

# **Proposed Ballynalacken Windfarm Project**

## **Environmental Impact Assessment Report**

### **Chapter 6: Land**

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## Table of Contents

<b>CHAPTER 6</b>	<b>LAND</b>	<b>6-5</b>
EIAR 6.1	INTRODUCTION	6-5
EIAR 6.1.1	The Authors of this Chapter (Competent Experts)	6-5
EIAR 6.1.2	Overview of Land in the Local Environment	6-5
EIAR 6.1.3	Sources of Information	6-6
EIAR 6.1.4	Legislation, Regulations & Guidance Documents	6-6
EIAR 6.1.5	Methodology Used	6-6
EIAR 6.2	LAND PART 1: SCOPING FOR SENSITIVE ASPECTS OF LAND	6-7
EIAR 6.2.1	Introduction to Scoping for Sensitive Aspects of Land (Receptors)	6-7
EIAR 6.2.2	Identification of the Sources, Pathways and Receptors of Impacts	6-8
EIAR 6.2.3	Scoping of the Study Areas (Zone of Influence of the Project)	6-9
EIAR 6.2.4	Scoping of Sensitive Aspects	6-10
EIAR 6.3	LAND PART 2: EVALUATION SECTION	6-12
EIAR 6.3.1	SENSITIVE ASPECT: AGRICULTURAL LAND	6-12
EIAR 6.3.2	SENSITIVE ASPECT: FORESTRY LAND	6-22
EIAR 6.3.3	Statement on Certainty and Sufficiency of Information Provided	6-29
EIAR 6.4	Summary Conclusion	6-30
EIAR 6.5	Reference List for Land	6-31
EIAR 6.6	List of Figures for Land	6-32
EIAR 6.7	List of Appendices for Land	6-32
	Figures for Land	6-33
	Appendix 6.1: Composition of Forestry at the Proposed Ballynalacken Project	6-35
	Appendix 6.2: Methodology for the evaluation of Land	6-37

**List of Figures**

Figure No.	Figure Title	Location
Figure 6.1	Land-Use	End of Chapter 6
Figure 6.2	Construction Stage Agricultural and Forestry Land-Use	End of Chapter 6
Figure 6.3	Operational Stage Agricultural and Forestry Land-Use	End of Chapter 6
Figure 6.4	Other Projects considered for Cumulative Effects to Land	End of Chapter 6

**List of Appendices**

Appendix No.	Appendix Title	Location
Appendix 6.1	Composition of Forestry at the Proposed Ballynalacken Project	End of Chapter 6
Appendix 6.2	Methodology for the evaluation of Land	End of Chapter 6

**Glossary of Terms**

Term	Definition
Afforestation	The planting of land with woods plants with a view to forest establishment.
Agriculture	The growing of crops and the rearing of animals for food, fibre or sporting purposes.
Ballynalacken Windfarm Project	Ballynalacken Windfarm including 12 No. turbines, turbine foundations and hardstanding areas, Windfarm Site Roads, Internal Windfarm Cabling, Windfarm Control Building, Site Entrances, ancillary works at and for the windfarm, along with the Internal Cable Link, Tinnalintan Substation and ancillary works, and Ballynalacken Grid Connection and grid connection works to the Eirgrid Ballyragget Substation. The Project also involves works and activities along the turbine component haul route remote from the site, including the construction of a temporary Blade Transfer Area at HR8.
Grassland	Land which has been sown with productive grass species.
Improved grassland	Land which has been sown with particularly productive grass species and whose continued productivity is dependent on regular supplemental inputs of fertiliser and lime.
Landuse	The use to which land is put by human activity.
Plantation forestry	Forest sown by man, usually for commercial reasons and mostly of a small number of tree species.

**List of Abbreviations**

Abbreviation	Full Term
CAP	Common Agricultural Policy
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
IAPS	Invasive Alien Plant Species

Abbreviation	Full Term
LLO	Landowner Liaison Officer
LULUCF	Land Use, Land Use Change, Forestry
OHL	Overhead Line

## CHAPTER 6 LAND

### EIAR 6.1 INTRODUCTION

#### EIAR 6.1.1 The Authors of this Chapter (Competent Experts)

The Land chapter was prepared by **Andy Dunne** (B.Agr.Sc., M.Sc.(Agr.), PhD) director of Environmental Agricultural Engineering Consultancy (EAEC), a firm of agricultural and engineering consultants. Andy has been involved in a great variety of land use and agricultural development activities for more than 20 years and he is familiar with national and EU regulation and policy in the area.

Appendix 6.1: Composition of Forestry at the Proposed Ballynalacken Project was prepared by Veon Limited. Veon is a forestry and ecology management company and has been in business for over 30 years. Veon manage approximately 15,000 ha of forests throughout Ireland.

#### EIAR 6.1.2 Overview of Land in the Local Environment

Land relates to the portion of the earth's surface not covered by water. In this chapter land and landuse are addressed. Landuse relates to the various ways in which society uses land. Land take is the removal of land from agricultural or other beneficial uses. In the Irish context, land is used for agriculture, forestry, extractive uses, urbanisation, recreation, and infrastructure provision. Certain development undertakings can change current landuse to other landuse types. There is a requirement to monitor land use change and associated emissions of greenhouse gases under the LULUCF (Land Use, Land Use Change, Forestry) regulation (EU841/2018). LULUCF is addressed in the Climate chapter.

From a land and landuse perspective the existing environment is rural countryside. The dominant usage is permanent agricultural grassland with a notable commercial plantation forestry component. Public roads, comprising both county and regional roads, and private access roads serving domestic houses, farms and forest also feature in the existing land use pattern in the vicinity of the proposed development.

The location of the proposed Ballynalacken Windfarm Project is illustrated on the following mapping:

**Figure 6.1: Land-Use**

Figures and mapping referenced in this topic chapter can be found in **at the end of this Chapter**.

**EIAR 6.1.3 Sources of Information**

Consultation, desktop studies and fieldwork were carried out in order to gather information on the baseline environment.

**Table 6-1: Sources of Baseline Information for Land**

Type	Source
Consultation	No feedback was received from consultees with regard to Land or Land Use. See Chapter 3: Consultation for further details.
Desktop	<ul style="list-style-type: none"> <li>• Department of Agriculture, Food and the Marine's CAP Strategic plan 2023 - 2027 Summary (2022)</li> <li>• Department of Rural and Community Development's Our Rural Future: Rural Development Policy 2021-2025 (2021)</li> <li>• EPA State of the Environment Report (2020)</li> <li>• Department of Agriculture, Food and the Marine's Forest Strategy (2022 – 2030) - (2023)</li> <li>• Kilkenny County Development Plan (2021)</li> <li>• National Parks and Wildlife Service - <i>Maps and Data</i></li> <li>• Available online aerial imagery from National Parks and Wildlife Service, Bing and Google</li> </ul>
Fieldwork	<ul style="list-style-type: none"> <li>• Site visit 27th April 2023</li> </ul>

**EIAR 6.1.4 Legislation, Regulations & Guidance Documents**

The following legislation and regulations have been taken into account in this EIA Report:

- LULUCF (Land Use, Land Use Change, Forestry) Regulation (EU) 2018/841, as amended (EU, 2023/839)

**EIAR 6.1.5 Methodology Used**

The evaluation for Land in Section EIAR 6.3 has been carried out in accordance with *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022), along with the ARVI approach for impact significance assessment developed under the EC IMPERIA LIFE11 Project. This methodology has been used to determine the importance and sensitivity of receptors, and the magnitude and significance of potential impacts. The methodology can be found in full in [Appendix 6.2: Methodology for the evaluation of Land](#).

