast than is discernible on mapping and aerial imagery. Unlikely for any remains to survive in the current landscape, given the level of disturbance. Impacts may range from negligible to low significant, with no magnitude of effect and *no harm to significance*. ○ Potential remains of Newtown Castle (WM009-004). Remains will not be truncated by groundworks during construction. ○ Any remnant post-medieval agricultural features, such as field boundaries. Consider that any such features would not contribute to the understanding of farming practices within the region and would therefore be of *no archaeological significance*. ○ Any remaining post-medieval buildings within north of the site. These have been removed and any such remains would *not be of any archaeological significance* (would not contribute to understanding of the building).
Operation	• Rosmead House, Triumphant Arch and curtilage buildings. No direct effects. Wind farm would be visible from the grounds of the estate, from the House and Arch, with T8 c.370m to the northeast of Rosmead House. Given the decline in the property and changes to landscape of the estate, it is considered that the development would have a low adverse magnitude of effect to the setting of the estate and its contained designated buildings, including Rosmead House and the Triumphant Arch. *Overall slight significant effect* on house, arch and estate curtilage buildings. • Ballinlough Castle and associated buildings comprising Ballinlough Estate – No direct effects. Eight turbines would be c.1km to the NW of the estate boundary. Views of turbines would be largely limited. However, views of turbines likely from west lawns towards the development, views west from along the approach and proximate to the house. Views of turbines would not intrude on any contributing aspect of the Protected Structure's setting within the estate. Overall *slight significant effect* on Castle and Estate. • Series of ringforts (ME022-029, ME023-010, WM009-017, WM009-014, WM009-016, WM009-018, WM009-033, WM009-040) – No direct effects. Whilst the contemporary landscape has been significantly altered, the placement of these ringforts and their intangible relationship within and with the landscape contributes to the understanding of early medieval settlement distribution and potential relationship between assets, and the ability to appreciate and experience them. The proposed turbines, and substation and grid connection, would have some degree of visibility to all ringforts. The turbines would not cause any direct effects on their settlement pattern, locations within the landscape and proximity to resources such as water courses, the contributing aspects of their setting. The turbines are not located in a way that would interrupt the ability to interpret the special relationship between the ringforts with their environments or one another. Indirect *neutral* effects across the landscape.
Decommissioning	• Not considered in EIAR but likely to be like construction but reduced in scale.
Cumulative	• No predicted Moderate effects on any cultural heritage asset, so no potential for cumulative effects with subject development (including Bracklyn wind farm).

12.348. **Mitigation**

12.349. Mitigation measures included in the EIAR are for strip, map and sampling to understand any potential archaeological features which may be associated with the ringfort ME023-010, prior to their truncation or their complete removal and preservation by record.

12.350. **Residual Effects**

12.351. With the implementation of mitigation measures, no significant residual effects are predicted during construction or operation.

12.352. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.353. I have examined, analysed and evaluated Chapter 12 of the EIAR, the associated appendices and submissions on file. A number of substantial submissions have been received and I comment on these below.

The adequacy of the cultural heritage impact assessment

12.354. In response to submission, the applicant states that details of known and unknown archaeological remains within the site have been assessed. Potential archaeological remains were anticipated within the site, but it was concluded that later activity would have entirely removed these features. It is suspected that the ringfort WM009-018 is a feature related to the House rather than a ringfort earthwork, with landscaping of Rosmead House and estate and later agricultural activity impacting on the asset and any associated remains. Supporting illustrations are provided in Figures 12-1, 12-2 and VP23, VP25 and VP18 (Rosmead House). It is reiterated that there is a lack of LiDAR data for the site. Historic mapping has been consulted to identify vernacular buildings within the site which have been demolished. Remaining vernacular buildings have been avoided. Buildings to be excluded from assessment were identified during scoping which provides consultees with an opportunity to request their inclusion in the assessment. A walkover of the site was completed in April 2022. Photographs to facilitate the setting impacts on Rosmead House are included in Appendix 12.3.

12.355. The applicant's assessment of potential effects on cultural heritage has had regard to government and industry guidelines on the protection of archaeological heritage and on the information to be contained in EIARs (section 12.14). In their

submission, Westmeath County Council refer to the NRA guidelines for the assessment of archaeological heritage impacts of national road schemes (NRA, 2005) and guidelines for the assessment of architectural heritage impacts of national road schemes (NRA, 2005). The 2005 guidelines have been replaced in February 2024 with TII's Guidelines for Cultural Heritage Impact Assessment of TII National Road and Greenway Projects. Whilst not directly applicable to the proposed development, they add to the technical guidance documents on cultural heritage impact assessment. Notably the guidelines state that the level of detail around each cultural heritage impact assessment (CHIA) will be proportionate to the nature and scale of the project and receiving environment, with the CHIA understanding the consequences of change to cultural heritage receptors so that informed decisions can be made about their sustainable management.

12.356. Like other national/industry guidelines, the publication recommends a stepped process with the identification of cultural heritage (CH) receptors, identification of potential impacts, assessment of significance of impact and formulation of mitigation measures for adverse effects. It is recommended that the identification of CH receptors is based on desktop research, field work and consultations. Field work can include geophysical survey, Lidar analysis and targeted test excavations, with more detailed survey methods used where there is potential for effects on identified assets.

12.357. In this instance, the applicant has referred to key sources of information, cited in government, industry and NRA guidelines (section 12.56), has consulted with Westmeath and Meath County Council, the National Monuments Service and the Heritage Council (amongst others, see Table 1-4) and carried out field survey. Further, the EIAR identifies the known features of cultural heritage on and in the vicinity of the development site and, consistent with the government's guidelines, the layout of the development has been amended to avoid impacts. The EIAR specifically references the potential for other unknown features within the site and has carried out geophysical survey of the substation site in the vicinity of the ring fort ME023-010. The assessment of significance of effect, like guideline documents, refers to the importance of the archaeological asset and magnitude of effect of the development on it.

12.358. The PA refer to the absence of detail in the cultural heritage impact assessment[7]. Whilst I would acknowledge that some of the details referenced by the PA are not included in the assessment, there is no evidence on file (or referenced by any party) of any omission of known features of archaeological or architectural heritage. Further, the assessment has identified the known assets in the area of the site, and as stated, has accepted the potential for further, unknown assets. I also note that Lidar survey is not available for the site on the government's Open Topographic Data Viewer (provides information from GSI, Department of Culture, Heritage and the Gaeltacht, TII, OPW etc. on Lidar data held by the organisations).

12.359. Having regard to the foregoing, I do not consider the applicant's approach to be unreasonable. Further, pre-development testing can ensure that any unknown features of interest are identified and effects on these mitigated. This could be carried out in the footprint of the development, to the satisfaction of the planning authority. The PA recommend that the applicant carry out palaeo-environmental research on the whole area of the wind farm. Palaeo-environmental research would typically be carried out in areas of peat bog, silting in lakes and streams etc. Given the large site area, and relatively modest footprint of the development and the presence of peat in the location of T1 and T3 only, I do not consider that it is necessary for the applicant to carry out this out for the entire site. However, as stated, appropriate pre-development testing can be required by condition within the footprint of the development, to the satisfaction of the planning authority.

Adequacy of preservation of known sites

12.360. Meath County Council draw attention to the adequacy of proposals for the in-situ preservation of WM009-018, WM009-04 and ME023-010.

12.361. WM009-004 is the possible site of a Newtown Castle (Historic Environment Viewer). The castle is described as '*Situated on a low rise of ground overlooking Newtown Lough 230m to E. Possibly the site of Newtown Castle. Remains consist of the grass-covered wall footings of a rectangular area (max. ext. dims. 16m N-S x 18m E-W) possibly a bawn. The interior of the possible bawn is subdivided by low*

[7] For example, no reference to Stray Finds Database (National Museum of Ireland), results of walkover survey in the EIAR, no evidence of review of stated sources,no illustrations to accompany discussion in text required, Gazetteer is inadequate (should include ITMs, surface expression, distance from project), no descriptions given for RMP, lack of detailed review of NIAH and RPS

grass-covered wall footings. Extending E, S & SW from this possible bawn are a series of old banks and scarps with wall footings visible in places. At SW end of the site are the grass covered wall footings of a second rectangular structure (approx. dims. 6m N-S x 11m E-W) possibly a tower house or castle'. The structure lies within the red line boundary but c.250m to the east of the footprint of the development and separated from it by woodland. It is stated by the applicant that there was no evidence of any archaeological features associated with the castle evident in any areas of groundworks and there is no evidence, in aerial photography of the features referred to in the RMP. Given the distance between the feature from the development site, the woodland separating the feature and development site, and limited evidence of surface archaeological features, it is unlikely that subsurface remains of the castle are present within the footprint of the development. However, the absence of features is not certain, and should the Board decide to grant permission for the development, mitigation measures should be applied to prevent adverse effects i.e. pre-development testing for the footprint of the development.

12.362. Meath County Council also refer to the location of the development in proximity to the estate village shown on the 1837 and 1909 mapping (to the west of WM009-004). It is stated by the PA that the buildings might date back centuries. These buildings are shown in the applicant's Existing Site Map (PL03-1) and structures were observed in this approximate location during site inspection. The footprint of the proposed development does not extend to these buildings. However, the development has implications for their setting considered in the Landscape section, and in the absence of demarcation of working area, are at potential risk of damage during construction.

12.363. WM018-004 is identified as a ringfort (Historic Environment Viewer). Again, the archaeological feature is included within the red line boundary, but outside the footprint of the development (including proposed borrow pit to the south). It is stated in the EIAR and in the applicant's response to submissions that the feature is considered to relate to Rosmead House and Estate rather than a ringfort earthwork and that the borrow pit does not extend into the Zone of Protection (undefined) around the ringfort. Further, should the feature predate the estate, it is argued that any remains would be severely impacted by the landscaping works (associated with the demesne lands). Whilst I would accept that it is possible for the earthwork to be

associated with the demesne lands, aerial photography clearly indicates a circular pattern at the location of the feature. Taking a cautious approach, again pre-development testing should be carried out for the footprint of the proposed development in proximity to the ringfort and an appropriate protection zone defined.

12.364. ME023-010, is a ringfort to the west of the proposed substation. The applicant's geophysical survey has identified features associated with the ringfort and has relocated the access road to the sub-station site away from these. Nonetheless, the development will result in the truncation or complete removal of some archaeological features that may be associated with the ringfort (including ditches, pits and spreads). The EIAR does not predict any significant effects on cultural heritage, and having regard to the criteria for significance (Table 12-5) I would infer a Moderate direct effect, based on an asset of Medium significance and impact of Medium Adverse effect (effects on setting are considered in the Landscape section of this report). The EIAR proposes strip, map and sampling to further understand any potential archaeological features which may be associated with the ringfort, with this carried out by licenced archaeologist working under licence from the Department of Housing, Local Government and Heritage. This approach is not unreasonable given the geophysical survey carried out and the potential for effects on possible features and can be controlled by condition. I note that the PA indicate that the strip, map and sampling may be excessive, however, the more conservative approach proposed by the applicant is preferable, as stated given the potential for effects on archaeological features.

Use for lands within red line boundary.

12.365. As stated previously in this report, the applicant has not indicated the treatment of lands falling outside the footprint of the development, or the way these will be safeguarded. Given the proximity of the development to features or cultural heritage interest (as discussed here), delineation of the proposed footprint of the development and protection of areas outside of this should be addressed in advance of commencement. This matter can be addressed by condition.

Impact of the development on cultural heritage assets

Vernacular bridge (NIAH 15400917/Snipe's Bridge),

12.366. In response to submission, the applicant states that there are no direct effects on the bridge and that indirect effects have been excluded in scoping due to absence any effects on ability to understand, appreciate and experience the setting of the bridge (contextual relationship with river and surrounding agricultural field system).

12.367. This bridge lies to the west of the access to the northern cluster on the L5524. The proposed development does not directly affect the bridge, and vehicular access will be via a managed approach, with traffic (including HGVs) to approach from the N52. There is no potential therefore for direct or indirect effects on the bridge from the development or traffic arising from it. The landscape and visual effects of the development on the setting of the structure are considered in the Landscape section of this report.

Archaeological potential of wetland bogs

12.368. Meath County Council recommend that the archaeological potential for the wetland bogs on the site is considered. This matter has not been considered in the EIAR. However, as stated earlier should the Board decide to grant permission, appropriate pre-development testing can be required within the footprint of the development, subject to the agreement of the PA, with palaeo-environment research, where relevant.

Rosmead House and landscaped gardens

12.369. The proposed development site is situated in the landscape gardens associated with Rosmead House. There is limited review in the EIAR of the architecture and landscape of Rosmead House and demesne lands. However, the proposed development is removed from Rosmead House and will have no direct effects on it. Similarly, proposed turbines and infrastructure are removed from buildings mapped within the demesne lands (and observed onsite inspection), shown on the site existing site layout plans e.g. to the east of T1 (drawing PL03-1). Effects on unknown archaeology, should they arise, can be addressed by condition requiring pre-development testing, subject to the agreement of the planning authority and in consultation with the National Monuments Service. Indirect landscape and visual effects are considered in the Landscape section of this report.

Clonmellon

12.370. The cable to connect the proposed development to the proposed substation west of Clonmellon (an 18th century planned estate town), is routed through the existing public road network. This is likely to comprise man-made surfaces, made up or disturbed ground. The risk of adverse effects on archaeology, in this context, are unlikely. However, should the Board grant permission, pre-development testing could extend to the cable route through Clonmellon town.

Other features of cultural heritage interest

12.371. There are no direct effects on these features of cultural heritage interest. Indirect effects that arise by virtue of landscape and visual effects (i.e. effects on setting) are considered in the Landscape section of this report.

Cumulative effects

12.372. The proposed development has a relatively modest footprint and has been designed to largely avoid direct effects on cultural heritage features occurring within or adjoining the development site. Whilst some effects may arise for features in proximity to the footprint of construction works, with the implementation of proposed mitigation measures, effects are unlikely to be significant. With the absence of significant effects, there is little potential for significant direct cumulative effects on subsurface or above ground features with other development in the local area or wider area of the site (including solar farms and other wind farm development). Impacts on setting are considered in the Landscape section of this report.

12.373. **Conclusion: Direct and Indirect Effects**

12.374. Having regard to my assessment of the proposed development on cultural heritage, it is considered that subject to the implementation of mitigation measures, there is no potential for significant adverse direct effects features of cultural heritage interest. Indirect and cumulative effects on cultural heritage features, because of changes to setting, are considered in the Landscape section of this report.

12.375. **Landscape**

12.376. **Issues Raised**

12.377. Issues raised in submissions by the planning authorities, prescribed bodies and third parties relate to impact on residential amenity by virtue of separation

distances, landscape and visual effects on the amenity of the local area, visual impact on Clonmellon (including from interface masts), cumulative landscape and visual effects on the wider region (including underrepresent significance, and from VP4), effects on cultural heritage and tourism assets (including Ireland's Hidden Heartlands and Ireland's Ancient East strategies), and the risk of future development/ intensification.

12.378. **Examination of the EIAR**

Context

12.379. Chapter 10 of the EIAR deals with landscape and visual effects of the development i.e. how the proposed development may alter the character of the landscape and its effects on specific views and the general visual amenity enjoyed by people. Associated photomontages are included in Volume 4 (for turbines with a height of 180m). Appendix 10.1 provides an assessment of visual receptor sensitivity at the different viewpoints (VP) used in the assessment. The assessment is undertaken in accordance with government and industry best practice guidelines (section 10.11) and the assessment methodology includes desktop survey and field work. Proposed blade tips are >100m, and in accordance with the WEDG 2006 and 2019 (draft), the zone of theoretical visibility extends to 20km. A central study area comprises the area within 5km of the site. The significance of landscape and visual impacts is based on sensitivity of receptor and magnitude of effect (Table 10-3). Descriptors for magnitude of cumulative effects are shown in Table 10-5.

Baseline

Landscape

12.380. The landscape of the proposed development site (central study area) is described as typified by frequent rolling terrain at c.90m AOD. Elevation change is not dramatic but smaller scale and frequent transitions result in contrasting levels of exposure and enclosure. The character of the wider study area is rolling hills with progressively increasing elevation to the northwest. Slieve Na Calliagh (in the location of Loughcrew Cairns, east of Athboy, rises to a maximum elevation of c.110m AOD and is a prominent landform in the flat surrounds. Two low hills occur west and northwest of Raharney (c.12km southwest of the site). The River Deel and River Boyne fall within the wider landscape context for the site, as do lakes in the

western part of the wider study area including Lough Bane, Lough Lene, and Lough Derravaragh.

12.381. The immediate surroundings of the site comprise small hills overlaid with small fields and networks of hedgerows. To the south of the wind farm site is Rosmead House and the associated Gateway 'Smiling Bess'. Open fields with specimen trees retain some of the features of the historic parkland character. A quarry is situated between the southern and northern clusters. There are large patches of woodland/forestry of the central study area within the northernmost portion and southern site area. The wider study area comprises predominantly pastoral farmland. Girley Bog is situated within the northeast quadrant of the study area (c.5km to the north east of Clonmellon) and several large-scale bogs are situated within the southern half of the study area. There are a number of commercial conifer plantations and demesne landscapes in the study area, with Ballinlough Castle the closest to the development site (c.2km to the east of the southern cluster). Settlements in the study area are Delvin to the south and Clonmellon to the north. Scattered towns and villages lie in the broader study area with Kells, the largest settlement, c.13.5km to the NE, Athboy c.8.85km SE and Trim c.19.2km SE. Key transport routes are the N52, to the east of the site, the N3 to the north of the study area, a short section of the N51 to the west and the N4 to the south of the study area. The Royal Canal also runs through the study area.

Landscape Character

12.382. The proposed development is generally situated in a 'Hilly and Flat Farmland', with sections of 'Flat peatland' (WEDG, 2006) in the central study area. The development site lies within LCA 3 of the Westmeath CDP 'River Deel Lowlands' described as '*The River Deel, the Stonyford River and their hinterlands form this landscape character area typified by low-lying pasture punctuated with small lakes which are flanked by scrub and wet woodland. These rivers form part of the River Boyne and River Blackwater SAC complex. The area east of Delvin and running south along the Meath Border is characterised by cutover, cutaway bogs and small tracts of intact bog… This part of the county has a strong historic landscape component with several demesne landscapes occurring within the area'*. Other landscape character areas within the study area include Northern Hills and Lakes

(LCA 01), Central Hills and Lakes (LCA 4), Royal Canal Corridor (LCA 5) and Lough Ennell and South Eastern Corridor (LCA 10), Figure 10-1.

12.383. LCAs 1, 4 and 5 are noted for their 'high scenic quality'. Three High Amenity Areas lie within the outer northwestern quadrant of the study area, Lough Lene, Lough Derravaragh and Lough Owel. The development site is situated in an area identified as 'Low capacity' for wind energy development in the CDP Wind Energy Policy. In this respect the EIAR refers to comments made in the Planning Statement and the changes made to the development plan after receipt of the Ministerial Direction and subsequent removal of CPO 10.143. In Figure 10-2 designated views and prospects are indicated, with these largely removed from the development site.

12.384. The proposed substation and cable route, located in County Meath, fall within LCA 17 – South West Kells Lowlands, with 'Moderate' landscape value and 'Moderate' sensitivity. This is described as '*A large rural area characterised by rolling lowland farmland with remnants of parkland landscapes… The southern part of this LCA is similar to the western part with areas of parkland but more coniferous woodland.'* The Wind Energy strategy indicates low potential to accommodate wind farms or single wind turbines because of views, with the LCA and from the Loughcrew Hills LCA, are likely to be highly prominent.

Visual

12.385. The zone of theoretical visibility (ZTV) is indicated in Figure 10-3 based on terrain data and no features which may screen views. It indicates theoretical visibility extending across the lowland landscape to the south and east. Higher ground to the north and northeast limits visibility from the west. Waterbodies in the western area feature low to no potential visibility. Sporadic visibility of the development is possible from the northeast and south west. The River Blackwater corridor features partial but generally low visibility. To the south, the waterways and Royal Canal feature full visibility over much of the sections within the study area.

12.386. Designated scenic views and routes indicated on touring maps etc. are shown in Table 10-7. Views towards the development site are highlighted and cross-referenced to Viewshed Reference Points, if applicable. These include from Slieve na Calliagh, Lough Bane, Tower of Lloyd (Kells), Hill of Ward, Royal Canal and River Boyne.

12.387. Identified tourism, amenity and heritage features include:

- Loughcrew complex, a megalithic cemetery with passage tombs and associated walking routes, c.10km to the NW of the development site.
- Boyne Valley Drive, which connects important heritage features in the northern and eastern part of the study area including Loughcrew complex, Tower of Lloyd (Kells), Hill of Ward (outskirts of Athboy), and Trim Castle.
- Historical residences, estates and gardens across the study area including 'Smiling Bess' the gateway off the N52 to Rosmead House, Ballinlough Castle (music festival venue), Killua Castle, Clonyn Castle (Delvin), Delvin Castle, Trim castle, Loughcrew estate, Headford/Headford Estate (Kells), Tullynally Castle (Castlepollard), Drewstown House, Clonabreany House and Triermore House.
- Other historic features in the wider area include a cluster around Fore Abbey (with St. Feichin's Abbey, Anchorites Cell and Mullaghmeen Hill, 12km to the NW), Moylagh Castle and Motte (NW of the study area).
- Landscape/amenity features in the study area, with varied degrees of access and facilities, include Lough Lene/Sheever (c.9.2km NW), Lough Derravargh (c.15.2k W), Lough Bane (c.7.65km NW), Lough Ramor (c.15.3km NW), Girley Bog walking trails (c.7km NW).
- Waymarked trails and walking routes located in the wider are include the Royal Canal Way (144km national waymarked trail), the Royal Canal Greenway (following the corridor of the Royal Canal), Tain Trail and the Fore Trail.

12.388. Viewshed reference points (VRPs) are selected to provide a variety of views of the proposed development from different distances, different angles and different contexts e.g. key views, designated scenic routes and views, local community views, centres of population, major routes and tourism, recreational and heritage features. VRPs are shown in Figure 10-4 and Table 10-8. Two wind farms are considered for cumulative impact assessment, the permitted Bracklyn Wind Farm (9 no. turbines, 185m tip height, 5km SW of site) and Ballivor Wind Farm (26 no. turbines, 200m tip, 4.8km S of the site).

Potential Effects

12.389. Potential landscape and visual effects of the development, as identified in the EIAR, are summarised in Table L1 below. The Board should note that landscape and visual effects which are predicted to be Substantial or Profound, are Significant effects (see Table 10-3 which also applies in text of EIAR to visual effects). No significant effects are identified.

Table L1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Receiving landscape would stay in the same or similar condition. Cycle of forestry would continue.
Construction	**Landscape:** • Wind farm - Development will have a small footprint, current landcover is generally modified and topography will remain largely unaltered. Short term intensity of construction activity. o Site (0-1km) – Medium-Low landscape sensitivity, High – Medium landscape impact. Significance of landscape impact *Moderate/Negative/Short term*. o Central study area (1-5km) – Medium-Low landscape sensitivity, Medium landscape impact. Significance of landscape impact *Moderate/Negative/Short term*. o Wider study area (5-10km) – Medium landscape sensitivity, Low landscape impact. Significance of landscape impact *Slight/Negative/Short term*. o Wider study area (10-20km) – East: High, West: Medium landscape sensitivity, Low-negligible landscape impact. Significance of landscape impact *Slight-Imperceptible/Negative/Short term*. • Sub-station - Substation site is located to the west of Clonmellon, eastern side of the substation site is highly enclosed. Substation site and immediate surrounds have a Medium-low sensitivity and value. Magnitude of landscape impacts will be similar to wind farm but smaller in extent and more intensive within the substation site. Partially enclosed nature of site will provide some screening, with short term Medium magnitude of landscape impact. Resultant significance of landscape impact is *Medium to slight landscape effects*.
Operation	**Landscape:** • Wind farm: - Change in character of the immediate area by introduction of tall structures. Mitigated by rolling landform, location of turbines in varied and often wooded/forested landforms. High-medium operational stage effects on immediate surrounds, rapidly reducing to medium and low with distance (Table 10-16). o Site (0-1km) – Low landscape sensitivity, High – Medium landscape impact. Significance of impact *Moderate-slight/Negative/Long term*. o Central study area (1-5km) – Medium-Low landscape sensitivity, Medium landscape impact. Significance of landscape impact *Moderate-slight/Negative/Long term*.

	○ Wider study area (5-10km) – Medium landscape sensitivity, Low landscape impact. Significance of landscape impact *Slight/Negative/Long term*. ○ Wider study area (10-20km) – East: High, West: Medium landscape sensitivity, Low landscape impact. Significance of landscape impact *Slight-Imperceptible/Negative/Long term*. • Sub-station - Substation and compound will be clearly presented as electricity infrastructure, legibly located on the periphery of an existing settlement. ○ With the establishment of landscaping, *Moderate-slight magnitude* of landscape impact, in the area of the site, will reduce. **Visual:** • Visual impact significance. Selected viewpoints are analysed in terms of receptor sensitivity (Appendix 10-1) and likely magnitude of visual effect (by reference to photomontages Volume 4, EIAR) to give an overall assessment of visual impact significance (Table 10-18). Predicted effects are summarised below: ○ Imperceptible/neutral/long term – VP4, VP26, VP33, VP34. ○ Slight-imperceptible/negative-neutral/Long-term – VP11, VP30, VP31, VP35, SB VP2, SB VP 4. ○ Slight/negative/long term – VP3, VP5, VP6, VP7, VP9, VP16, VP17, VP20, VP27, VP28, VP32, SB VP1. ○ Moderate-slight/negative/long-term – VP1, VP2, VP8, VP10, VP12, VP15, VP21, VP22, VP29, SB VP3. ○ Moderate/negative/long-term – VP13, VP14, VP18, VP24, VP25. ○ Substantial-moderate/negative/long-term – VP19, VP23. • Visual impact receptors include the following (with many views representing multiple receptors): ○ Key views – Loughcrew Cairns (VP1), Tower of Lloyd (VP2) and Castle street, Trim (VP32). ○ Amenity and heritage receptors – Fore Abbey (VP5), Hill of Ward VP27), Royal Canal (VP34 and VP 35), Delvin Castle (VP29), Rosmead House and Smiling Bess gateway (VP23 and VP25), Ballinlough Castle (VP16-18, VP22), N52/historic residences (VP4, VP10), Delvin/R395 (VP28). ○ Scenic designations – Representing all scenic designations across different counties VP1, VP2, VP3, VP5, VP6, VP30, VP32, VP35. ○ Major routes – VP4, VP9, VP10, VP11, VP16, VP20, VP24, VP25, VP26, VP28, VP29, VP33 and VP35. ○ Centres of population – Athboy (VP26), Delvin (VP29), Clonmellon (VP 9). ○ Local community views – VP7-VP10, VP12-VP27, VP31. • Substation, represented by SB VP1 to SP VP 4 (Book 3, Appendix 4).
Decommissioning	**Landscape:** • Wind farm - Development represents a long term but not permanent impact on landscape. Is reversible and will be dismantled after 35 years. Temporary effects during decommissioning like construction. Areas of hardstanding will be reinstated and reseeded. Landscape impact is greatest within the site and its immediate environs (c.1km), reducing for the

	remainder of the central study area and beyond, with significance of landscape impact as for construction (see above and Table 10-16). • Sub-station – will not be decommissioned.
Cumulative	• Given the absence of tall structures in the area it is assessed that there is no potential for in combination effects with other types of development. • Cumulative effects are assessed for the permitted Bracklyn Wind Farm (c.5km south, 9 no. turbines, 185m tip height) and the (then) proposed Ballivor Wind Farm (4.8km south, 26no. turbines, 200m tip height), shown in Figure 10-5 (cumulative zone of theoretical visibility). • Cumulative effects with permitted baseline (Bracklyn) – Potential for in combination and sequential views (Table 10-9). In-combination effects most likely from elevated parts of landscape to the north of the site (VP1, VP2 and VP3) but wind farms will be seen as distinct developments from VP1 and VP2 and with distance at VP3 (wind farms are not aligned). The proposed development will be seen in sequential views with Bracklyn from linear receptors, N51, N52, R156 and potentially from the Royal Canal. Vegetation along roads/canal likely to limit potential visibility. Overall additional cumulative effect is Medium to Low. • Cumulative effects with (then) potential baseline (Bracklyn + Ballivor) – If permitted Ballivor, which is more significant in scale, has the potential to contribute in considerable manner to cumulative scenario. From VP 1 and VP 2, developments will appear more consolidated and has the potential to notably increase the scale and extent of wind farm development within the view, rendering it a more characteristic feature of the land use matrix. Whilst highly sensitive receptors, turbines are at distance. Cumulative impacts not predicted to be significant. Sequential effects will increase to the west and south of the study area, but scale and direction will not change as Ballivor and Bracklyn are near each other. Overall cumulative effect is Medium.

12.390. **Mitigation**

12.391. No additional mitigation measures are proposed, over and above the embedded mitigation measures that have formed part of the iterative design of the development.

12.392. **Residual Effects**

12.393. It is considered that there will be no significant effects from the proposed development.

12.394. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.395. I have examined, analysed and evaluated Chapter 10 of the EIAR, the photomontages, appendix to the chapter, the submissions on file in respect of landscape and visual issues and I have inspected the proposed development site and the wider area in which it is situated. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and generally that the

key impacts on landscape character and visual amenity have been identified and assessed. Parties to the appeal raise the following issues, which I consider below.

Impact on residential amenity by virtue of separation distances

12.396. The layout of the development provides that turbines will be situated >720m from non-involved landowners. Further, the landscape in which the turbines are situated is locally undulating, and includes substantial vegetation, along roadsides and separating fields, and containing pockets of woodland. I am satisfied therefore that whilst the turbines will be visible, and prominent when viewed from residential properties within the immediate area of the site (which have clear views of it), turbines will not be overbearing on any individual dwelling.

Landscape and visual effects on the amenity of the local area

12.397. During construction of the proposed development, local landscape and visual effects will arise with the loss of landscape features (e.g. woodland), introduction of machinery, construction activity and traffic. These will be substantial for the duration of the development and will be present in the immediate area of the site (<1km). Effects will reduce with distance by virtue of screening provided by topography, vegetation, orientation of public roads etc.