**EIAR 6.2 LAND PART 1: SCOPING FOR SENSITIVE ASPECTS OF LAND**

The assessment of significant effects (or impacts) is an essential concept of the EIA Directive, and the primary objective of this EIA Report is to identify and evaluate the significant effects of the Project. Scoping has been carried out in accordance with the *Guidance on Scoping* (EC 2017) in order to focus the consideration of the impacts the Ballynalacken Windfarm Project may have on the environment to those which are significant or important enough to merit assessment, review and decision-making.

Scoping for the Environmental Topic – Land has been carried out by the chapter authors, throughout the preparation of this Chapter, and includes scoping for the sensitive aspects of Land (this Section EIAR 6.2), and later in this Chapter - scoping of impacts associated with the Project (see Section EIAR 6.3).

**EIAR 6.2.1 Introduction to Scoping for Sensitive Aspects of Land (Receptors)**

The purpose of the scoping exercise, which comprises this Section EIAR 6.2, is to identify the relevant Sensitive Aspects (receptors) of Land. In order to identify the relevant Sensitive Aspects, the scoping exercise is carried out as follows:

1. An examination is carried out, in Section EIAR 6.2.2, of the potential sources of impacts resulting from the Project and the pathways for Impacts which link the sources of impacts to the receptors (Sensitive Aspects) of the impacts;
2. The zone of influence of the Project, within which the impacts of the Project could occur, is set out, with justification for same. The zone of influence is also called the 'Study Area' herein. The zones of influence are set out in Section EIAR 6.2.3 for the various Sensitive Aspects which occur in the environment.
3. A scoping examination of Sensitive Aspects which occur within the Study Area(s) is carried out in Section EIAR 6.2.4. The scoping examination results in a Sensitive Aspect being either scoped-in for detailed evaluation in **Part 2: Sensitive Aspect Evaluation Section (i.e. Section EIAR 6.3)** of this chapter or scoped-out from further consideration, the rationale for scoping-out is provided in Section EIAR 6.2.4.

**EIAR 6.2.2 Identification of the Sources, Pathways and Receptors of Impacts**

The evaluations within the EIAR identify potential impact sources and pathways between the Project and receptors (Sensitive Aspects) of the environment.

**EIAR 6.2.2.1 Identification of Impact Sources**

The 'source' is an origin of an impact and is associated with the Project. In order to identify the potential 'sources' of impact, the characteristics of the Ballynalacken Windfarm Project, i.e. the size and design, works, activities, use of materials and natural resources, and the emissions and wastes, associated with the construction, operation and decommissioning of the Project, as described in Chapter 5 of this EIA Report, have been examined, and it is considered that the following Project characteristics have potential to act as a 'source' of impact to the sensitive aspects of Land:

Construction Stage Sources of Impact

- Use of agricultural and forestry lands (within construction works areas);
- Excavation of land;
- Storage of overburden;
- Use and movement of heavy machinery;
- The permanent felling of forestry to accommodate the turbines and access roads; and
- Construction of new roads and widening of existing roads.

Operational Stage Sources of Impact

- Landuse Change;
- Maintenance of 8.1ha as a biodiversity area;
- Maintenance of access roads, hardstanding areas and the drainage system;
- Maintenance of bat buffer zones;
- Use of agricultural lands to reopen widened junctions and site entrances (infrequent).

Decommissioning Stage Sources of Impact

- Use of agricultural lands to reopen widened junctions and site entrances;
- Return of lands to agricultural use

**EIAR 6.2.2.2 Identification of Impact Pathways**

The 'pathway' is the means by which an impact can reach and affect a receptor. The characteristics of the baseline environment have been examined and it is considered that the following pathways could form a link between the Project (sources of impact) and the Sensitive Aspects (receptors):

- Land surface
- Private roads
- Forestry roads
- Groundwater flow paths
- Land drains

**EIAR 6.2.2.3 Identification of Receptors**

Any receptor in the environment which could be affected by a development is referred to as a 'Sensitive Aspect' in this EIA Report. The following Sensitive Aspects are relevant to the receiving environment and are subject to scoping in Section EIAR 6.2.3:



- Agricultural Land
- Forestry Land
- Public Amenity Land-Use
- Equestrian Land-Use

The zone of influence in relation to these Sensitive Aspects is examined in Section EIAR 6.2.3 below, with a scoping exercise for each of the Sensitive Aspects presented in Section EIAR 6.2.4.

### EIAR 6.2.3 Scoping of the Study Areas (Zone of Influence of the Project)

The scoping and evaluation focuses on the area or zone of influence around the Ballynalacken Windfarm Project within which the impacts of the Project could occur. This area/zone is referred to as the Study Area. The Study Areas for the Sensitive Aspects of the Land environment are set out in the table below.

**Table 6-2: Study Area of the Project in relation to sensitive aspects of the Land environment**

Sensitive Aspect	Ballynalacken Windfarm Project Zone of Influence/Study Area	Justification
<b>Agricultural Land</b>	Construction Works Area Boundary, Operational Boundary, and the individual landholding fields networks within which the works are located.	Impacts to Agricultural Land limited to within the fenced boundaries of the Project.  Loss of connectivity relates to those fields within landholdings which have potential to be split by the development.
<b>Forestry Land</b>	Construction Works Area Boundary, Operational Boundary, and the individual forestry parcels within which the works are located.	Impacts to Forestry Lands limited to within the boundaries of the Project, loss of access/connectivity has potential to occur to forestry plots split by the development.
<b>Public Amenity Land-Use</b>	Construction Works Area Boundary	Impacts to amenity areas or land use will be limited to within the boundaries of the Project. Impact includes any access points to amenity areas outside the Project boundaries.
<b>Equestrian Land-Use</b>	Three times tip height from the turbines	As per The British Horse Society 2024 "Advice on Wind turbines and horses for planning officers and developers" where a separation distance of three times the turbine tip height from equestrian businesses is recommended.