12.398. During operation the introduction of the proposed tall turbines to the local area (<5km), where there are currently no turbines, would introduce uncharacteristic elements to the landscape, contributing to a substantial change of the landscape character, with High to Medium magnitude of effects (Table 10-2). The EIAR describes the landscape of the application site as having Low landscape sensitivity. The definition of low sensitivity is set out in Table 10-1 of the EIAR. It includes reference to 'lower value, non-designated landscapes'. However, the development site falls within a designated landscape (River Deel Lowlands). Further, the description of landscape character refers to '*this part of the county has a strong historic landscape component with several demesne landscapes occurring within the area*' and the development site is partially situated in a demesne landscape associated with Rosmead House. I would consider therefore that the landscape value and sensitivity would be more similar to the description of Medium sensitivity (Table 10-1) i.e. *where the landscape character exhibits some capacity and scope for development, examples of which are landscapes which have a designation of*

protection at a county level or at non-designated local level where there is evidence of local value and use. This would raise the significance of effect to Substantial-Moderate, which would be more reasonable, as the landscape character of the immediate area of the site, 0-1km, will change significantly.

12.399. As stated by the applicant and having regard to my inspection of the site and wider area, given the typically 'enclosed' nature of the landscape because of topography, roadside vegetation, intervening vegetation, woodland, the effect on landscape character reduces, primarily due to lack of visibility. However, from higher elevations, removed from the site impact on landscape character returns, for example, with the turbines introduced to the flat and largely agrarian landscape (e.g. VP1, VP2 and VP27). I would disagree with the EIAR conclusions in respect of slight/negative/long term landscape effects in the wider area (i.e. at elevated distance) as the proposed development would introduce a introduce new and uncharacteristic elements to the landscape that would lead to changes in landscape character and quality, with a consequential Medium or High impact of magnitude, Table 10-2. Resultant landscape impact would be Substantial in Table 10-3, with significant impact.

12.400. Regarding visual effects, again these are greatest in proximity to the site, <1km, notably from the N52 (VP19, 24 and 25) and from the local roads to the west and north of the site (VP 8, 13 and 14), where the applicant identifies substantial to moderate negative long-term effects[8]. Visual effects reduce in the middle distance and arise again in elevated views from Lough Crew (VP 1), the Tower of Lloyd (Kells, VP2) and Hill of Ward (VP27). In assessing the significance of visual effects, the EIAR considers that the magnitude of visual impact for these viewpoints ranges from negligible to low. However, the visual consequence of the development in my view is underestimated. For example, the EIAR considers a 'low' magnitude of visual impact to occur where '*The proposal intrudes to a minor extent into the available vista and may not be noticed by a casual observer and/or the proposal would not have a marked effect on the visual amenity of the scene.'* In contrast, I consider the visual impact to be more closely aligned with the description of 'high' magnitude, where '*The proposal obstructs or intrudes into a significant proportion or*

[8] Visual impact at VP 8 is Moderate to slight long-term negative.

important part of the available vista and is one of the most noticeable elements. A considerable degree of visual change will occur within the scene substantially altering its character, composition and associated visual amenity'. Clearly from the elevation locations referred to the turbines become one of the most noticeable elements of the available vista.

12.401. Notwithstanding the foregoing, the evidence presented in the EIAR with regard to the public perceptions of wind farms, including perceptions by tourists, is not always negative (see section 4.178-4.192 of the EIAR). Therefore, whilst I conclude that the proposed development is likely to have a significant visual and landscape effect in the immediate area of the site, and at elevated distance, wind turbines are not always perceived negatively in the landscape and I do not consider that landscape or visual effects, which clearly occur, are sufficient reason to refuse permission for the development.

Visual impact on Clonmellon (including from interface masts)

12.402. Clonmellon lies east of the proposed substation site and is removed from the existing edge of the town by c.200m (red line boundary). The agricultural field in which it is situated is bound by a hedgerow and trees and the existing 110kV power line crossing to the rear of the site, is difficult to discern from the public roads to the south and north of the site (L5542 and L6821) and is not visible from Clonmellon town.

12.403. The proposed substation is positioned c.60m back from the public road. Structures on site are typically c.8m in height. The substation will be connected to the 110kV OHL to the rear of the site, by underground connection and new interface masts. I note that in drawing no. ABP-31427-22-MWP-011, overall height of the interface masts is not shown. However, height of the masts will be governed by the need to tie into the existing line. Photomontages (Book 3) illustrates this point, with the towers slightly larger than the existing wooden pole sets.

12.404. Existing hedgerows which bound the site will be retained and additional planting is proposed between the substation compound and public road (Drawing PL29 Substation Landscape Plan. This includes vegetated screening bunds behind the existing hedgerow adjoining the public road, which will be retained. Whilst taller

structures on the site may be visible over the proposed landscaped bunds, visibility from the L5542 will be significantly diminished.

12.405. Similarly, by virtue of the scale and form of the development, in particular the lattice form of the proposed end masts, its distance from the L6821 and Clonmellon village (public road running north from village), and intervening vegetation, landscape or visual effects of the substation and interface masts will not be significant. Detailed design of masts can be controlled by condition.

12.406. Impact of the wind farm on Clonmellon town will not be substantial as visual effects are screened by a mix of buildings within the town and mature trees/hedgerows between the development site and the town (see SB VP 1 to 4, Book 3).

12.407. **Landscape and visual effects on the wider region, cultural heritage and tourism**

12.408. In response to submissions, the applicant states that change within a cultural heritage asset's setting does not mean harm unless the aspect of setting contributes to how the asset is understood, experienced and/or appreciated. Within this context, comments are made on the individual assets (considered below).

12.409. As stated above, having regard to the information on file, as presented in the photomontages and landscape and visual impact assessment and inspection of the site and wider area, I am satisfied that the subject development will be most visible in the immediate area of the site (c.1km). Thereafter, as a consequence primarily of topography, vegetation and to a lesser extent development, the turbines will not be highly visible in medium range views, but at distance and from elevated views in particular, they will be clearly visible, changing landscape character and with visual effects on receptors (e.g. people working and living in the area, tourists, scenic views/routes etc.). Effects on specific cultural heritage, archaeological heritage sites and tourism assets in the wider area of the site are considered below.

<u>Rosmead House, 'Smiling Bess' gates, WM009-004 (Newtown castle), WM009-018.</u>

12.410. In response to submission, the applicant the applicant refers to the cultural heritage assessment in the EIAR of long term, slight, reversible effects due to the intrusion of turbine within views and features on the privately owned Rosmead

House, during operation and the absence, therefore of significant visual impacts or significant effects on tourism.

12.411. The proposed development is situated partially within the designed gardens associated with Rosmead House, with turbine T8 situated to the east of Rosmead House and northeast of Smiling Bess gates. Rosmead House is in a ruinous stated and many of the features associated with the landscape gardens have been removed or eroded, for example with the loss of landscaped avenues addition of plantations. The introduction of substantial structures into the development site and the associated network of tracks, will significantly alter the setting of the remaining features of the demesne, Rosmead House and Smiling Bess gates, as well as the setting of WM009-004 and WM009-018. The applicant considers that effects will be slight. However, as stated previously, I consider that the landscape and visual effects on cultural heritage and tourism assets in the immediate area of the site have been underestimated, as evidenced by VP23 and 25. Whilst these effects will be mitigated in part by the derelict condition of the House and loss/erosion of original features of the planned garden, I consider that significant local landscape and visual effects will arise.

ME023-010

12.412. The proposed substation is situated alongside this ringfort and inevitably, the open, agricultural setting of the monument will change. Notwithstanding this, the substation will be offset from the monument by c.120m and will be separated from it by a proposed block of woodland planting (PL.29 Substation Landscape Plan). I am satisfied therefore that, whilst the context for the monument will change, the substation will not visually encroach onto it, when seen from the public road and that the arrangements for landscaping will provide an appropriate level of mitigation.

Vernacular bridge (NIAH 15400917/Snipe's Bridge)

12.413. This bridge lies on the L5542 to the west of the entrance to the northern cluster. Turbines are removed from the setting of the bridge and no significant landscape or visual impacts are likely to arise.

Clonyn Castle (Delvin), Delvin Castle and Delvin

12.414. The village of Delvin is c. 2.5km to the south of the development site. Turbines will be visible from the village, travelling north and will change character of

the landscape and views from the town. This point is illustrated in VPs 28 and 29, with the turbines appearing somewhat cluttered in the view from Main Street, at Delvin Castle, with existing overhead lines in the village (VP29). Notwithstanding this, views are at reasonable distance, will be intermittent and will not be overbearing or significant on Delvin Castle or town. Clonyn castle lies to the southwest of VP28 and is separated from the VP by landscape grounds and mature trees. Given this local context and distance from the wind farm site, no significant effects on the landscape setting of the castle or views from it are likely.

Lough Crew Cairns complex, Slieve na Calliagh Hills, Tower of Lloyd and Hill of Ward.

12.415. In response to submissions the applicant states that:

- Lough Crew Cairns - The proposed development removed from Lough Crew Cairns does not contribute to the setting of the asset. The presence of any turbines within the view would be minor, almost indiscernible due to distance, and would not cause any impact on setting.
- Tower of Lloyd, Trim - The tower was constructed in the 18th century, to give better views of horse riding and hunting that would have taken place within the immediate vicinity of the tower (no longer present). The tower's historic context did not extend over 10km to the SW. Views available from the tower do not contribute to its cultural heritage significance. As the turbines would not be present in any views which comprise the asset's historic setting, no effects were predicted, and it was scoped out of further assessment. Impact of the development on the Tower was considered under VP2, with the magnitude of effect assessed as 'Low-Negligible' due to trees and other features in the foreground which interrupt the line of the horizon and the presence of more modern landscape features and visible structures.

12.416. As stated previously, I consider that the impact of the development at distance, from elevated viewpoints (including the above and the Hill of Ward), is underestimated with significant landscape character and visual effects arising, due to the introduction of substantial structures to the largely flat and agrarian landscape and prominent nature of turbines in views from these elevated locations.

Hill of Tara and Skryne Church

12.417. In response to submissions, the applicant states:

- Hill of Tara - The elevated site, >28km the SE, would have provided wide views and the ability to control and defend its position and surroundings. The landscape of the site does not extend to the proposed development site, which is >20km to the NW. ZTV extends to over 20km representing a worst-case visibility scenario. At 28km the wind turbines would not be discernible. Any views would not impact on the setting of the Hill of Tara.
- Skryne Church – The 17th Century Church, located over 31km SE on Skreen Hill, has a prominent position with views outward and visible from the surrounding landscape. Likely chosen as a landmark within the landscape. Views out from the Church do not contribute to its setting. Turbines unlikely to be visible due to distance and not likely to impede any views. Located outside the 20km ZTV.

12.418. The Hill of Tara is an elevated historic site in County Meath at distance from the development site. It is a site which has been used for more than 5000 years as a place of burial and assembly. From the site there are extensive views including towards Loughcrew Cairns. Skryne Church lies to the east of the Hill of Tara and east of the M4. It is also situated on other elevated grounds and provides views of the Hill of Tara and beyond. Both the Hill of Tara and Skryne Church form part of the of the Boyne Valley landscape and the Boyne valley driving route. Further, the Tara complex is identified in the Meath CDP as a site included in the World Heritage Tentative List (an inventory of those cultural and heritages sites which a country intends to consider for nomination to the World Heritage List), as part of an assemblage of Royal and Monastic Sites.

12.419. UNESCO advice on 'Impacts of Wind Projects and their Assessment', states that the main objective of the impact assessment process is to avoid any irreversible impact on the Outstanding Universal Value (OUV) of concerned World Heritage properties, which are considered unique and irreplaceable.

12.420. The development is well beyond the Zone of Theoretical Visibility of 20km for blade tips >100m set out in the WEDG 2006, and beyond the 25km where landscapes of national or international renown are located. Turbines associated with the development, from the Tara complex, will be of very limited (if any) visibility and

will not therefore detract from the locational context or uniqueness of the site. I do not consider, therefore that the impact of the development on the site requires further attention or review by a World Heritage specialist.

Lough Crew Cairns House and Gardens

12.421. This property, a 17th century property, which functions as a hotel and gardens, is situated to the southwest of Lough Crew Cairns, on lower lying land, with no visibility of the proposed development.

Brú na Bóinne, Hill of Uisneach, and Frewin Hill

12.422. Brú na Bóinne is situated >35km to the northeast of the development site, east of Navan Town and Slane. The Hill of Uisneach is an elevated site is (182m AOD), situated c.>30km southwest of Mullingar. Frewin is an elevated site (171m AOD), situated to the west of Lough Owel, and c.30km to the southwest of the development site. At these distances and/or elevations, neither the landscape setting of the sites, or views from them, are likely to be significantly affected by the development.

Trim

12.423. Trim is situated c.20km to the southwest of the wind farm site. At this distance, and with the low elevation of the town and intervening topography and landscape features, significant visual and landscape effects are not likely to arise.

Killua Castle

12.424. Killua Castle is c.3km to the east of the northern cluster, south east of Clonmellon. The Castle is separated from the development site by a rise in the topography, west of the Castle, and beyond this by intervening vegetation. Any visual effects will be distant and not likely to significantly influence the setting of the castle or be overbearing (e.g. not dissimilar to VPs 10 and 11). Visual impact is therefore not likely to be significant.

Ballinlough Castle

12.425. In response to submission, the applicant refers to the cultural heritage assessment in the EIAR of long term, slight, reversible effects due to the intrusion of turbine within views and features on the privately owned Castle, during operation.

12.426. Ballinlough Castle lies c.1km east of the southern cluster. The grounds and perimeter of the Castle is quite heavily wooded. However, views of the turbines will be possible from the drive and grounds and will detract, to some extent, from its context. However, turbines are at distance, separated by substantial vegetation and impact will not be overbearing or significantly detract from the amenity of the Castle.

Lough Lene

12.427. In response to submissions, the applicant states that states that Scenic view no. 30 (Westmeath CDP), from the parking and picnic area, is away from the development site.

12.428. Lough Lene is c.10km to the west of the wind farm site. As stated, the scenic view is orientated away from the Lough. Further, the Lough is low lying, and it is separated from the wind farm site by rising topography, to the northeast of Collinstown. Significant visual effects on the Lough are therefore not likely.

Fore Abbey

12.429. In response to submissions, the applicant refers to the assessment of effects on the Abbey in the EIAR, which concluded that there would be no significant impacts on the Abbey, or therefore significant tourism impacts.

12.430. Fore Abbey comprises the remains of a church, built c.AD 900 and previously home to a community of monks. The site includes seven features, including a monastery, mill and lintel stone. The site has a looped walk around it, providing access to these features. The abbey is situated north of Lough Lene, in a valley between Windtown and Ben Knockcurreen. The approach from the north on the minor road from the R195 is attractive, with the Abbey's dramatic backdrop comprising the steeply rising topography. The proposed development is c.11km from the site of the Abbey and turbines will be visible, but at distance and within the context of trees which are present in views from the local road to the north of the Abbey (VP5). Further south, at St. Feichin's Church, Fore, views from the public road open up (i.e. less vegetation to screen view towards the development site). However, at this location, whilst the public road is less elevated, views of turbines are more likely, but again at distance, and removed from the context of the Abbey. On balance, I do not consider that the development will therefore be overly dominant in views of the Abbey or detract significantly from these.