**EIAR 6.2.4 Scoping of Sensitive Aspects**

Any receptor in the local environment which could be affected by a development is a Sensitive Aspect. The various sensitive aspects of the Land environment are scoped in the table below for potential to be affected by the Ballynalacken Windfarm Project. The scoping examination results in a Sensitive Aspect being either scoped-in for detailed evaluation in **Part 2: Sensitive Aspect Evaluation Section (i.e. Section EIAR 6.3)** of this chapter or scoped-out from further consideration, for the following reasons:

- Where it is considered that a Sensitive Aspect is likely, or has potential, to be significantly affected by the Project, that Sensitive Aspect has been scoped in for detailed evaluation in Part 2 (Section EIAR 6.3).
- Where it is considered that there is no potential for a Sensitive Aspect to be affected, or where the likely/potential impacts to that Sensitive Aspect will be Neutral (i.e. No impact/imperceptible impact) then that Sensitive Aspect has been scoped out from further consideration, and the rationale for scoping-out is provided in the table.
- An exception is made for Sensitive Aspects which are not likely to be significantly affected but may be of particular or local concern and merit a detailed examination, these Sensitive Aspects are also scoped in for detailed evaluation in Part 2 (Section EIAR 6.3).

**Table 6-3: Scoping of Sensitive Aspects**

Sensitive Aspect	Is there a Pathway between the Project and the Sensitive Aspect?	Likely (or have potential) to be Significant?	Scope In/ Out	Scoping Result & Rationale ( <i>scoped out only</i> )
Agricultural Land	Yes	No, but of Importance	Scope In	See Section EIAR 6.3.1 Part 2 Evaluation
Forestry Land	Yes	No, but of Importance	Scope In	See Section EIAR 6.3.2 Part 2 Evaluation
Public Amenity Land-Use	No	No	Scope Out	<u>Scoped Out</u> : There is a soccer pitch (Brookville AFC) located on private lands in Tinnalintan, adjacent to the public road along which the Grid Connection cabling is routed. However, the cables will not be placed within the soccer grounds, and no impacts to the use of the pitch will occur.  There are no other public parks or other public recreational amenity areas within or proximate to the development site.  The public road, L5840 (known locally as Cromwell's Road) is used as a walking amenity, and an official walking trail may be developed along it in the future. While some temporary disruption may occur during the construction phase, the Project will not cause any permanent changes to the use of these public roads as walking trails because the Operational Phase will create very little traffic.
Equestrian Land-Use	No	No	Scope Out	<u>Scoped Out</u> : None of the lands within the development site are used for equestrian activities (a subset of agricultural land use). The British Horse Society 2024 "Advice on Wind turbines and horses for planning officers and developers" recommends a separation distance of three times the turbine tip

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				height from equestrian businesses. The nearest equestrian enterprise is to the east of the site and is at a distance greater than three times tip height from the turbines. Therefore, it is considered that the potential for significant impacts can be excluded.
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## **EIAR 6.3 LAND PART 2: EVALUATION SECTION**

This Evaluation Section examines the scoped-in Sensitive Aspects in greater detail, and comprises a baseline description and impact evaluation for each of the Sensitive Aspects, presented in the following order:

Section EIAR 6.3.1: Agricultural Land

Section EIAR 6.3.2: Forestry Land

### **EIAR 6.3.1 SENSITIVE ASPECT: AGRICULTURAL LAND**

This detailed evaluation section for Agricultural Land is presented as follows:

- Section EIAR 6.3.1.1 - description of the baseline environment of Agricultural Land;
- Section EIAR 6.3.1.2 - evaluation of the impacts of Ballynalacken Windfarm Project on Agricultural Land; and
- Section EIAR 6.3.1.3 – evaluation of cumulative impacts.

#### **EIAR 6.3.1.1 Baseline Environment – Agricultural Land**

The context, characteristics, importance and sensitivity of *Agricultural Land* are described in the subsections below. The trends and likely evolution (i.e. Do-Nothing scenario) for this Sensitive aspect are also considered.

##### **EIAR 6.3.1.1.1 Characteristic/Context of Agricultural Lands**

Agricultural land is land which is used for the production of crops or livestock. Such land has generally been enclosed and improved significantly by the addition of nutrients and the application of knowledge and technical expertise. While variable in appearance, it is greatly modified from its unimproved state in terms of botanical composition, drainage status and physical presentation.

Agriculture accounts for 67.6% of the usage of national land cover. The main agricultural use class is permanent pasture (55.1% national land cover), followed by land principally occupied by improved grassland which is interspersed with areas of natural vegetation (6.9%), and arable land (4.5%).

In the vicinity of the proposed Ballynalacken Windfarm, and along the Internal Cable Link, Grid Connection and haul route works elements, the agricultural usage of the land is improved grassland/and permanent pasture.

The proposed windfarm is sited on a ridge overlooking the River Nore as it runs north to south from Durrow to Ballyragget. The ridge line demarcates the western edge of an area known as the Castlecomer Plateau. Agriculture on the Castlecomer Plateau is dominated by grassland production on heavy, clay rich soils. Farming here is long established, comprising livestock farming, dairying and beef cattle rearing with sheep rearing a minor enterprise. There has been notable production upscaling, restructuring of farm holdings, enlargement of field layouts and technological improvement over time and the use of the land for milk and livestock production in this district continues to be the primary agricultural land use.

24ha of the Construction Works Areas are located on agricultural lands. The agricultural lands are predominantly comprised of permanent grassland (23.1ha), along with farm tracks. Access to these lands is generally through existing gateways off the local public road network, primarily off the local roads that run south, north and east from Ballymartin Crossroads. In total there are 20 no. of agricultural landholdings involved in the Project, the vast majority of these landowners live and farm locally.

##### **EIAR 6.3.1.1.2 Existing Sources of Impacts to Agricultural Land**

The occurrence of existing pollution or environmental damage in the areas on or around the location of the Project have also been considered. No existing pollution or damage to Agricultural Land is taking place at the

Project site. There is no abandoned land within the site boundary, and all the agricultural land is kept in good order.

**EIAR Figures: (included at the end of this Chapter)**

Figure 6.1: Land-Use

Figure 6.2: Construction Stage Agricultural and Forestry Land-Use

Figure 6.3: Operational Stage Agricultural and Forestry Land-Use

**EIAR 6.3.1.1.3 Importance of Agricultural Lands & Sensitivity to Change**

**Importance:** Farming is an important use of land in both the study area and in the wider area around the proposed development. This landuse contributes at a notable level to the local economy in the commercial production of food and therefore to the security of rural livelihoods. On a broader scale however, there is no particular strategic or significant aspect to the farming hereabouts at regional or national level.

**Sensitivity to Change:** The farming use of land as it occurs in this area is a practice that modifies and maintains what would otherwise be natural systems into productive agricultural usage. Agricultural land is a dynamic entity and land maintenance and development works are routine and ongoing in the management of farmland.

Overall, while agricultural landuse is considered to be of moderate social value, it is considered to have **Low** sensitivity as it is not liable to be influenced by the development.

**EIAR 6.3.1.1.4 Evolution of the Baseline Environment (the 'Do-Nothing' scenario)**

**Trends in Key Indicators over time:** In terms of landuse trends in the area, no particularly strong tendency is apparent in farming practice. Agricultural usage, primarily grass production is the dominant landuse and will remain so for the foreseeable future, although over time, emphasis on a particular farm enterprise may alter arising from consumer demand or policy changes. Such change is well accommodated in farmed land, a robust system of land use. It is, however, likely that the size of individual farm holdings will increase with the passage of time and there may be some relatively small further movement from agricultural to forestry use.