Tourism.

12.431. In response to the submission by Failte Ireland, the applicant refers to paragraph 4.186 to 4.189 of the EIAR which refers to research in respect of wind farms and tourism trends and its conclusions, that there is no correlation between wind farm development and performance in the tourism sector. It is also stated that the EIAR acknowledges that the Boyne Valley is a main tourism hub along with other heritage sites such as the Hill of Tara, Trim Castle, Athlone Castle Visitor Centre, Belvedere House, Gardens and Park, the Luan Gallery, the Hill of Uisneach, Tullynally Castle Gardens, Kilbeggan Distillery and Fore Abbey. All are at a significant distance from the proposed development and beyond the ZTV of 20km.

12.432. As stated previously, I am mindful of the conclusions of research carried out regarding the effect of wind farms on tourism trends, and on public perceptions of wind farms. This includes findings by SEAI that the majority of people have a positive attitude towards wind farms (Irish national survey of households near new commercial wind and solar farms, May 2023) and findings by Failte Ireland in 2018 (Visitor Attitudes on the Environment – Wind Farms), that most visitors to Ireland are broadly positive towards wind farms. I am also mindful of the conclusions to the 2018 report which, having regard to details of the survey (and where attitudes, or situations in which attitudes were more negative), state '*The challenge lies in striking a balance between the maintenance of landscape character and scenery as a tourism asset, and facilitating the development of further wind farms to ensure Ireland meets with GHG reduction targets*'.

12.433. The proposed development site lies within Failte Ireland's Hidden Heartlands and Ancient East strategies. The Hidden Heartlands strategy is focused on getting active with nature and off the beaten track, with a network of waterways and walking trails. It includes the counties of Leitrim, Roscommon, Longford, Tipperary, Offaly and Westmeath. In Westmeath, visitor attractions include Fore Abbey and Hill of Uisneach, considered above. Ireland's Ancient East extends from Monaghan to the southeast of the country and includes County Meath. Visitor attractions include the Boyne Valley and its associated attractions, including the Hill of Tara, Trim, Loughcrew cairns and historic gardens, Kells, Hill of Ward etc.

12.434. The effect of the proposed development on the local and wider area has been considered above, together with effects on specific sites of cultural heritage interest and tourism assets. In their submissions Failte Ireland argue that the visual effects of the development and effects on landscape character have been underrated e.g. with the Magnitude of Impact on Rosmead demesne and Smiling Bess gates (VP25) better described as High or Very High, rather than High-Medium used in the assessment. As indicated previously I would accept this point, and I consider that the development will have a significant impact on the landscape character of the immediate environment of the site. In the wider area, impacts on landscape character and visual effects are not significant, as the development will not be widely visible as a consequence of the topography, intervening vegetation, and rural development, including for the setting of the majority of cultural heritage and tourism assets considered above. At distance (up to c.15km), including from elevated viewpoints which have cultural heritage significance, and which are tourism assets, including Lough Crew Cairns, Tower of Lloyd and Hill of Ward, effects will be significant. Beyond this, effects on landscape character and visual effects will not be significant, including from the Hill of Tara, Brú na Bóinne.

12.435. Parties to the application refer to The Heritage Councils 2013 Policy Research Paper, '*The Onshore Wind Farm Sector in Ireland, Planning in Harmony with Heritage*'. This sets out recommendations to support improved forward planning and development management in onshore wind development, to ensure that wind energy development is carried out in harmony with national heritage, with an emphasis on the requirement for national landscape policy and strategy. As a research paper, and having regard to the recommendation set, the paper is not directly relevant to consideration of the subject development.

12.436. As stated previously, despite the likely significant visual and landscape effects of the development, given the limited geographical location of effects and the prevailing attitude toward wind energy by the public and by tourists, and the potential for positive experiences that can be associated wind energy development, I do not consider that the significant visual and landscape effects are sufficient to warrant refusing permission.

Cumulative effects

12.437. In response to submissions the applicant refers to the assessment of cumulative effects in the EIAR and to the assessment of cumulative effects from VP4 and SB VP4 with negligible visual impacts. It is also stated that high levels of screening at VP4 mitigate effects. The applicant states that the subject development, with the permitted baseline, are most likely to be viewed together from elevated viewpoints, VP1, 2 and 3, with the two developments seen as two distinct developments. With the permitted and (then) proposed baseline (Bracklyn and Ballivor wind farms), it is stated that combined scale of the developments is indicated in VP1 and VP2 with an increase in lateral visibility. Overall, the impact is considered to be Medium (no significant effects) and is mitigated by the separation of the proposed development from the other wind farms and clustering with the permitted Bracklyn wind farm.

12.438. In principle I would accept that cumulative landscape and visual effects are most likely to arise at elevated viewpoints where the permitted Bracklyn and Ballivor wind farms would be seen together. These views are depicted by the applicant in VP1, VP2 and 27. Notwithstanding this, as stated previously, I consider that the proposed development will a significant impact on landscape character and views from these elevated locations. From these vantage points, Bracklyn and Ballivor wind farms are further removed that the subject development and will appear less visible/dominant. From the Hill of Ward and the Tower of Lloyd, the developments will occur in distinct clusters. From Lough Crew Cairns, the wind farms would be viewed together with substantial lateral spread. I consider therefore that significant cumulative effects will arise, as the permitted and proposed turbines would collectively comprise '*A considerable degree of visual change will occur within the scene substantially altering its character, composition and associated visual amenity'* (High visual impact), from a view which is has '*recognised scenic value'*, providing '*elevated panoramic views'* (High amenity value) (see Table 10-3). However, as stated previously, given the relatively few locations from which such effects would arise, public and tourist perception of wind farms as previously discussed, I do not consider that the significant effects will always be considered as adverse, nor sufficient reason to refuse permission.

12.439. From VP4, having regard to distance, topography and intervening landscape significant cumulative effects are not likely (see wire frame and photomontage, VP4).

12.440. In submissions, parties refer to the need to assess cumulative effects of the development with other forms of development, including solar farms. From the information on file, there is no substantial development planned in the immediate area of the site which is likely to give rise to cumulative landscape and visual effects (e.g. large agricultural developments, extensive solar farm etc.). Further, from more distant locations, additive effects are likely to arise from the prominent nature of the tall turbines. Cumulative effects with ground mounted solar farms would not be likely to give rise to significant visual or landscape effects, or therefore to warrant further assessment.

Future risk of future development/ intensification

12.441. Any future developments at the wind farm site will be subject to an application for permission and would be assessed on their merits at the time.

12.442. **Conclusion: Direct and Indirect Effects**

12.443. Having regard to my assessment of the proposed development on landscape and visual effects, it is considered that the proposed development will give rise to significant direct, indirect and cumulative landscape character and visual impact effects in the immediate area of the site and at distance when viewed from elevated locations. This includes indirect effects for the duration of the development on the setting of, and/or views from, certain cultural heritage assets in the immediate area of the site (Rosmead House, Smiling Bess Gates, remains of demesne landscape, WM009-004, WM009-018, ME023-101), and in the wider area, Loughcrew Cairns, Tower of Lloyd and Hill of Ward. Landscape and visual effects will be mitigated by a combination of topography, screening, distance etc. however, residual effects will remain. Notwithstanding this, having regard to the conclusions of research carried out in the State and elsewhere, which indicate a generally favourable approach towards wind farms and an absence of significant adverse effects on tourism, and the pressing need to roll out alternative energy sources, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

12.444. **Major Accidents and Natural Disasters**

12.445. **Issues Raised**

12.446. Issues raised in submissions are health and safety issues including lightning strikes, storm damage, anchorage etc. risk of fire, electrical hazards (e.g. electrocution, arc faults/arc flash), peat stability, flood risk.

12.447. **Examination of the EIAR**

Context

12.448. Chapter 15 of the EIAR describe the likely significant effects of the development on the environment arising from its vulnerability to risks of major accidents and/or disaster. The assessment is carried out having regard to national and EU guidelines on EIA and on risk assessment, including the EPAs site specific risk assessment contained in their document '*Guidance on Assessing and Costing Environmental Liabilities'*. The methodology for site specific risk assessment includes risk identification, risk classification (consequence) and risk evaluation (Tables 15-1 to 15-3). It is stated that stringent health and safety and climate resilient design features are inbuilt to the development, and its overall vulnerability to the risk of major accidents or disasters is low. The report refers to other chapters of the EIAR, where the potential for accidents has been assessed e.g. water pollution, flooding, peat stability and human health.

Baseline

12.449. Having regard to the nature of the development and the mild temperatures in the state, potential sources of accidents and natural disasters that may occur are limited to the following:

- Flooding – Part of the site is situated in the floodplain.
- Fire – Risk of fire on adjoining lands (e.g. forestry).
- Major accidents involving dangerous substances – Nearest Seveso sits is c.20km east, Tara Mines). Some potential for accidents from storage and/or use of fuels at the site.
- Catastrophic events – Risk to health and safety from wind turbine toppling/ wind turbine rotational failure (extreme weather) and fire. Turbines are set back from dwellings (>700m) and electricity wires (3x rotor diameter), comply with EU Machinery Directives, and sited to minimise risk of failure, toppling or landslide, generally peat areas avoided, and Peat Landslide Hazard and Risk Assessment carried out (low to negligible risk of slope instability in vicinity of

T1 and T3). Wind turbines can be shut down remotely in storm conditions and contain fire suppression systems.

- Landslides – Development site is in an area of low susceptibility (GSI).
- Health and Safety – All staff to be made aware of and adhere to appropriate health and safety guidelines. Emergency Response Plan to be implemented.
- Turbine Safety. No specific safety concerns for the operation of wind turbines in WEDG (e.g. no need for fencing). Remote possibility of injury from flying ice or damaged blades. Most turbines are made from composite materials and will have sensors for ice formation. Glass reinforced plastic material for turbines prevents an increase in lighting strikes and turbines will include grounding conduction cables.
- Electromagnetic Interference – Extremely low EMFs from underground electric cables comply with ICNERP guidelines and EU guidelines for human exposure.

Potential Effects

12.450. The EIAR identifies the potential for environmental effects arising from the risk of major accidents and natural disasters. These are summarised in Table MAND 1 below.

Table MAND 1: Summary of Potential Effects

Project Phase	**Potential Direct, Indirect and Cumulative Effects (likelihood x consequence = Risk score and significance**
Do Nothing	• Existing land uses likely to continue.
Construction	• Severe weather (unlikely x minor), Low significance. • Flooding (very unlikely x minor), Low significance. • Peat stability (unlikely x serious), ***Moderate significance***. • Traffic incident (unlikely x minor), Low significance. • Contamination (very unlikely x limited), Low significance. • Industrial accident (very unlikely x limited), Low significance.
Operation	• Severe weather (unlikely x limited), Low significance. • Flooding (very unlikely x limited), Low significance. • Peat stability (very unlikely x serious), Low significance. • Industrial accident – Fire/gas explosion (unlikely x limited), Low significance. • Contamination (very unlikely x limited), Low significance. • Collapse/ damage to structures (very unlikely x serious), Low significance. • Traffic incident (unlikely x minor), Low significance. • Loss of critical infrastructure (extremely unlikely x limited), Low significance.

Decommissioning	• Severe weather (unlikely x minor), Low significance. • Flooding (very unlikely x minor), Low significance. • Traffic incident (unlikely x minor), Low significance. • Contamination (very unlikely x limited), Low significance. • Loss of critical infrastructure (extremely unlikely x limited), Low significance.
Cumulative	• None predicted having regard to the distance of the development from cumulative projects and extensive EIA consultation process and assessment carried out for these.

12.451. **Mitigation**

12.452. Mitigation measures in respect of managing the risk of major accidents and natural disasters include designed in mitigation measures (e.g. siting of turbines to avoid areas of peat, provision of suitable foundations for T1 and T3), good construction practices, emergency response procedures and operational monitoring (e.g. automatic shutdown of turbines during high wind speeds) as set out in the relevant chapters of the EIAR.

12.453. **Residual Effects**

12.454. With the implementation of mitigation measures, no significant impacts on the environment are predicted as a result on risk of major accidents and/or disasters.

12.455. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.456. I have examined, analysed and evaluated Chapter 15 of the EIAR and the associated chapters and appendices of the EIAR. I am satisfied that the subject development does not give rise to the risk of significant environmental effects because of its vulnerability to major accidents and/or disaster. The development site is stable, with little potential for landslide or flood risk (see Water section of this report). Risk of lightning strikes is addressed in the EIAR and is low due to the glass reinforced plastic materials from which they will be constructed and inclusion of ground conduction cables. Turbines can be remotely controlled in storm conditions and are removed from nearest sensitive receptors and electricity wires (should catastrophic events arise). Risk of fire and electrical faults are considered to be low and is managed by on site arrangements to comply with health and safety legislation.

12.457. **Conclusion: Direct and Indirect Effects**

12.458. Having regard to the foregoing, I am satisfied that no significant adverse direct, indirect or cumulative environmental effects will arise from its vulnerability to risks of major accidents and/or disaster.

12.459. **Interactions**

12.460. **Examination of the EIAR**

Context

12.461. Chapter 16 of the EIAR considers the likely environmental effects arising from the interaction between the environmental factors. Table 16-1 of the EIAR provides a summary of the main interactions. These are considered in detail in the individual chapters and key interactions are identified as:

- Population and human health with land, soils, geology, water, air and climate, noise, landscape and visual, shadow flicker, material assets and traffic.
- Biodiversity with land, soils, geology, water, air and climate, noise, landscape and visual and traffic.
- Land, soils and geology with population and human health, biodiversity, water, air and climate, landscape and visual, cultural heritage, material assets and traffic.
- Traffic, with population and human health, biodiversity, land, soils and geology, air and climate, noise and material assets.

Potential Effects and Mitigation

12.462. No potential effects are identified because of interactions, over and above those already identified in the individual chapters of the EIAR and no further mitigation measures are proposed.

12.463. **Residual Effects**

12.464. No residual effects are identified as a consequence of interaction of environmental factors.

12.465. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

12.466. I have examined, analysed and evaluated Chapter 16 of the EIAR and the associated chapters and appendices of the EIAR. I am satisfied that the main interactions have been identified and assessed in the EIAR. This includes the

interaction of population and human health with cultural heritage, which is missing from Table 16-1 (the interaction is examined in the EIAR).

12.467. **Conclusion: Direct and Indirect Effects**

12.468. Having regard to the foregoing, I am satisfied that no significant adverse direct, indirect or cumulative environmental effects, arising from the interaction of impacts, that have not already been addressed in the EIAR.

12.469. **Reasoned Conclusions**

12.470. Having regard to the examination of environmental information provided in respect of the proposed development, in particular the EIAR and the supplementary information provided by the applicant, the submissions from the planning authority, prescribed bodies and third parties in the course of the application, it is considered that the main significant, direct, indirect and cumulative effects on the environment, with the implementation of proposed mitigation measures are:

- Population and human health. Significant local landscape and visual effects, with the introduction of large-scale wind turbines into the rural environment. Effects will in part be mitigated by a combination of the topography, roadside and intervening vegetation and siting of turbines at distance from dwellings. Residual short term, significant effects will arise for motorised and non-motorised traffic (delay and amenity) on the L5542 for the 18-24 months construction period. These will be mitigated in part by management of construction traffic and provision of alternative routes as set out in the Construction Traffic Management Plan.
- Biodiversity, land, soil and water. In the absence of further information on the hydrology and hydrogeology of the site, the potential for significant adverse effects on the fen habitat, including Annex I Transition mire and quaking bog habitat, and the potential for indirect effects on Annex II Marsh fritillary butterfly, arising from the location of turbine T1 and associated access road in proximity to these habitats. These effects can be avoided with the omission of turbine T1.

- Air and climate. Long term positive effects on air quality and climate, with the net reduction in GHG emissions over the lifetime of the development.
- Landscape and visual effects. Significant residual direct, indirect and cumulative landscape character and visual effects in the immediate area of the site and at distance, when viewed from elevated locations, including for certain cultural heritage assets. These effects will be mitigated by a combination of topography, screening, distance etc. however, residual effects will remain.

12.471. Notwithstanding the foregoing, and subject to (a) condition requiring the removal of T1 from the development and (b) having regard to the conclusions of research carried out in the State and elsewhere, which indicate a generally favourable approach towards wind farms and an absence of significant adverse effects on tourism, and (c) the pressing need to roll out alternative energy sources, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

13.0 Appropriate Assessment

13.1. Introduction

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

Screening

13.3. Background to the Application

13.4. The applicant has submitted an 'AA Screening and Natura Impact Statement' Report. It has been prepared having regard to European and national legislation and guidelines, and has regard to the background information and survey work carried out, including the EIAR (description of development, biodiversity, water), and:

- The Bird survey reports, Years 1, 2 and 3 (Appendix 1, NIS).
- The Aquatic Survey reports (Appendix 2, NIS
- Fen Habitats Management Plan (Appendix 3, NIS).
- Turbine specifications (Appendix 4, NIS).
- CEMP (Appendix 5, NIS).
- Drainage Report (Appendix 6, NIS).
- Habitat and Species Management Plan (Appendix 7, NIS)
- Site synopses, conservation objectives and standard data forms from the NPWS.
- Consultation with the statutory and non-statutory consultees bodies in respect of biodiversity (Table 2-1, AA Screening Report).

13.5. The Screening Report identifies European sites likely to be within the zone of influence of the proposed development having regard to the qualifying interest of the European site, conservation objectives for the site, distance to the European site and potential connectivity using the source pathway receptor approach. In the absence of foraging range data for all bird species, a conservative, maximum range of 15-20km is adopted (section 3.4, Screening Report).

13.6. The report concludes that it cannot be excluded on the basis of objective evidence and in view of best scientific knowledge that there will not be any adverse effects of the development, alone or in-combination with other plans or projects on the River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA and Lough Derravarragh SPA.

13.7. Having reviewed the Screening Report, related documents, and submissions, I am satisfied that the information presented in the Screening Report allows for a complete examination and identification of any potential significant effects of the development, alone, or in combination with other plans and projects on European sites.

13.8. **Screening for Appropriate Assessment – Test of Likely Significant Effects**

13.9. The project is not directly connected with or necessary to the management of a European Site and therefore it needs to be determined if the development is likely to have significant effects on a European site(s).

13.10. **Brief Description of the Proposed Development**

13.11. The applicant provides a summary of the proposed development in section 3.0 of the Screening Report. It is also described in Chapter 2 of the EIAR and in section 4.0 of this report and is not repeated here. The turbines are situated in agricultural land (T1, T2, T6 and T8), mixed woodland/scrub (T3) and commercial forestry plantation (T4, T5 and T6). Between 19.62ha and 20.09ha of forestry will be felled to facilitate construction of the development. This will be subject to a felling licence and replanting will take place elsewhere in the State, again subject to licence. The Stonyford River and D'Arcy's Crossroads Stream lie to the west of the application site. The rivers forms part of the River Blackwater and River Boyne SAC. Included within the boundary of the SAC is Newtown Lough which lies to the east of the development site. The boundary of the development site and European site overlap by c.1.93ha. No works are proposed in this area, but turbines will oversail the European site.

13.12. Annex 1 habitat H7140, transition mire and quaking bog, was recorded within the development site. H7230, alkaline fen, was recorded adjacent to the western boundary and c.525m east of the development site. Annex I and Annex II species recorded within/in the area of the site include Hen Harrier, Peregrine Falcon, Merlin,

Whooper Swan, Golden Plover, Wood sandpiper, Kingfisher, Marsh fritillary, White-clawed Crayfish, Atlantic salmon, Lamprey species, and otter.

13.13. **Likely Effects**

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

- *In situ* habitat loss/fragmentation/degradation/disturbance with effects on QIs.
- *Ex situ* habitat loss/fragmentation/degradation/disturbance with indirect effects on mobile QI species that utilise habitats on the development site.
- Potential for adverse effects on water quality dependent mobile species of conservation interest in downstream European sites and groundwater/surface water regime dependent habitats and species.
- Importation of invasive species.
- Collision risk and barrier effects (QI bird and bat species).

13.15. **Submissions and Observations**

13.16. Issues raised in submissions relate to the location of the proposed development in/proximate to River Boyne and River Blackwater SAC, hydrological connectivity with the SAC, cumulative assessment of effects with other wind farm and solar farm development, differences of approach to the assessment by the applicant and DAU (comments made by DAU in scoping response), lighting of the turbines and collision risk, and that the assessment was undertaken by those with appropriate expertise. MCC invite the Board to consider the issues raised in consultations with public bodies (DAU, IFI and MCC).

13.17. **European Sites**

13.18. European sites within a possible zone of influence of the proposed development are presented and screened below (Table AA1). Where a possible connection between the development and a European site has been identified, these sites are examined in more detail. In carrying out the screening exercise, reference has been made to the conservation objectives, site synopsis and statutory instruments of the European sites referred to (as well as connectivity). Like the applicant a conservative foraging

distance for all species of 15km to 21km has been adopted for birds where no data is available for the species.

Table AA 1 - Summary Table of European Sites within a possible zone of influence of the proposed development.

European Site (code) **Conservation Objectives (CO)**	**List of QI/SCI (M/R)**	**Connections (SPR)**	**Considered further in screening (Y/N)**
River Boyne and River Blackwater SAC (002299) CO: To maintain (M) or restore (R) the favourable conservation condition of the QI in the SAC	Alkaline fens [7230] **M** Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] **R** Lampetra fluviatilis (River Lamprey) [1099] **R** Salmo salar (Salmon) [1106] **R** Lutra lutra (Otter) [1355] **M**	Development site overlaps with and directly adjoins European site (c.1.9ha) and elsewhere is within c.1m of the edge of SAC boundary. For all phases, potential for: • Direct effects on SAC habitats and species, e.g. damage by construction traffic straying into SAC. • Indirect effects on *in situ* SAC habitats and species from degradation/ damage to habitats and/or disturbance such as, noise, dust, impacts on water quality, with consequential effects of QIs (e.g. alkaline fens, alluvial forests, river lamprey, salmon and otter are sensitive to changes in water quality), • Indirect effects on *ex situ* habitats (e.g. if provide supporting habitat to those in SAC) and mobile species from degradation/ damage to habitats and/or disturbance. • Effects on groundwater and surface water levels, with indirect effects on groundwater/ surface water dependent QIs, within and outside the SAC (e.g. alkaline fen). • Importation of invasive species to the SAC. • Potential for cumulative effects, with other plans and projects impacting on the SAC.	Yes.
Girley (Drewstown) Bog SAC (002203) To restore (R) the favourable conservation condition of the QI in the SAC	Peatlands [4] **R**	c.8km E of development site. Situated within different sub catchment (Boyne_070) to the development site (Boyne_050). Raised bog are typically rainwater fed and not usually dependent on surface water or groundwater from elsewhere (see NPWS National Raised Bog Special Areas of Conservation Management Plan, 2017-2022). Separated from	No.

		development site by Athboy River. Unlikely to be hydrologically connected.	
Lough Bane and Lough Glass SAC (002120) To maintain (M) or restore (R) the favourable conservation condition of the QI in the SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] **M** Austropotamobius pallipes (White-clawed Crayfish) [1092] **R**	c.8km NW of development site. Situated in a different sub catchment (Dee [Raharney]_SC_010), upstream of the site. Lough Bane and Lough Glass drain to the River Boyne substantially downstream of the development site. Unlikely to be hydrologically connected.	No.
Lough Lene (002121) To maintain (M) or restore (R) the favourable conservation condition of the QI in the SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] **M** Austropotamobius pallipes (White-clawed Crayfish) [1092] **R**	c.10km NW of development site. Situated in a different sub catchment (Dee [Raharney]_SC_010), upstream of the site. Lough Lene drains to the River Boyne substantially downstream of the development site. Unlikely to be hydrologically connected.	No.
White Lough, Ben Loughs and Lough Doo SAC (001810) To maintain (M) the favourable conservation condition of the QI in the SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] **M** Austropotamobius pallipes (White-clawed Crayfish) [1092] **M**	c.11.5km NW of development site. Situated in a different sub catchment (Dee [Raharney]_SC_010), upstream of the site. Loughs drain to the River Boyne substantially downstream of the development site. Unlikely to be hydrologically connected.	No.
Killyconny Bog (Cloghbally) SAC (000006) To restore (R) the favourable conservation condition of the QI in the SAC	Active raised bogs [7110] **R** Degraded raised bogs still capable of natural regeneration [7120] **R**	c.16km N of development site. Situated in a different sub-catchment (Blackwater[Kells]_030), at distance from development site. Raised bogs are typically rainwater fed, and so are not usually dependent on surface or groundwater from elsewhere. Unlikely to be hydrologically connected.	No.
Mount Hevey Bog SAC (002342)	Active raised bogs [7110] **R** Degraded raised bogs still capable of natural regeneration [7120] **R**	c.17km S of development site. Situated in a different sub-catchment (Boyne_SC_040), at distance from development site. Raised bogs are typically rainwater fed, and so	No.

To restore (R) the favourable conservation condition of the QI in the SAC	Depressions on peat substrates of the Rhynchosporion [7150] **R**	are not usually dependent on surface or groundwater from elsewhere. Unlikely to be hydrologically connected.	
Wooddown Bog SAC (002205) To restore (R) the favourable conservation condition of the QI in the SAC	Degraded raised bogs still capable of natural regeneration [7120] **R**	c.18km SW of development. Situated in a different sub-catchment (Boyne_SC_040), at distance from development site. Raised bogs are typically rainwater fed, and so are not usually dependent on surface or groundwater from elsewhere. Unlikely to be hydrologically connected.	No.
River Boyne and River Blackwater SPA (004232) To maintain (M) the favourable conservation condition of the QI in the SPA.	Kingfisher (Alcedo atthis) [A229] **M**	c.4.11km downstream from the development site. Potential for effects on downstream water quality with indirect effects on prey and/or turbidity impacting on hunting efficiency. Table 3-2 states that the species was not recorded within 500m of the development site and that there are no suitable watercourses for Kingfisher within the proposed development site, with no potential ecological connection. However, in section 3.2.2.2 it is stated that Kingfisher recorded during the wildfowl distribution surveys within the development site and seen commuting along a river c.600m to the west of the development site. There is potential therefore for effects on this species. Potential for cumulative effects, with other plans and projects impacting on the SAC.	Yes
Lough Derravaragh SPA (004043) To maintain (M) or restore (R) the favourable conservation condition of the QI in the SPA.	Whooper Swan (Cygnus cygnus) [A038] **R** Pochard (Aythya ferina) [A059] **R** Tufted Duck (Aythya fuligula) [A061] **R** Coot (Fulica atra) [A125] **R** Wetland [A999] **M**	c.16km W of development site. Situated in a different catchment (Inny[Shannon]_030). No potential for hydrological connectivity. Whooper Swan recorded within 500m buffer of development site. Not known if the birds form part of the SPA population and effects cannot be precluded. Coot not recorded within the development site, but a single bird observed, with c.500m and confirmed breeding at Newtown Lough. However, the species flies at night. Survey work carried out during	Yes.

		daylight. Coot associated with the SPA could make their way through the development site. Tufted duck and pochard not recorded within 500m of development site but both make local movements at night but information on night time migration is lacking. Possibility of migration or local movements by these species through the site. Potential for disturbance/ displacement (including barrier effects to migration) of birds during construction, operation and decommissioning. Collision risk with turbines for commuting birds during operation. Wetland and waterbirds – The CO for this QI is to maintain the favourable conservation condition of wetland habitats in the lough as a resource for the regularly occurring migratory waterbirds that utilise these areas. Effects on this CO can be excluded as there is no hydrological connectivity between the development site and Lough Derravaragh. Potential for cumulative effects, with other plans and projects impacting on the SPA.	
Wexford Harbour and Slobs SPA (004076) To maintain (M) the favourable conservation condition of the QI in the SPA.	Little Grebe (Tachybaptus ruficollis) [A004] **M** Great Crested Grebe (Podiceps cristatus) [A005] **M** Cormorant (Phalacrocorax carbo) [A017] **M** Grey Heron (Ardea cinerea) [A028] **M** Bewick's Swan (Cygnus columbianus bewickii) [A037] **M** Whooper Swan (Cygnus cygnus) [A038] **M** Light-bellied Brent Goose (Branta bernicla hrota) [A046] **M** Shelduck (Tadorna tadorna) [A048] **M** Wigeon (Anas penelope) [A050] **M** Teal (Anas crecca) [A052] **M** Mallard (Anas platyrhynchos) [A053] **M**	c.200km SE of development site. No hydrological connectivity, as SPA is situated in a different catchment (12). Screening report states that given the absence of Greenland white-fronted geese in daytime survey, and the pattern of migration of these geese, with research indicating the white-fronted geese (a different race of the same species), 71% of migratory flights take place during the day, it can be assumed that there is no nighttime activity and no effects on this species. This conclusion is reasonable given the absence of any flight activity by this species at any time over the survey period. No connection for other species given distance of European site from development site and maximum foraging distances (i.e. the distance they may travel from the SPA), having regard to NatureScot guidelines on Connectivity between SPAs.	No

	Pintail (Anas acuta) [A054] **M** Scaup (Aythya marila) [A062] **M** Goldeneye (Bucephala clangula) [A067] **M** Red-breasted Merganser (Mergus serrator) [A069] **M** Hen Harrier (Circus cyaneus) [A082] **M** Coot (Fulica atra) [A125] **M** Oystercatcher (Haematopus ostralegus) [A130] **M** Golden Plover (Pluvialis apricaria) [A140] **M** Grey Plover (Pluvialis squatarola) [A141] **M** Lapwing (Vanellus vanellus) [A142] **M** Knot (Calidris canutus) [A143] **M** Sanderling (Calidris alba) [A144] **M** Dunlin (Calidris alpina) [A149] **M** Black-tailed Godwit (Limosa limosa) [A156] **M** Bar-tailed Godwit (Limosa lapponica) [A157] **M** Curlew (Numenius arquata) [A160] **M** Redshank (Tringa totanus) [A162] **M** Black-headed Gull (Chroicocephalus ridibundus) [A179] **M** Lesser Black-backed Gull (Larus fuscus) [A183] **M** Little Tern (Sterna albifrons) [A195] **M** Greenland White-fronted Goose (Anser albifrons flavirostris) [A395] **M** Wetland and Waterbirds [A999] **M**		

13.19. Having regard to the foregoing, I am satisfied that there are elements of the proposed development, which alone and in combination with other development and plans in the area of the site, may give rise to significant effects on the following European sites, by virtue of direct and indirect effects (by way of damage, deterioration of habitats, disturbance), downstream effects (water pollution) and the potential for effects on mobile species of conservation interest:

- River Boyne and River Blackwater SAC (002299),
- River Boyne and River Blackwater SPA (004232), and
- Lough Derravaragh SPA (004043).