Change in farming is very slow. It is anticipated that CAP will maintain this slow pace into the foreseeable future. Modification to the existing environment will thus be at a rate that is barely perceptible over time. Therefore, it is assumed in this report that the baseline environment identified above will be the receiving environment.

The construction, operation and decommissioning of the windfarm will not impact the evolution of farming in the medium, long and permanent timeframes as the intersectionality between them is not of a significant scale.

**Driver of Change - Climate change:**

Climate change will impact on agricultural land in Ireland. Increased average temperature will change plant growth patterns and will make the management of plant types adapted to past temperature ranges and annual precipitation amounts more challenging and livelihood threatening.

Additionally, changed climate and especially elevated temperature will enable new pests and diseases of agricultural relevance to become established here. Farm systems that are now relatively stable will become vulnerable and yields and performance will have more unpredictable tendencies.

Tools to address climate change cross cut all sectors of economic activity, including agriculture. Climate mitigation is focused on reducing greenhouse gas emissions and increasing the carbon storage potential of vegetative land cover and soils. Climate mitigation is required in order to protect the continued reliable use of agricultural lands.

**EIAR 6.3.1.2 Impact Evaluation – Agricultural Land**

This Section comprises an evaluation of the likely significant impacts of the proposed Ballynalacken Windfarm Project on the receiving environment. Moderate, Slight, Imperceptible and Neutral Impacts are also taken into consideration.

- a) Significant Impacts which are likely or have potential to occur, are subject to detailed evaluation;
- b) Moderate or Slight Impacts, which are likely or have potential to occur, are subject to detailed evaluation;
- c) Non-significant impacts of local concern or considered important enough to merit detailed evaluation;
- d) Neutral or Imperceptible Impacts are scoped out from detailed evaluation, and a short evaluation is provided in the table below. Unlikely Impacts are also scoped out.

**Table 6-4: Impacts to Agricultural Land**

Likely/Potential Impact	Evaluation
Moderate or Slight Impacts, which are likely or have potential to occur - see detailed evaluation	
Construction Phase: Degradation or loss of farm water supply	See Section EIAR 6.3.1.2.1
Non-significant impacts considered important enough (or of local concern) – see detailed evaluation	
Construction & Operation Phases: Reduction in Land Area available for Agricultural Use	See Section EIAR 6.3.1.2.2
Neutral or Imperceptible Impacts, or where no impact is likely to occur – evaluation below	
Construction Phase: Reduction or loss of productivity due to degradation of soils	<p><u>Neutral Impact</u> as the potential for reductions or loss of productivity on agricultural lands as a result of degradation (compaction, erosion or weathering) of soils will be limited to small areas of agricultural lands which occur within the construction works area boundary, within lands beyond permanent hardstanding areas returned to agricultural use following construction. With the potential for compaction mainly at the temporary compound areas, temporary hardstand at the met mast, and temporary soil deposition areas at the borrow pits, and spread across a number of landholdings.</p> <p>No compaction or degradation of soils will occur beyond the construction works area boundary as temporary fencing will be erected along the alignment of the construction works boundary to prevent the encroachment of personnel, vehicles, machinery or materials beyond the boundary.</p>
Construction & Operation Phases: Loss of connectivity of landholdings	<u>Imperceptible Impact</u> due to the alternative access available on many landholdings, and the provision of crossing points and access gates along both the construction area boundary fence lines and the operational phase boundary fence lines. Therefore, it is considered that impacts to landholding connectivity will be imperceptible.
Construction Phase: Effects on animal health and wellbeing due to increases in airborne dust and deposition of dust on grasslands	<u>Not Significant</u> : According to Chapter 9 Air Quality, during dry and windy weather conditions, construction dust emissions will arise from construction activities such as excavations, earth moving and backfilling and from vehicles transporting potentially dusty material also have the potential to cause dust generation along the concentrated haul routes from the construction areas. Dust impacts can occur up to 250m for the source, however, the greatest impacts will occur within the first 50m. The lands within 50m and 250m of the main sources of dust (i.e. excavations, earth moving and backfilling) are predominantly owned by landowners involved in the development, with just 5 no. 3 <sup>rd</sup> party agricultural landholdings within 50m, and 16 no. within 250m, therefore the no. of receptors potentially affected is very low.

	Dust can affect animal health and wellbeing, particularly when animals are exposed to high levels of dust over extended periods, however it is considered that the construction of the Ballynalacken Windfarm Project is unlikely to cause significant impacts given the requirement for dry and windy weather conditions, the temporary nature of the works, and the low numbers of livestock/animals and landholdings potentially affected.
<u>Construction &amp; Operation Phases:</u> Reduced growth rates due to a change in the drainage regime	<u>Neutral impact</u> - the design of the windfarm site drainage network (designed by hydrological engineers - HES), which will be put in place during construction and remain in place during the operation of the windfarm is based on the existing drainage patterns at the Project site, and these drainage patterns will be maintained through the capture of surface water runoff upslope of the works (in the clean water drain) and the piping of this water to the downslope side via the provision of regular cross drains and outfall weirs
<u>All Phases:</u> Increased farm management costs due to spread of invasive species	<u>Unlikely Impact:</u> There is one invasive alien plant species (IAPS) recorded within the site boundary associated with the Ballynalacken Windfarm Project (Cherry Laurel). Therefore, there is a risk IAPS could be spread at the site. There is also a risk that an infestation of IAPS could be introduced through the movement of plant, machinery or natural materials onto the site. IAPS can be costly to manage on farm, resulting in a loss of profitability to landowners. However, given the active management of agricultural lands at the site, it is considered unlikely that any new infestations would be allowed to become established.
<u>Operation Phase:</u> Improvement in farm infrastructure	<u>Imperceptible Positive impact</u> on local farm infrastructure through the provision of new site access roads and the upgrading of existing farm tracks, with most landholdings affected. However, due to the short lengths of roads in individual landholdings, and the existing ease of access from the public road network to most landholdings, it is considered the any positive impacts will be Imperceptible.
<u>Decommissioning Phase:</u> Return to agricultural use	<u>Neutral Impact:</u> There will be no loss of use of surrounding lands during decommissioning works. The reversion of lands to former landuse and any re-widening works will take place across a number of individual landholdings, with lands reseeded and returned to agricultural use within a relatively short timeframe. Overall, the impact on landuse will be Neutral.