13.20. The potential for adverse effects on the remaining European sites set out in the Table AA1 can be excluded. In coming to this conclusion, I am satisfied that the proposed development site is not likely to lie within the flight path of Greenland white-fronted geese, a QI of Wexford slobs, on the grounds that (a) in over 2 years of survey work, where Greenland white-fronted geese were identified as a target species, no birds were observed flying over or in the study area for the development site and (b) for white fronted geese, a different race of the same species, the scientific literature indicates 67% of spring and 71% of migratory flights occurs during the day with the rest undertaken at night.

13.21. **Mitigation Measures**

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

13.23. **Screening Determination**

13.24. The proposed development was considered in light of the requirements of Section 177U of the Planning and Development Act 2000 as amended. Having carried out Screening for Appropriate Assessment of the project, it has been concluded that the project individually (or in combination with other plans or projects) could have a significant effect on the River Boyne and River Blackwater SAC (002299), River Boyne and River Blackwater SPA (004232), and Lough Derravaragh SPA (004043) in view of the site's Conservation Objectives, and Appropriate Assessment is therefore required.

13.25. Other European sites in the wider area of the development site, Girley (Drewstown) Bog, Lough Bane and Lough Glass SAC, Lough Lene SAC, White Lough, Ben Loughs and Lough Doo SAC, Killyconny Bog (Cloghbally) SAC, Mount Hevey Bog SAC, Wooddown Bog SAC and Wexford Harbour and Slobs SPA, can be excluded on the grounds that the development would not be likely to give rise to significant effects on these due primarily due to distance, lack of connectivity, including the location of the development site outside of the maximum foraging range for mobile SCI and absence of observation of QI species at the development site.

Appropriate Assessment

13.26. **The Natura Impact Statement (NIS)**

13.27. Section 4 of the AA Screening and Natura Impact Statement report provides the applicant's NIS for the development. The report describes the proposed development (section 4.2), including proposals for drainage, tree felling and habitat and species management. It describes the receiving environment (baseline ecology) by reference to the surveys carried out (Table 4-7), with the following habitats, species and ecological connections identified:

- Annex I Habitats.
    - H7140 Transition mire and quaking bog habitat, situated in two areas between T1 and T2, with the western area comprising continuous habitat and the eastern area comprising small patches of habitat (Appendix 16, Fen Habitats Survey). In addition, the Fen Survey, Appendix C, indicates H7140 habitat within the non-annex woodland WN7, between T1 and T3. The NIS states that this habitat type may occur in in the vicinity of Lough Shesk and Freekan Lough, c.870m and c.480m from the nearest infrastructure, outside of the proposed development site but within the River Boyne and River Blackwater SAC.
    - H7210 Calcareous fens and H7230 Alkaline fen, occurring on the western shore of Newtown Lough (c.345m east of T3). It is stated that this habitat type may occur in the vicinity of Lough Shesk and Freekan Lough.

- H91E0 Alluvial forests, with an area of wet woodland occurring on the southwest of Newtown Lough, having some affinity with this habitat [H91E0].

- Annex I birds and Annex II species recorded during survey work, which occur in European sites in connectivity with the development site - Kingfisher, Whooper Swan, Coot and wetland and waterbirds Golden plover, Wood sandpiper, Otter, Atlantic salmon, lamprey species.
- Ecological connectivity – Ecological connectivity has been established between the development site and the River Boyne and River Blackwater SAC (hydrological connectivity) and Lough Derravaragh SPA (mobile bird species). In addition, there are fen habitats within the site which may provide supporting habitat to those in the River Boyne and River Blackwater SAC.

13.28. The report refers to the conservation objectives for the qualifying interests of sites carried forward for assessment, occurrence of the QI within the European site and the attributes which define the conservation condition. The report examines the effects of the proposed development alone and in combination with other plans and projects as a consequence of hydrological and hydrogeological connectivity, ecological connectivity and proposed mitigation measures to address identified potential adverse effects. The report concludes, beyond all reasonable scientific doubt, that with the mitigation measures in place, the proposed development either alone or in combination with other plans or projects will not undermine the conservation objectives of any European site and will not therefore have an adverse effect on the integrity of a European site.

13.29. Having reviewed the documents, submissions, and consultations, I am satisfied that the information allows for a complete assessment of any adverse effects of the development, on the conservation objectives of the River Boyne and River Blackwater SAC (002299), River Boyne and River Blackwater SPA (004232), and Lough Derravaragh SPA (004043) alone, or in combination with other plans and projects.

13.30. **Appropriate Assessment of Implications of the Proposed Development**

13.31. The following is a summary of the objective scientific assessment of the implications of the project on the qualifying interest features of the European sites using the best

scientific knowledge in the field. All aspects of the project which could result in significant effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are considered and assessed. The assessment has regard to government and EU guidelines on appropriate assessment (DoEHLG, 2009, AA of Plans and Projects in Ireland; EC, 2002, Assessment of plans and projects significantly affecting Natura 2000 sites; EC, 2018, Managing Natura 2000 sites).

13.32. **European Sites.**

13.33. A description of the three European sites carried forward for appropriate assessment, their conservation objectives and qualifying interests are set out in the NIS and summarised in Table AA2 below. I have also examined the attributes and targets for each QI, the Natura 2000 data forms and supporting documents as relevant available on the NPWS website.

13.34. **Aspects of the Proposed Development.**

13.35. The main aspects of the proposed development that could adversely affect the conservation objectives of the European site are identified in the Screening assessment above, *in situ* and *ex situ* habitat loss/fragmentation/degradation/disturbance effects, impacts on water quality, impacts groundwater/surface water regime, importation of invasive species and collision risk and barrier effects. These are considered in detail below for each of the European sites potentially affected by the development.

Table AA2 Appropriate Assessment Summary Matrix. River Boyne and River Blackwater SAC [02299]

Key issues that could give rise to significant effects –

- Direct and indirect effects on the habitats and species within the adjoining SAC and for mobile species outside of the SAC, arising from loss/damage to habitats, deterioration of habitats (e.g. dust, fragmentation), disturbance (noise, human activity) during construction, operation and decommissioning.
- Impacts on water quality (e.g. increase in sediments, pollutants, rate of discharge) with downstream effects of QIs of European sites for all phases.
- Impacts on surface and groundwater flowpaths with indirect effects on surface water/groundwater dependent habitats (flow regime) for all phases.
- Import of invasive species.

Pressures/threats, identified in conservation objectives agriculture, changes to drainage regime, changes to hydromorphology, barriers (fish), changes to water quality.

		Appropriate Assessment			
Qualifying Interest Feature	**Conservation Objectives Targets and Attributes**	**Potential Adverse Effects**	**Mitigation Measures**	**In-combination Effects (Table 4-9 & section 4.8.2)**	**Exclude adverse effects?**
Alkaline fens [7230]	CO to maintain favourable conservation condition, defined by habitat area stable/increasing, no decline in habitat distribution, maintain soil nutrients, peat formation and maintain hydrological	Direct/indirect effects Development site is removed from alkaline fen habitat within the SAC c.450m E of T3. No potential for direct effects (damage, dust, disturbance). Water quality. Risk of changes to water quality for all phases of the	Direct effects. Works to be contained within the red line boundary of the site. Further in section 4.11.1.11 of the NIS it is stated that temporary fencing (paling with 25mm mesh) will be erected around the required site works to delineate the works area	NIS considers potential for cumulative effects with (a) other wind farm and large-scale development within 20km (Table 4-9 and Figure 4), and (b) relevant Regional, County Development Plans and the	Adverse effects on alkaline fen in SAC can be excluded. The NIS identifies the Annex I H7140 Transition Mire and Quaking Bog habitat with the development site, as a habitat that may be supporting fen

	groundwater levels and surface water flow, maintain water quality and vegetation composition, maintain physical structure, local distinctiveness and transitional areas. NPWS Conservation Objectives state that the habitat is not mapped in detail in SAC but the main area of alkaline fen in the SAC is concentrated in vicinity of Lough Shesk, Freehan Lough and Newtown Lough. At Lough Shesk habitat is particularly well represented (<1km from site boundary). Alkaline fen [7230] mapped by applicant in Fen Habitat Survey adjoining the shore of Newtown Lough (within boundary of SAC), c.450m from nearest turbine.	development, including felling with runoff to towards D'Arcy's crossroads stream and Stonyford River. No potential for effects on Lough Shesk and Freehan Lough as both upstream, or for Newtown Lough located is in separate surface water and ground water catchment to wind farm site. Works proposed within the Newtown Lough GWDTE groundwater body comprise a short section of grid connection route (Figure 7-2). Effects unlikely as works within existing road corridor. Hydrology/hydrogeology. CO state that fen habitats require high groundwater levels for a large proportion of the year, with fen groundwater levels controlled by regional groundwater levels in the catchment area. Changes to groundwater regime within the site likely to be localised and not likely to impact on Lough Shesk or Lough Freehan. Similarly,	and to minimise the potential for disturbance impacts outside works areas. Water quality. Best practice construction methods to prevent changes to water quality. Measures include 50m buffer to water courses. For works in vicinity of T1, within 50m of D'Arcy's crossroads stream, Drainage Report provides specific measures to prevent sedimented/polluted runoff e.g. silt fencing, settlement ponds, and precludes machinery from area adjoining the stream (Figure 4-1, Appendix 7-4 of EIAR). Detailed water quality monitoring proposed with arrangements to be submitted to PA for agreement. Hydrology/hydrogeology. Best practice measures to management surface water flows on site to replicate natural drainage are proposed (incorporating SUDS measures, controlled run	National Biodiversity Actin Plan (paragraph 4.8.2 and Table 4-10). Any construction projects in the sub-catchment have the potential to impact on water quality, lower groundwater levels damage/remove wetland habitat, disturb mobile species and introduce invasive species. However, risks of effects are low/very low as such projects will have to comply with the Habitats Directive and include mitigation measures to prevent adverse effects (Table 4-11). Further, water quality in the catchment is primarily determined by farming activity rather than the effects of construction.	habitats within the SAC (some plant species occur in both). As discussed in the EIAR, there is insufficient information on the hydrological regime of the fen habitats in the area of T1, to rule out the potential for adverse effects on this habitat. Therefore, there is a risk of adverse effects on supporting habitat. Notwithstanding this, should the Board decide to grant permission, with the omission of T1, as recommended, these potential impacts will not arise. Therefore, adverse effects can be excluded.

		alkaline fen on shores of Newtown Lough is within a separate ground waterbody (GWDTE-Newtown Lough Fen, IE_EA_G_075). Potential for onsite fen habitat [7140] to act as supporting habitat for alkaline fen [7230] and to be damaged/ degraded by changes in water levels. Invasive species. Risk of introduction/spread of of invasive species to the SAC (e.g. Japanese Knotweed, cherry laurel and snowberry).	off and sediment controls). Prior to construction of turbine base at T1, a groundwater monitoring borehole will confirm ground conditions and depth to groundwater. Given the low permeability of superficial deposits, shallow groundwater is not expected. However, should significant dewatering be required, at T1, sheet piling will be placed between the construction area and the SAC, so that there will be no change in groundwater levels in the SAC. Invasive species. Management plan to be implemented.		
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	CO to restore favourable conservation condition, defined by habitat area stable/increasing, woodland size stable or increasing, maintain woodland structure and species composition, limit over grazing,	Direct/indirect. Development site is removed from alluvial forest habitat identified within the SAC (west of Drogheda). Water quality. Potential for changes to water quality to impact on downstream areas of habitat (unmapped, as	As above.	As above.	Yes.

	maintain hydrological regime. Surveyed areas in the SAC are substantially removed from the development (west of Drogheda). Potential for unmapped areas to be present. Area of wet woodland occurring on the southwest of Newtown Lough has some affinity with this habitat [H91E0].	mapped habitat is distant). Hydrology/hydrogeology. Changes to groundwater and surface water regime likely to be localised. Newtown Fen occurs in a different surface and groundwater body. Invasive species. Risk of introduction/spread of invasive species to the SAC, identified in the area of the site during survey work (Japanese Knotweed, cherry laurel and snowberry).			
Lampetra fluviatilis (River Lamprey) [1099]	CO to restore favourable conservation condition, defined by distribution (access to river system), distribution of larvae, presence of different age/size classes, density of larvae in sediment, extent of spawning habitat. Lamprey ammocoetes (juvenile) widespread in vicinity of proposed development (Athboy	Potential for changes to water quality impact on downstream fish populations, including from works in proximity to d'Arcy's Crossroad's stream.	As above.	As above.	Yes.

	River A4, D'Arcy's crossroads stream B5 & B6, Stonyford River B7&B9). Considered to be Brook lamprey, as River lamprey are absent from the SAC above Slane due to weirs.				
Salmo salar (Salmon) [1106]	CO to restore favourable conservation condition, defined by distribution (access to river system), adult spawning fish, salmon fry abundance, out migrating smolt, number and distribution of redds and water quality. Fisheries assessment recorded Atlantic salmon in low densities in Athboy River (A4), D'Arcy's crossroads stream (B6 & B6), and the Stonyford River (B9).	Potential for changes to water quality to adversely impact on fish populations including and smothering of spawning beds. Potential changes to hydromorphology e.g. of riverbed and associated habitat, with changes to surface water discharge rates/ or as a result of inappropriate works at watercourses. Potential for direct impacts (e.g. injury) on species with works to watercourses. Introduction/spread of waterborne invasive species to the SAC, identified in the area of the site during survey work.	As above. In addition, no instream works proposed and surface water discharges will be managed and dispersed (to mimic existing discharge to river).	As above.	Yes.

Lutra lutra (Otter) [1355]	CO to maintain conservation condition, defined by no significant decline in distribution, terrestrial habitat, freshwater habitat, couching sites and holts, fish biomass or barriers to connectivity (with otter regularly commuting across open water up to 500m). Otter signs recorded at three sites (B6, Stonyford River, B3 and B5 on D'Arcy's crossroads stream). All within 1km of the proposed development site boundary, with B5 c.200m from western boundary. No breeding or resting sites identified.	Direct/indirect. No holts/couching sites surveyed within 200m of development boundary. However, NIS acknowledges that otters could use small streams and terrestrial habitat within the development site, and could become trapped and or disturbed, and or displaced by human activity. Changes to water quality and hydromorphology may impact on prey availability. Introduction/spread of waterborne invasive species to the SAC, identified in the area of the site during survey work.	As above (including no instream works). In addition, a pre-construction walkover survey of the development site and a 150m buffer will be undertaken for holts/couches. If any identified, an exclusion zone will be created and construction activities timed to avoid sensitive periods e.g. breeding season. Works will also be limited to daylight hours, provide exit points for any excavations and a suitably qualified Ecologist will be employed for the duration of construction works to raise awareness of otter sensitivities and undertake survey work throughout construction.	As above.	Yes.
Overall conclusion: Integrity Test. Following the implementation of mitigation, the construction, operation and decommissioning of the proposed development will not adversely affect the integrity of this European site, and no reasonable doubt remains as to the absence of such effects.					