EIAR 6.3.1.2.1 Degradation or loss of farm water supply			
Sensitive Aspect:		Agricultural Land	
Sensitivity:		Moderate	
Impact Source(s)		Reduction in Groundwater Quality or Quantity at local wells from oil/fuel spills, use of cement-based compounds, excavations causing turbidity.	
Impact Pathway(s)		Recharge and Groundwater flow paths	
Project Stage		Construction	
<u>Overview of Impact (general):</u>			
Groundwater is an important natural resource at the windfarm site providing drinking water to livestock. The main risk to rural wells is contamination from human or animal waste from septic tanks, slurry spreading, grazing animals and also oil and fuel spills/leaks from oil tanks. Sources of contamination from the Ballynalacken Windfarm Project include oil, fuel or cement leaks or spills, and turbidity in groundwater caused by excavations. Contamination can occur as a result of overland surface flow or underground through the soil layers.			
<u>Examination of the Impact of the Proposed Ballynalacken Windfarm Project:</u>			
As per Chapter 8: Water (Section EIAR 8.3.3.2 Reduction in Groundwater Quality or Quantity at local wells) - there are 8 wells within 500m of a turbine/borrow pit which supply drinking water to livestock. 7 of these 8 wells are on lands owned by a landowner involved in the Project - only GW_10 is owned by a 3rd party. Two of these wells are located upslope of the turbine excavation works, GW_04 and GW_05, and therefore are not likely to be affected by turbidity or contamination effects.			
Of the remaining 6 wells, three wells (GW_02, GW_08, GW_09) are located within 300m of turbine/borrow pit excavations, these wells are 196m downslope of T12, and 45m/227m downslope of T8, all on lands owned by landowners involved with the Project. Without mitigation in place, these wells could be adversely affected (Negligible/Small Adverse) by the excavation works and presence of hydrocarbons in site machinery and vehicles.			
At the remaining three wells, GW_01, GW_03 and GW_10 (3rd party), it is considered that the magnitude of impacts will be no greater than Negligible/Small Adverse due to the separation distances (>300m) from the turbine/borrow pit works.			
Furthermore, it is noted that the 3rd party well, GW_10, is located 100m from the works at the Windfarm Control Building, where a shallow foundation will be excavated and concrete foundation will be poured for the new control building. Due to the separation distance (~100m), it is considered that there is potential, without mitigation, for Negligible/Small Adverse impacts to this well.			
The societal value of these wells is considered Moderate at a local level for individual landholdings which do not have an easily accessible alternative supply. Turbidity is unlikely to affect the use of these wells for livestock drinking purposes, however should a well be contaminated by oils/fuels, then there is potential for that well to become unavailable for livestock use. This would result in at least a brief loss of water supply for cattle until an alternative supply can be provided or the well cleared of contamination, resulting in disruption and potentially financial costs to the landowner, resulting in Moderate magnitude of impact.			
There are also water supply pipes buried under grass fields, and there is potential for interruptions in livestock drinking water supply – should these pipes be damaged during excavation works. However, this type of damage is easily fixed and any impacts will be of low magnitude.			
Impact Magnitude		Low/Moderate	Impact Significance: (pre-mitigation) Imperceptible - Slight
Mitigation and Monitoring Measures: Even though Significant impacts are not predicted; the following mitigation and monitoring measures will be implemented as best practice environmental management.			
*See Chapter 19: Mitigation and Monitoring Arrangements for full wording of mitigation measure			
MM01	The boundaries of the Construction Works Area will be fenced to prevent the encroachment of construction phase personnel, machinery or materials beyond this boundary. In agricultural lands,		



	livestock proof fencing will be used, with landowner access maintained through the provision of gates along the boundary fences.
MM02	Construction traffic, personnel and materials will be restricted to within the Construction Works Area Boundary fence. Machinery will be kept on the windfarm site roads and hardstanding areas, and, aside from advancing excavations, will avoid moving onto areas not delineated on the site drawings
SM13	A Landowner Liaison Officer (LLO) will be appointed and will monitor the erection and maintenance of the Construction Works Area boundary fences, and will liaise with the landowners regarding the location of access gateways along the fence, and of livestock water supply pipes and livestock water supply sources ( <i>agricultural landowners only</i> ). The LLO will keep the landowners up-to-date with relevant construction work schedules.
SM18	The plant and machinery will be regularly inspected for leaks and maintained in good working order for the duration of the works.
SM19	Fuel, oil and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage.
MM21*	Concrete control procedures will be implemented including no batching; ready mixed concrete will be used for all foundations; work scheduled for dry days; experienced operators; run-off will be settled out and no concrete truck washing on-site.
MM22*	Fuel/oil control procedures will be implemented including control of on-site refuelling of plant and machinery; provision of spill kits. trained operatives, use of double-skinned mobile bowsters. Emergency Response Plan in place.
MM23	There will be no refuelling of vehicles or plant permitted within 100m of a watercourse or wet drainage channel or local spring/well.
MM24*	All fuels or oils, will be stored in designated, bunded, locked storage areas and fitted with a storm drainage system and an appropriate oil interceptor. Emergency Response Plan in place.
MM25	Overnight parking of plant and machinery will only be permitted at locations which are greater than 50m from watercourse/drainage features and at an existing hard-core surface. Drip trays and fuel traps will be used under and around parked plant and machinery to contain any leaks.
<p><b>Effectiveness of Mitigation and Monitoring Measures:</b> The potential for the release of contaminants to groundwater receptors is a risk to groundwater quality. Proven and effective measures to mitigate the risk of releases of fuel/oil contaminants have been proposed above and will break the pathway between the potential sources and the receptor. According to the hydrogeological assessment of the site with regard to groundwater user risk and the proposed mitigation measures, the residual potential to impact on local wells/water supply sources at the Ballynalacken Windfarm site is very low; and due to the shallow nature of the Windfarm Control Building, Internal Cable Link, Tinnalintan Substation and Ballynalacken Grid Connection, no effects on private wells will occur.</p>	
<p><b>Residual Impact Significance (<i>post-mitigation</i>):</b></p>	
Neutral	

EIAR 6.3.1.2.2 Reduction in Land Area available for Agricultural Use			
Sensitive Aspect:		Agricultural Land	
Sensitivity:		Moderate (as per Section EIAR 6.3.1.1)	
Impact Source(s)		Turbine foundations, new hardstanding areas and access roads, deposition areas, drainage network, compounds, works areas	
Impact Pathway(s)		Fences, presence of construction machinery, land cover	
Project Stage		Construction & Operation Phases	
<u>Overview of Impact (general):</u>			
The removal of lands from agricultural use incurs a loss of output/food production and a loss of income for the landowner.			
<u>Examination of the Impact of the Proposed Ballynalacken Windfarm Project:</u>			
Agriculture accounts for 67.6% of the national land cover, with pastures making up the majority of this area (55% of national land cover). This land is used to produce foods such as milk, meat and associated products. 24ha of the Construction Works Areas are located on agricultural lands. The agricultural lands are predominantly comprised of permanent grassland (23.1ha), while the remaining lands comprise farm tracks and hardstanding areas. 12.4ha will be permanently removed from agricultural use and will change use to windfarm hardstand/turbine foundation/windfarm roads/substation compound. The remaining 11.6ha will be temporarily removed from agricultural use but will be reinstated post construction and reverted to farming usage. During the operational phase, 0.5ha in Agricultural Lands may lose temporary use during any re-widening works required for transporting turbine components. The temporary loss of agricultural land, including at the Blade Transfer Area (HR8) is likewise of very small scale and of temporary duration. In addition, 8.1ha of agricultural lands in Ballyouskill townland will be managed as a Biodiversity Protection Area for the lifetime of the windfarm, these lands will be managed to preserve the current wet heath habitat, with grazing restricted to annual/biannual grazing according to conservation requirements. This land will not be available to the landowner for general agricultural use, and will not be improved through drainage, ploughing, reseeding etc.			
The permanent or long-term loss of agricultural land is relatively small in scale (12.4ha in total), in the context of the abundance of agricultural lands at the Project site and in the surrounding areas, with loss of use impacts spread out over 20 agricultural holdings. While the loss of use of 13ha of agricultural lands within the operational phase boundary will be observable, overall, the change to environmental conditions will be small, and changes to people will be Neutral as the landowners will be financial beneficiaries of the Project. Overall, the magnitude of this loss of use is considered to be Low.			
Impact Magnitude	Low (locally)	Impact Significance: (pre-mitigation)	Imperceptible
<b>Mitigation and Monitoring Measures:</b> Even though Significant impacts are not predicted; the following mitigation and monitoring measures will be implemented as best practice environmental management.			
SM13	A Landowner Liaison Officer (LLO) will be appointed and will monitor the erection and maintenance of the Construction Works Area boundary fences, and will liaise with the landowners regarding the location of access gateways along the fence, and of livestock water supply pipes and livestock water supply sources ( <i>agricultural landowners only</i> ). The LLO will keep the landowners up-to-date with relevant construction work schedules.		
MM01	The boundaries of the Construction Works Area will be fenced to prevent the encroachment of construction phase personnel, machinery or materials beyond this boundary. In agricultural lands, livestock proof fencing will be used, with landowner access maintained through the provision of gates along the boundary fences.		
MM02	Construction traffic, personnel and materials will be restricted to within the Construction Works Area Boundary fence. Machinery will be kept on the windfarm site roads and hardstanding areas,		

	and, aside from advancing excavations, will avoid moving onto areas not delineated on the site drawings
MM03	Land reinstatement will not be carried out during very wet weather or when the soil is waterlogged. If any compaction has occurred along the construction works area, these areas will be ploughed with a sub-soiler to loosen the subsoil layer
<p><u>Effectiveness of Mitigation and Monitoring Measures:</u> Fencing of construction works boundaries will ensure that works do not extend beyond the boundary, and that land use surrounding works can continue. Crossing locations will ensure connectivity within and to adjacent field. Landowner liaison measures will keep landowners up-to-date with relevant construction works.</p>	
<p><b>Residual Impact Significance (<i>post-mitigation</i>):</b></p>	
<b>Imperceptible</b>	

**EIAR 6.3.1.3 Cumulative Impact on Agricultural Land with Other Projects****EIAR 6.3.1.3.1 Introduction to the Cumulative Evaluation for Agricultural Land**

The Ballynalacken Windfarm Project (*whose effects range from Neutral to Slight, as per Section EIAR 6.3.1.2*) is examined hereunder for potential to have cumulative effects on Agricultural Land with other existing and permitted projects and projects advanced in the planning system. These projects are referred to as 'Other Projects' herein.

A Cumulative Study Area is set out below and Other Projects located within this Study Area are identified and examined for in-combination effects with the Ballynalacken Windfarm Project. The potential for off-site and secondary consequential development is also considered.

**EIAR 6.3.1.3.2 Agricultural Land - Cumulative Study Area**

The individual landholdings within which the works are located. The potential for Other Projects to cause cumulative impacts is limited to the landholdings associated with the Ballynalacken Windfarm Project.

**EIAR 6.3.1.3.3 Evaluation of Cumulative Impacts**

The Other Projects which occur within the Cumulative Study Area are identified in the table below and in **Figure 6.4: Other Projects considered for Cumulative Effects to Land** (included at end of this chapter).

The Ballynalacken Windfarm Project is examined below for cumulative effects with each of the Other Projects within the Cumulative Study Area. The evaluation of the collective cumulative impact of the Ballynalacken Windfarm Project in-combination with all the Other Projects then follows. The evaluation takes into account any existing sources of pollution or damage identified in Section EIAR 6.3.1.1.2.

**Table 6-5: Evaluation of Ballynalacken Windfarm Project cumulatively with Other Projects**

Other Project	Status	Evaluation of Cumulative Impact
Laois-Kilkenny Grid Reinforcement Project  Moatpark – Loan 38kV Overhead Line	Under Construction  Existing	<u>Neutral Cumulative Impact:</u> The effect on land use as a result of the existing/new pylons and polesets will be Neutral due to the very small footprint of the pylons and pole sets with negligible impact on farming activity. The existing/new pylons and pole sets would have no effect on existing drainage regimes. Furthermore, there will be no overlap of construction periods within the Cumulative Study Area, as these Other Project will be already constructed by the time the Ballynalacken Windfarm Project commences construction. In relation to the recently approved extension to the Ballyragget Substation, effects will be negligible due to the small footprint and locational context of the works.
Offsite Project – Forestry Replant Lands (outside of cumulative geographical boundary)	Future activity	<u>No Cumulative Impact:</u> The impact of afforesting 19.9ha of agricultural lands will be negligible in the context of the abundance of agricultural lands throughout Ireland. Furthermore, the replanting of lands is required as a condition of the felling licence which will be issued by the Minister for Agriculture, Food and the Marine. In relation to cumulative impacts with the Ballynalacken Windfarm Project, because the afforestation lands will not be located within the geographical study area boundary - this activity will take place on lands remote from the Ballynalacken Windfarm site - there will be no potential for cumulative impacts with agricultural lands at the Ballynalacken Windfarm Project.
Secondary Project: Other Energy Projects connecting	Potential future project	<u>No Likely/Imperceptible Cumulative Impact:</u> A future possible connection by another energy project into the Tinnalintan Substation might consist of a cable route/overhead line through agricultural landholdings involved in the

Other Project	Status	Evaluation of Cumulative Impact
to Tinnalintan Substation		Ballynalacken Windfarm Project, most likely in the landholding associated with the Tinnalintan Substation compound. However, these possible future works (cable trench/pole sets) would likely relate to underground cable trenches or overhead lines, with works of temporary duration and lands returned to landowner for use once the trench/pole works are completed and would have a negligible impact on the use of the land, therefore any cumulative impacts would be Imperceptible.

As detailed in the evaluations in the table above, the Ballynalacken Windfarm Project will not result in significant cumulative impacts with any of the Other Projects within the Cumulative Study Area.

When the effects of the Ballynalacken Windfarm Project are considered collectively with all of the Other Projects within the Cumulative Study Area, it is evaluated that due to the minimal/small footprints of the projects cumulatively in the context of the abundance of agricultural lands in the area, and considering the temporary nature of landuse loss during the construction of cable routes or overhead lines, that the **collective cumulative impact to Agricultural Lands will not be significant**.