Table AA3 Appropriate Assessment Summary Matrix. River Boyne and River Blackwater SPA

Key issues that could give rise to significant effects –

- Impact on habitat used by the species (e.g. noise, disturbance, impacts on river flow, bank habitat, water quality and prey), if connected to the SPA population.
- Impacts on water quality (e.g. increase in sediments, pollutants, rate of discharge) with downstream effects of water quality, hunting and prey.

Pressures/threats, identified in conservation objectives habitat destruction, degradation via pollution (e.g. agricultural runoff, pesticides, increased turbidity) and poor management of watercourses.

		Appropriate Assessment			
Qualifying Interest Feature	**Conservation Objectives Targets and Attributes**	**Potential Adverse Effects**	**Mitigation Measures**	**In-combination Effects**	**Exclude adverse effects?**
Kingfisher (Alcedo atthis) [A229]	CO to maintain the conservation condition, defined by no significant decline in population size, productivity rate, spatial distribution of territories, extent and quality of nesting banks/features, spatial extent and quality of foraging habitat and supporting biomass, water quality, barriers to connectivity,	<u>Disturbance/impact on river habitat.</u> Construction works could disturb species. However, works are short term, length of riverine environment and potential for Kingfisher to forage elsewhere so risk of displacement is low. Potential for damage to riverbank habitat (proximity of T1 to stream). Otherwise, no instream works.	<u>Direct effects/disturbance</u>. Works to be contained within the red line boundary of the site. Further in section 4.11.1.11 of the NIS it is stated that temporary fencing (paling with 25mm mesh) will be erected around the required site works to delineate the works area and to minimise the potential for disturbance	NIS considers potential for cumulative effects with (a) other wind farm and large-scale development within 20km (Table 4-9 and Figure 4), and (b) relevant Regional, County Development Plans and the National Biodiversity Actin Plan (paragraph 4.8.2 and Table 4-10).	Yes.

	disturbance to breeding sites. Survey of six SAC catchments in 2010, identified the SPA as supporting 15-19 no. Kingfisher breeding territories/pairs (c.1.4% of the Irish breeding population). Moderate decline in breeding population in the State. Species not recorded within 500m of development site, but 600m west.	Water quality. Discharges from the site (e.g. sediment, cementitious, hydrocarbons) could impact on water in the SAC directly affecting the species and prey.	impacts outside works areas e.g. on banks. Hydrology/hydrogeology. Best practice measures to management surface water flows on site to replicate natural drainage are proposed (incorporating SUDS measures, controlled run off and sediment controls). Water quality. Best practice construction methods to prevent changes to water quality and managed dust emissions. Measures include 50m buffer to water courses, and specific controls in area of T1 (Drainage Report). provides specific Detailed water quality monitoring proposed with arrangements to be submitted to PA for agreement.	Any construction projects in the sub-catchment have the potential to impact on water quality, impact on wetland habitat (e.g. banks) and/or disturb mobile species. However, risks of effects are low/very low as such projects will have to comply with the Habitats Directive and include mitigation measures to prevent adverse effects (Table 4-11). Further, water quality in the catchment is primarily determined by farming activity rather than the effects of construction.	
Overall conclusion: Integrity Test. Following the implementation of mitigation, the construction, operation and decommissioning of the proposed development will not adversely affect the integrity of this European site, and no reasonable doubt remains as to the absence of such effects					

Table AA4 Appropriate Assessment Summary Matrix. Lough Derravarragh SPA

Key issues that could give rise to significant effects –

- Impact on habitat used by the species (e.g. noise, disturbance, water quality and prey), if connected to the SPA population (construction and operation).
- Collision risk and barrier effect.

		Appropriate Assessment			
Qualifying Interest Feature	**Conservation Objectives Targets and Attributes**	**Potential Adverse Effects**	**Mitigation Measures**	**In-combination Effects**	**Exclude adverse effects?**
Whooper Swan (Cygnus cygnus) [A038]	CO to restore the favourable conservation condition, defined by winter population stable or increasing (decline in Lough Derravaragh in contrast to national trend), availability of suitable winter habitat, no significant disturbance impact at wintering site, barriers to connectivity do not significantly impact wintering populations access to the SPA or other ecologically important sites outside of the SPA, sufficient roosting locations and supporting habitat (including outside SPA).	No potential for disturbance effects as construction works outside distance at which disturbance likely (200m) e.g. Newtown Lough c.450m from T1 and T2, and construction works near Ballinlig seasonal waterbody are within the public road (i.e. already affected by human activity). Research indicates displacement distance for Whooper Swan by wind turbines is 200-400m. Newtown Lough is at least c.450m from T1 and T3. Ballinlig field is c.845m from T6. So no displacement effects likely. Collision risk modelling indicates a collision risk of	Targeted range of flight activity surveys and collision monitoring (carcass surveys) to be carried out during the breeding and non-breeding season for years 1, 2 and 3 (avian turbine collisions). If collisions exceed predicted effects further monitoring and mitigation to be carried out e.g. curtailment of turbines in key periods. NB Arrangements for monitoring are not consistent with NatureScot guidelines (lag effects from chronic disturbances).	NIS considers potential for cumulative effects with (a) other wind farm and large-scale development within 20km (Table 4-9 and Figure 4), and (b) relevant Regional, County Development Plans and the National Biodiversity Actin Plan (paragraph 4.8.2 and Table 4-10). NIS identifies potential for in combination effects with other wind farms (e.g. loss of habitat, displacement, disturbance) but	Yes. Subject to length of monitoring extended as per best practice.

	Observed commuting over proposed development site on 7 no. occasions during study period (from a pair to 28 birds), all flights at potential collision height. Species recorded feeding, swimming and descending to Newtown Lough and using a field with a small seasonal waterbody at Ballinlig for foraging (c.175m from cable route and c.460m from other infrastructure). Unknown if birds are part of SPA population.	0.24/pa to 0.27pa, c.1 bird every 4 years (depending on turbine model). NIS refers to a current population of Lough Derravaragh of 28 Whooper swan (NPWS Conservation objectives states a mean population of 50 based on counts between 2017-2022). Notwithstanding this, predicted increase in annual mortality (taking into account current level) would be 3-4%. Population of this species is increasing nationally and in Westmeath. Not known if birds utilising the site from part of the SPA population. NB the Board should note that NatureScot indicates a core foraging range of less than 5km for Whooper Swan from night roosts in winter season. Research indicates few collisions of Whooper swan with turbines (10 since 2002 in Europe). On balance the NIS concludes that the predicted mortality of the species from collision risk would not have a perceptible effect on the Whooper Swan population, and the SPA population	Should the Board grant permission, standard monitoring condition should be applied that is consistent with guidelines.	states that such projects would be subject to appropriate assessment, and all permitted/proposed have concluded no potential for adverse effects on European sites. In section 4.9.3 the cumulative collision risk for Whooper swan is calculated to be 1.722 (Siemens) to 1.752 (Vestas) per year (subject development, Ballivor, Coole wind farm. No assessment for Bracklyn as flights were too low. Predicted annual mortality increases to 8.5% and 8.6% of Lough Derravaragh population of 28. However, NIS refers to the generally increasing population of the species in the State and in Westmeath (estimated population in 2021 of 982 birds), with no potential for	

		could be roosting more locally to the SPA. The NIS considers that with small number of turbines, in two clusters separated by 1.6km, and a lack of other wind farms in the vicinity, energetic costs for Whooper swan to avoid the turbines would be negligible. This conclusion is not unreasonable (8 no. turbines, in two separate areas). Overall low risk of collisions with turbines undermining conservation objectives.		cumulative effects on population. The NPWS CO for Lough Derravaragh refer to the decline in numbers of Whooper Swan in the SPA, which has fallen since the previous count (1995-2000), in contrast to national trends of increasing population. Further, it states a 2017-2022 population level of 50 birds. If this population level is used, then cumulative collision morality rates would fall. The approach adopted by the applicant is also conservative, as it is not known whether the birds observed, are part of the SPA population. Having regard to the foregoing, and to data cited in the NIS (section 4.9.3, NIS) that since 2022 there have been very few known instances of the species colliding	

				with turbines (reference to paper by Dürr, 2023), I am satisfied that the proposed development in combination with other plans or projects would not have an adverse effect on the population of Whooper Swan in the SPA.	
Coot (Fulica atra) [A125]	CO to restore the favourable conservation condition, defined by winter population trend stable or increasing, availability of suitable winter habitat, no significant disturbance impact at wintering site, barriers to connectivity do not significantly impact wintering populations access to the SPA or other ecologically important sites outside of the SPA, sufficient available habitat and forage biomass to support population target and sufficient suitable roosting habitat. Was recorded in small numbers breeding in	NPWS Conservation objectives indicate a mean population of 702 Coot using Derravaragh Lough (2017-2022, mean peak count). Bird Survey Report, Year 3 (2021), identifies coot breeding at Newtown Lough (one observation of one bird, adult calling with chick begging calls also recorded). NIS states that this bird breeds at Newtown Lough and with the disturbance distance (and nature of the species) no disturbance or displacement effects are likely. This conclusion is not unreasonable, and I note that the NWPS data indicates species rarely forages far from waterbodies.	As above.	No collision risk assessment as no flights recorded in collision risk zone.	Yes.

	Newtown Lough. No observations of species in flight. Not known whether birds form part of SPA population.	No evidence for significant flight numbers at night (single observation in bird surveys) and no additional night survey work warranted. Notwithstanding this, the NIS considers that species may migrate to/from Britain through the proposed development site at night on its way to Lough Derravaragh. Given (i) the distance of this Lough from the site (16km), (ii) the length of the Lough (8km) the wide arc of approaches to it,(iii) the relatively small number of birds observed, (iv) the small number of days over which birds migrate to/from the Lough and (v) the relatively small swept area of rotor, the risk of migrating Coots colliding with turbines is considered to be low. Having regard to these factors, and in particular the small number of birds observed at the development site, the conclusions draw in the NIS are not unreasonable and significant effects on the species are not likely.			
Pochard (Aythya ferina) [A059]	CO to restore the favourable conservation condition, defined by winter population trend stable or increasing,	NPWS Conservation objectives indicate a mean population of 111 were using	As above.	No collision risk assessment as no flights recorded in collision risk zone.	Yes.

	availability of suitable winter habitat, no significant disturbance impact at wintering site, barriers to connectivity do not significantly impact wintering populations access to the SPA or other ecologically important sites outside of the SPA, sufficient roosting locations and available forage biomass to support population target and sufficient suitable roosting habitat.	Lough Derravaragh (2017-2022, mean peak count). The Bird Surveys observed no pochards in the area of the development site. No evidence for significant flight numbers at night (single observation in bird surveys) and no additional night survey work warranted. With regard to the potential to migrate through the site, the NIS states that situation for migrating Pochard is similar to Coot (above), except with fewer wind farm mortalities and the species may migrate during the day. The NIS considers therefore that the risk a migrating Pochard collides with a wind turbine is very low, with very unlikely effects at a population level. This conclusion is not unreasonable, in particular have regard to the absence of any observations of the species in any survey work, distance from Lough Derravaragh, size of the Lough, wide angle of approach etc.			
Tufted Duck (Aythya	CO to restore the favourable conservation	NPWS Conservation objectives indicate a mean	As above.	No collision risk assessment as no	Yes.

fuligula) [A061]	condition, defined by winter population trend stable or increasing, availability of suitable winter habitat, no significant disturbance impact at wintering site, barriers to connectivity do not significantly impact wintering populations access to the SPA or other ecologically important sites outside of the SPA, sufficient available habitat and forage biomass to support population target and sufficient suitable roosting habitat.	population of 167 were using the Lough (2017-2022, mean peak count). The Bird Surveys observed no pochards in the area of the development site. No evidence for significant flight numbers at night (single observation in bird surveys) and no additional night survey work warranted. The NIS states that situation for migrating Pochard is similar to Coot (above), except with fewer wind farm mortalities and the species may migrate during the day. It considers that the risk a migrating Pochard collides with a wind turbine is very low, with very unlikely effects at a population level. This conclusion is not unreasonable, in particular have regard to the absence of any observations of the species in any survey work, distance from Lough Derravaragh, size of the Lough, wide angle of approach etc.		flights recorded in collision risk zone.	
Wetland [A999]	CO to maintain the favourable conservation condition of wetland habitat in the Lough as a resource for the regularly	Conservation objectives relate to maintenance and restoration of wetland	N/A	None.	Yes.

	occurring migratory waterbirds that use it, defined by wetland habitat area and wetland habitat quality and functioning. Golden plover recorded in baseline surveys, with a peak flock of 500 within 500m of development boundary. In winter species recorded feeding and roosting within 500m of development site. Wood sandpiper observed within development site and could be considered as part of SPA waterbird and wetland population.	habitat, rather than bird populations. The development site is situated in a different sub-catchment with no hydrological connectivity.			
Overall conclusion: Integrity Test. Following the implementation of mitigation, the construction, operation and decommissioning of the proposed development will not adversely affect the integrity of this European site, and no reasonable doubt remains as to the absence of such effects.					

13.36. **Integrity Test**

13.37. Following the appropriate assessment and the consideration (a) the omission of turbine T1, (b) monitoring of bird populations in line with Nature Scot guidelines and (c) indicated mitigation measures, including:

- Measures that are embedded by virtue of the design of the development,
- The detailed arrangements for the management of surface water during all phases of the development, to minimise the potential for water pollution or significant effects on surface water flows (volume and rate of discharge), and the proposed arrangements for monitoring of water quality, as set out in the NIS and project description (Chapter 7, EIAR) and CEMP,
- The standard good practice nature of the proposed mitigation measures and the efficacy of these to prevent water pollution and for managing flows.
- The absence of otter holts or couches on the development site and the proposals for pre-construction survey of the site and measures to prevent impacts on the species should pre-construction survey identify the presence of holts on the site.
- The proposed arrangements for the monitoring of effects on bird species, with curtailment of turbines if required,
- The absence of potential for cumulative effects with other policies, plans or projects in the area of the site,

13.38. I am able to ascertain with confidence that the project would not adversely affect the integrity of in view of the Conservation Objectives of the River Boyne and River Blackwater SAC and SPA and Lough Derravaragh SPA. This conclusion has been based on a complete assessment of all implications of the project alone and in combination with plans and projects.

13.39. **Appropriate Assessment Conclusion**

13.40. The proposed development has been considered in light of the assessment requirements of Sections 177U and 177V of the Planning and Development Act 2000 as amended. Having carried out screening for Appropriate Assessment of the project, it was concluded that it may have a significant effect on the following European sites, River Boyne and River Blackwater SAC (002299), River Boyne and

River Blackwater SPA (004232), and Lough Derravaragh SPA (004043) in view of the site's Conservation Objectives. Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of this site, in light of their conservation objectives.

13.41. Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European sites, listed above, or any other European site, in view of the site's 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 effect

14.0 **Recommendation**

14.1. I recommend that permission for the development be granted subject to conditions, including the omission of turbine T1. Conditions include that in the event that the developer does not utilise the government's Renewable Energy Support Scheme (RESS) but instead enters into a contract with a third party to supply renewable energy, conditions of the permission require a community gain proposal to be submitted to the planning authority. Further, as background noise exceeds 30dB(A)$_{L90\ T10}$ at different wind speeds at different locations, reference to a specific wind speed in the standard noise condition is omitted.