**EIAR 6.3.2 SENSITIVE ASPECT: FORESTRY LAND**

This detailed evaluation section for Forestry Land is presented as follows:

- Section EIAR 6.3.1.1 – description of the baseline environment of Forestry Land;
- Section EIAR 6.3.1.2 – evaluation of the impacts of Ballynalacken Windfarm Project on Forestry Land; and
- Section EIAR 6.3.1.3 – evaluation of cumulative impacts.

**EIAR 6.3.2.1 Baseline Environment – Forestry Land**

The context, characteristics, importance and sensitivity of *Forestry Land* are described in the subsections below. The trends and likely evolution (i.e. Do-Nothing scenario) for this Sensitive aspect are also considered.

**EIAR 6.3.2.1.1 Characteristic/Context of Forestry Lands**

Forestry land is land which has been committed by positive management to the production of forest crops (wood and fibre materials). Typically, in the Irish context it will have a small number of tree species planted and husbanded to grow commercial crops. It is normally a permanent use of land with change to other land uses permitted in very limited circumstances.

The Castlecomer Plateau has been a notable forestry area in Ireland being both the focus of public and private afforestation for many years. The heavy land grows trees, mainly Sitka spruce, well but a particular limitation is a propensity to windblow after c.30 years of growth. Forestry is nonetheless a significant landuse in the area of the proposed development and part of the proposal is located on forested lands.

There is approximately 275ha of forestry in the area around the Ballynalacken site. The majority is commercial forestry, with a high percentage also having very good growth rates (yield class) and having good quality timber.

In total 21.35ha of the Construction Works Areas are located on forestry lands, comprising commercial forestry plantation (20.7ha) and forestry roads (0.65ha).

The forestry within the Construction Works Areas comprises three species of trees (Norway Spruce, Sitka Spruce and Japanese Larch) planted in 29 no. of forest plots over 5 no. of landholdings. The majority of the conifers in these plots were planted in the 1990's and are due to be felled in the 2030's. [See Appendix 6.1: Composition of Forestry at the Proposed Ballynalacken Project](#)

**EIAR Figures: (included at the end of this Chapter)**

[Figure 6.1: Land-Use](#)

[Figure 6.2: Construction Stage Agricultural and Forestry Land-Use](#)

[Figure 6.3: Operational Stage Agricultural and Forestry Land-Use](#)

**EIAR 6.3.2.1.2 Existing Sources of Impacts to Forestry Land**

The occurrence of existing pollution or environmental damage in the areas on or around the location of the Project have also been considered. All of the forestry is in good condition in the forestry plots associated with the windfarm. No existing pollution or damage within the forested areas was observed during site surveys.

**EIAR 6.3.2.1.3 Importance of Forestry Land & Sensitivity to Change**

**Importance:** Forestry is an important commercial landuse in Ireland supported over 9,000 full-time jobs in the processing sector and generating over €2 billion in revenues annually. Considerable value added processing is made to timber from this locality at mills in Coolrain (Laois), Portlaoise, Kilkenny and Waterford. In addition to its traditional timber outputs, a sizable market is emerging in the production of energy from forest material.

**Sensitivity to Change:** Like agriculture, forestry as a landuse is robust and is an activity of some scale. In terms of change, it undergoes periodic and observable change in its management regimes (harvesting and replanting) and accordingly is considered not sensitive to change.

Overall, while forestry landuse is of moderate social value, it is considered to have **Low** sensitivity as it is not liable to be influenced by the development.

#### EIAR 6.3.2.1.4 Evolution of the Baseline Environment (the 'Do-Nothing' scenario)

**Trends in Key Indicators over time:** Forestry in Ireland is expanding in area albeit at a very slow rate. It is a key tool in climate change mitigation for the land use sector and government policy is to grow the national forest estate. Nationally, it is planned to increase land under forestry from 11% now to about 17% by the year 2050. Given the prominence of forest cover in the locality the amount of forestry is expected to increase slowly in the coming years.

Change in forestry cover is very slow. Irish government policy will maintain this slow pace of increase of forest cover into the foreseeable future. Modification to the existing environment will thus be at a rate that is barely perceptible over time. Therefore, it is assumed in this report that the baseline environment identified above will be the receiving environment.

#### **Driver of Change - Climate change:**

Climate change will impact on forestry land in Ireland. Increased average temperature will change plant growth patterns and will make the management of plant types adapted to past temperature ranges and annual precipitation amounts more challenging and livelihood threatening.

Additionally, changed climate and especially elevated temperature will enable new pests and diseases of silvicultural relevance to become established here, and increase wildfire risk in our forests. Forest systems that are now relatively stable will become vulnerable and yields and performance will have more unpredictable tendencies.

Tools to address climate change crosscut all sectors of economic activity, including forestry. Climate mitigation is focused on reducing greenhouse gas emissions and increasing the carbon storage potential of forestry.

19.9ha of forestry will be permanently felled for the Ballynalacken Windfarm, with a result loss of carbon sink capacity. According to COFORD this amount of forestry would sequester 245 tonnes of CO<sub>2</sub>e per annum. However, wind generated electricity displaces much more carbon emissions than the carbon sink capacity of the forestry that it displaces. Ballynalacken Windfarm will avoid the production of 35,700 tonnes of CO<sub>2</sub>e per annum equating to 2,915ha of forestry (c.0.4% of national forest) required to sequester the same amount of CO<sub>2</sub>e. See Section EIAR 1.6.2.1.1 of Chapter 1 for the calculations.

**EIAR 6.3.2.2 Impact Evaluation – Forestry Land**

This Section comprises an evaluation of the likely significant impacts of the proposed Ballynalacken Windfarm Project on the receiving environment. Moderate, Slight, Imperceptible and Neutral Impacts are also taken into consideration.

The impacts are presented/evaluated as follows:

- e) Significant Impacts which are likely or have potential to occur, are subject to detailed evaluation;
- f) Moderate or Slight Impacts, which are likely or have potential to occur, are subject to detailed evaluation;
- g) Non-significant impacts of local concern or considered important enough to merit detailed evaluation;
- h) Neutral or Imperceptible Impacts are scoped out from detailed evaluation, and a short evaluation is provided in the table below. Unlikely Impacts are also scoped out.