15.0 **Reasons and Considerations**

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

(a) The obligations placed on it under the Climate and Low Carbon Development Act 2015 (as amended), including to perform its functions in a manner consistent with the most recent Climate Action Plan 2024, and the National Biodiversity Action Plan 2023-2030,

(b) National policy with regard to the development of alternative and indigenous energy sources and the minimisation of emissions from greenhouse gases,

(c) the provisions of the Wind Energy Development Guidelines – Guidelines for Planning Authorities issued by the Department of the Environment, Heritage and Local Government in June 2006,

(d) the policies set out in the Regional Spatial and Economic Strategy of the Eastern and Midlands Regional Assembly,

(e) the policies of the planning authority contained within the Westmeath County Development Plan 2021 and Meath County Development Plan 2021,

(f) the character of the landscape in the area of the site and in the wider area of the site,

(g) the pattern of the existing and permitted development in the area,

(h) The distance between the turbines and surrounding dwellings and other sensitive receptors from the proposed development,

(i) The environmental impact assessment report submitted,

(j) The Natura Impact Statement submitted,

(k) The submissions and observations made in connection with the planning application,

(l) The report of the Inspector.

Appropriate Assessment - Stage 1

The Board considered the Screening Report for Appropriate Assessment, the Natura Impact Statement and all the other relevant submissions and carried out both an appropriate assessment screening exercise and an appropriate assessment in relation to the potential effects of the proposed development on designated European Sites. The Board agreed with and adopted the screening assessment and conclusion carried out in the Inspector's report that the following European sites in respect of which the proposed development has the potential to have a significant effect are River Boyne and River Blackwater SAC (002299), River Boyne and River Blackwater SPA (004232), and Lough Derravaragh SPA (004043).

Appropriate Assessment – Stage 2

The Board considered the Natura Impact Statement and associated documentation submitted with the application, the mitigation measures contained therein, the

submissions and observations on file, and the Inspector's assessment. The Board completed an appropriate assessment of the implications of the proposed development for the European site for which potential to have a significant effect had been identified, in view of the site's conservation objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Board considered, in particular, the following:

i. the likely direct and indirect impacts arising from the proposed development both individually or in combination with other plans or projects,

ii. the mitigation measures which are included as part of the current proposal, and

iii. the conservation objectives for the European Site.

In completing the Appropriate Assessment, the Board 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 aforementioned European Sites, having regard to the site's Conservation Objectives. In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' Conservation Objectives.

Environmental Impact Assessment

The Board completed an environmental impact assessment of the proposed development taking into account:

- The nature, scale and extent of the proposed development,
- The environmental impact assessment report and associated documentation submitted in support of the application,
- The submissions from the Planning Authorities, prescribed bodies and observers, and
- The Inspector's report.

The Board considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, adequately considers alternatives to the proposed development and identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment.

The Board agreed with the examination, set out in the Inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the applicant and submissions made in the course of the application.

The Board considered, and agreed with the Inspectors reasoned conclusions, that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- Population and human health. Significant local landscape and visual effects, with the introduction of large-scale wind turbines into the rural environment. Effects will in part be mitigated by a combination of the topography, roadside and intervening vegetation and siting of turbines at distance from dwellings. Residual short term, significant effects will arise for motorised and non-motorised traffic (delay and amenity) on the L5542 for the 18-24 months construction period. These will be mitigated in part by management of construction traffic and provision of alternative routes as set out in the Construction Traffic Management Plan.
- Air and climate. Long term positive effects on air quality and climate, with the net reduction in GHG emissions over the lifetime of the development.
- Cultural heritage, landscape and visual effects. Significant residual direct and cumulative landscape character and visual effects in the immediate area of the site and at distance, when viewed from elevated locations, including for certain cultural heritage assets. These effects will be mitigated by a combination of topography, screening, distance etc. however, residual effects will remain.

15.1. The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures proposed, as set out in the Environmental Impact Assessment

Report and, subject to compliance with the conditions set out herein, the effects on the environment of the proposed development by itself and cumulatively with other development in the vicinity would be acceptable. In doing so the Board adopted the report and conclusions of the reporting Inspector.

Proper Planning and Sustainable Development

It is considered that, subject to compliance with the conditions set out below, the proposed development would be in accordance with the Climate Action and Low Carbon Development Act 2015 (as amended), National Biodiversity Action Plan 2023-2020, the National Planning Framework, the Regional Spatial and Economic Strategy of the Eastern and Midland Region 2019-2031 and the provisions of the Westmeath County Development Plan 2021-2027 and Meath County Development Plan 2021-2027. It would:

- make a positive contribution to Ireland's national strategic policy on renewable energy and its move to a low energy carbon future,
- not seriously injure the residential or visual amenities of the area,
- not adversely affect the natural heritage or biodiversity,
- not have an unduly adverse impact on the landscape, cultural heritage or tourism, and
- would be acceptable in terms of traffic safety and convenience.

The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area.

16.0 Conditions

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

Reason: In the interest or clarity.

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

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

3. The permission shall be for a period of 35 years from the date of the commissioning of the wind turbines. The wind turbines and related ancillary structures shall then be decommissioned and removed unless, prior to the end of the period, planning permission shall have been granted for their continuance for a further period.

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

4. The following design requirements shall be adhered to:

   (a) The wind turbines shall be designed to a hub height of 99 metres, a rotor blade diameter of 180m and an overall height of 180m, in accordance with the turbine option assessed in the environmental impact assessment report and Natura Impact Statement, together with application documentation.

   (b) The wind turbines, including masts and blades, shall be finished externally in a light grey colour.

   Reason: In the interest of clarity and visual amenity.

5. Turbine no. 1 shall be omitted from the development. Prior to commencement of development the applicant shall submit plans and drawings indicating the omission of this turbine.

   Reason: In the interest of biodiversity.

6. The applicant shall appoint a Community Liaison Officer for all stages of the development who shall be the first point of contact for residents and be responsible for monitoring and reporting of complaints, maintaining a

complaints register, addressing complaints and for discharging information in relation to the development to residents.

Reason: In the interest of amenity and orderly development.

7. The developer shall ensure that all construction methods and environmental mitigation measures set out in the Environmental Impact Assessment (EIAR), Natura Impact Statement (NIS) and associated documents are implemented in full in conjunction with the timelines therein, except as may be otherwise required in order to comply with the following conditions.

   Reason: To protect the environment and the integrity of European sites.

8. In advance of commencement the applicant shall submit to the planning authority a complete schedule of all mitigation measures. This shall identify who is responsible for the implementation of these measures and a timescale for implementation. The schedule of mitigation measures shall include the following additional requirements for agreement with the planning authority:

   i. Bat mitigation measures to be in accordance with NRA Guidelines for the Treatment of Bats during Construction of National Road Schemes (to include arrangements for lighting where nighttime work is proposed).

   ii. Boundary treatment to delineate the works area and protect areas outside of this from disturbance impacts during construction.

   iii. Location of replant lands for forestry to be felled to accommodate the development, timescale for implementation and implementing body.

   iv. Detailed arrangements for directional drilling between T5 and T8, to include the mapped extent of ancient/long established woodland in this area.

   v. Detailed arrangements for monitoring of effects on bird species, to be in accordance with requirements of SNH 2009 Guidance on

Methods of Monitoring Bird Populations at Onshore Wind Farms, after consultation with the NPWS.

Reason: To protect the environment and the integrity of European sites.

9. Prior to the commencement of development, details of the following shall be submitted to the planning authority for written agreement:

   (a) Details of external finishes to substation buildings and structures, and for provision of CCTV to the sub-station compound.

   (b) Full details of interface mast (including height).

   Reason: In the interest of clarity and visual amenity.

10. Prior to the commencement of development, the following shall be submitted to the planning authority for written agreement:

   (a) Details of road improvement works along the L5542, including arrangements for reinstatement of roadside vegetation and landscaping.

   (b) A Road Safety Audit for the temporary and permanent access onto the N52, with detailed design in accordance with TII requirements, and if required, arrangements for the management of construction traffic using the access during construction.

   (c) Details of pre-construction condition survey of proposed haul routes, bridges/structures along the route, weight of abnormal loads, and arrangements for maintenance of routes/structures during construction and repair of any damage.

   (d) Detailed design and location of the underground electricity cable within the road corridor, including Joint bays, and details of cabling crossing culverts and streams, which shall be in accordance with the requirements of TII.

   (e) A revised detailed Construction Traffic Management Plan, to include arrangements for the management of construction traffic on the public road, arrangements for alternative routes, details of source and volume of aggregate material to be sourced on/off site, haul

routes, phasing programme for construction works (including with other wind farms), and means to keep the public road free of dirt and debris.

Reason: In the interest of visual amenity and traffic safety.

11. (a) The delivery of large-scale turbine components for the construction of the wind farm shall be managed in accordance with a finalised Traffic Management Plan. This plan shall provide details of the road network to be used by construction traffic, including oversized loads, and detailed arrangements for the protection of bridges, culverts and other structures to be traversed, as may be required. The plan shall also contain details of how the developer intends to engage with relevant parties (county councils, PPP companies etc.) and notify the local community in advance of the delivery of oversized loads.

    (b) Any proposed works to the national road network to facilitate turbine delivery shall comply with the requirements of TII.

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

12. The developer shall retain the services of a suitably qualified and experienced Ecologist (to perform the role of Ecological Clerk of Works) to undertake pre-construction surveys at the various project elements, immediately prior to commencing work to check for the presence of protected species in the vicinity, and to oversee and ensure the implementation of all environmental mitigation and monitoring measures during construction and operation of the wind farm.

    Reason: To protect biodiversity.

13. The developer shall retain the services of a suitably qualified and experienced bat and bird specialists to undertake appropriate bat and bird surveys of the site, in accordance with the mitigation and monitoring arrangements.

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

14. (a) 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. This shall include details of the temporary construction compound to serve the southern cluster (which will also be used as a permanent operational compound).

(b) The CEMP 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 IFI standards Guidelines on the Protection of fisheries during Construction work in and adjacent to Waters (IFI, 2016). No spoil shall be stored in flood risk zones. Imported material shall be suitable to the peat soil/subsoil and bedrock of the site (hydrochemistry).

(d) The CEMP shall include a draft decommissioning plan for the turbines, to include reuse and/or recycling of turbine components. A revised plan shall be submitted and agreed in advance of decommissioning.

Reason: In the interest of environmental protection and residential amenity.

15. Commissioning and construction works shall be limited to the hours of between 0700 hours and 1900 hours Monday to Friday and 0800 hours and 1400 hours on Saturday and shall not be permitted on Sundays or public holidays.

Reason: To protect the amenities of nearby residential properties.

16. Noise levels generated by the windfarm 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:

- For the daytime period 7am to 11pm, in quiet environments, where background noise is less than 30dB(A)$_{L90\ T10}$, a maximum noise level of 40dB(A)$_{L90\ T10,}$
- For daytime periods, 7am to 11pm, where the background noise level exceeds 30dB(A)$_{L90\ T10}$, the greater of 45dB(A)$_{L90\ T10,}$ or 5dB(A) above background levels,
- For the night time period 11pm to 7am, 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 windfarm. 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 windfarm.

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

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

(b) 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

18. In the event that the developer does not utilise the government's Renewable Energy Support Scheme (RESS), prior to the commencement of development, a community gain proposal shall be submitted to the planning authority for written agreement. In default of agreement, the matter shall be referred to An Bord Pleanála for determination.

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

19. In the event that the proposed development causes interference with telecommunication signals, effective measures shall be introduced to minimise interference with telecommunication 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 the commissioning of the turbines and following consultation with relevant authorities.

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

20. (a) Prior to commencement of development and following consultation with the Department of Defence and Irish Aviation Authority, the developer shall submit for written agreement of the planning authority, details of an obstacle warning light scheme which can be visible to night vision equipment.

(b) Prior to commissioning of the turbines, the developer shall inform the planning authority and the Irish Aviation Authority of the as-constructed tip heights and co-ordinates of the turbines and wind monitoring mast.

Reason: In the interest of aviation safety.

21. The developer shall comply with the requirements of Irish Water with regard to diversion of infrastructure within the site and connections to the public network.

    Reason: In the interest of public health.

22. All mitigation measures in relation to archaeology and cultural heritage as set out in the Report on Geophysical Survey at Galboystown, Co. Meath shall be implemented in full. This shall include test trenching as necessary to assess the nature, extent and depth of the geophysical anomalies. This shall be carried out by a licence-eligible archaeologist working under licence from the Department of Housing, Local Government and Heritage in consultation with the National Museum of Ireland. The planning authority and the National Monuments Service shall be furnished with a final archaeological report describing the results of any archaeological investigative work/ excavation required, following the completion of all archaeological work on site and any necessary post-excavation specialist analysis. 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

23. 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 planning authority and the National Monuments Service, in advance of any site preparation works or groundworks, including site investigation works/topsoil stripping/site clearance/dredging/underwater works and/or construction works. This shall include appropriate palaeo-environmental research within the footprint of the development and archaeological monitoring of grid connection works in Clonmellon, to the satisfaction of the planning authority.

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 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.

24. On full or partial decommissioning of the wind farm, or if the wind farm ceases operation for a period of more than 1 year, the turbines and all decommissioned structures shall be removed, and foundations covered with soil to facilitate revegetation. These reinstatement works shall be completed to the written satisfaction of the planning authority within three months of decommissioning or cessation of operation.

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

25. 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 which may be damaged by the

transport of materials to the site, coupled with an agreement empowering the local 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 Bord Pleanála for determination.

Reason: To ensure the satisfactory completion of the development.

26. 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 the site upon cessation of the project, coupled with an agreement empowering the local authority to apply such security or part thereof to secure 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 Bord Pleanála for determination.

Reason: To ensure the satisfactory completion of the development.

27. 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 Bord 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.

I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

Deirdre MacGabhann
Senior Planning Inspector

16th December 2024

EIA Pre-Screening

An Bord Pleanála Case Reference	319448
Proposed Development Summary	8 no. turbine wind farm
Development Address	Land within the townlands of Clonmellon, Kilrush Upper, Kilrush Lower, Newtown, Ballinlig, Carnybrogan, Cavestown and Rosmead, County Westmeath and Galboystown, Co. Meath

1. Does the proposed development come within the definition of a 'project' for the purposes of EIA? (that is involving construction works, demolition, or interventions in the natural surroundings)	**Yes**	X
	No	

2. Is the proposed development of a CLASS specified in Part 1 or Part 2, Schedule 5, Planning and Development Regulations 2001 (as amended)?		
Yes	X	Class 3(i), Part 2, Schedule 5. Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts.
No		

3. Does the proposed development equal or exceed any relevant THRESHOLD set out in the relevant Class?			
Yes	X	8 no. turbines proposed, power output 52.8MW-57.6MW.	EIA Mandatory EIAR required
No			

4. Is the proposed development below the relevant threshold for the Class of development [sub-threshold development]?			
Yes	N/A		

5. Has Schedule 7A information been submitted?		
No	N/A	
Yes	N/A	

Inspector: _____ **Date:** _____