**Table 6-6: Impacts to Forestry Land**

Likely/Potential Impact	Evaluation
Non-significant impacts considered important enough (or of local concern) – see detailed evaluation	
Construction & Operation Phases: Reduction in Land Area available for Commercial Forestry Use	See Section EIAR 6.3.2.2.1
Neutral or Imperceptible Impacts, or where no impact is likely to occur – evaluation below	
Construction & Operation Phases: Loss of connectivity of forestry parcels	<u>Neutral Impact</u> – due to the infrequent nature of forestry access by forestry managers, the brief duration of works along access roads within individual forestry plots, with most works occurring at turbine hardstanding locations, and the accommodation of forestry machinery passage through the provision of crossing points along the windfarm site roads within forestry plots.
Operation Phase: Damage to trees at bat buffer boundaries due to exposure to wind	<u>Neutral Impact</u> – Proposed turbine locations T6, T10, T11 and T12 are not located on forested lands. T1, T2, T8 and T9 are located in a predominantly middle-aged commercial conifer woodland. Some windblow is possible at these locations, However the forestry owners will be compensated for any loss of timber. T5 and T7 is relatively young, meaning the trees are small in height. Any clearance or removal of trees this size is far less intrusive or potentially damaging to the surrounding forestry. T3 and T4 are located in mature forested areas where the trees have a very high growth rate, clearfell harvesting operations will most likely be scheduled in advance of any wind farm development being built. The forestry composition is detailed in <b>Appendix 6.1: Composition of Forestry at the Proposed Ballynalacken Project</b>
All Phases: Reduced growth rates due to a change in the drainage regime	<u>Neutral Impact</u> – the maintenance of existing drainage regime is a fundamental principle of the design of the windfarm site drainage network. Regular cross drains and outfall weirs will ensure that existing drainage regimes are maintained.
All Phases: Increased forestry management costs due to spread of invasive species	<u>Unlikely Impact</u> : There is one invasive alien plant species (IAPS) recorded within the site boundary associated with the Ballynalacken Windfarm Project (Cherry Laurel). Therefore, there is a risk IAPS could be spread at the site. There is also a risk that an infestation of IAPS could be introduced through the movement of plant, machinery or natural materials onto the site. IAPS can be costly to manage in commercial forestry plots, resulting in a loss of profitability to landowners. However, given the active management of forestry lands at the site, it is considered unlikely that any new infestations would be allowed to become established.



<u>Operation Phase:</u> Improvement in forestry infrastructure	<u>Imperceptible, positive</u> – While the proposed development will have a positive impact on local forestry infrastructure through the provision of new site access roads, all forest plots within the footprint of the windfarm are already easily accessible from the public road and from existing forestry road networks.
<u>Decommissioning Phase:</u> Return to Forestry Use	<u>Neutral impact</u> –there will be no further forestry felling required or loss of access to forestry plots during decommissioning works. The reversion of lands to former landuse will occur within a relatively short timeframe.

EIAR 6.3.2.2.1      Reduction in Land Area available for Commercial Forestry Use			
Sensitive Aspect:		Forestry Land	
Sensitivity:		Low (as per Section EIAR 6.3.2.1)	
Impact Source(s)		Construction works, forestry felling, use of forestry lands to operate the project	
Impact Pathway(s)		Forestry plots, forestry roads, presence of construction machinery	
Project Stage		Construction & Operation Phases	
<u>Overview of Impact (general):</u> The removal of forestry land incurs the loss of income from timber sales. Premature felling (i.e. the cutting down of immature trees) results in the sale of a lower volume of poorer grade timber for lesser return. Additionally, and because of the landuse change from forestry to windfarm usage, subsequent rotations of timber sales are also lost.			
<u>Examination of the Impact of the Proposed Ballynalacken Windfarm Project:</u> In total 21.35ha of the Construction Works Areas are located on forestry lands, comprising commercial forestry plantation (20.7ha) and forestry roads (0.65ha). In order to construct the Ballynalacken Windfarm, it will be necessary to fell forestry, although it is noted that the design of the windfarm layout used existing roads/tracks and existing firebreaks where possible for access roads, in order to reduce the total felling area. Although a keyhole approach has been used (where a minimum area is felled to accommodate construction and erection of the turbines), this area was then increased to provide a 50m buffer zone around the swept area of the blade in order to protect foraging bats. In total 19.9ha will be permanently felled. This felling will be carried out under licence issued by the Forest Service division of the Department of Agriculture, Food and the Marine. The felling licence will require that the equivalent forestry is replanted elsewhere. The replanting site will be located remote from the Ballynalacken area and will be technically approved under an afforestation licence issued by the Forest Service. The replacement forestry will be planted within 1-2 years of the felling date. It is considered that due to the relatively small area subject to permanent felling (19.9ha), in the context of the extent of forestry in this area (275ha) with further extensive areas of forestry throughout the Castlecomer Plateau, and considering the compensation to the land users for timber loss, and the replanting of 19.9ha of forestry at an alternative location as required under the felling licence, that the magnitude of landuse change on forestry lands will be Low.			
Impact Magnitude		Low	Impact Significance: (pre-mitigation) Imperceptible
Mitigation and Monitoring Measures: Even though Significant impacts are not predicted; the following mitigation and monitoring measures will be implemented as best practice environmental management.			
SM13	A Landowner Liaison Officer (LLO) will be appointed and will monitor the erection and maintenance of the Construction Works Area boundary fences, and will liaise with the landowners regarding the location of access gateways along the fence, and of livestock water supply pipes and livestock water supply sources ( <i>agricultural landowners only</i> ). The LLO will keep the landowners up-to-date with relevant construction work schedules.		
MM01	The boundaries of the Construction Works Area will be fenced to prevent the encroachment of construction phase personnel, machinery or materials beyond this boundary. In agricultural lands, livestock proof fencing will be used, with landowner access maintained through the provision of gates along the boundary fences.		
MM02	Construction traffic, personnel and materials will be restricted to within the Construction Works Area Boundary fence. Machinery will be kept on the windfarm site roads and hardstanding areas, and, aside from advancing excavations, will avoid moving onto areas not delineated on the site drawings		

MM03	Land reinstatement will not be carried out during very wet weather or when the soil is waterlogged. If any compaction has occurred along the construction works area, these areas will be ploughed with a sub-soiler to loosen the subsoil layer		
<u>Effectiveness of Mitigation:</u> Fencing of construction works boundaries and felled areas around the turbines will ensure that works do not extend beyond the boundary, and liaison measures will keep landowners up-to-date.			
<table> <tr> <td><b>Residual Impact Significance (<i>post-mitigation</i>):</b></td><td><b>Imperceptible</b></td></tr> </table>		<b>Residual Impact Significance (<i>post-mitigation</i>):</b>	<b>Imperceptible</b>
<b>Residual Impact Significance (<i>post-mitigation</i>):</b>	<b>Imperceptible</b>		

**EIAR 6.3.2.3 Cumulative Impact on Forestry Land with Other Projects****EIAR 6.3.2.3.1 Introduction to the Cumulative Evaluation for Forestry Land**

The Ballynalacken Windfarm Project (*whose effects range from Neutral to Imperceptible, as per Section EIAR 6.3.2.2*) was examined for potential to have cumulative effects on Forestry Lands with other existing or permitted projects and projects advanced in the planning system. These projects are referred to as 'Other Projects' herein.

A Cumulative Study Area is set out below and Other Projects which occur or are planned within this Study Area are identified and examined for in-combination effects with the Ballynalacken Windfarm Project. The potential for off-site and secondary consequential development is also considered.

**EIAR 6.3.2.3.2 Cumulative Study Areas**

The individual forestry plots within which the works are located, because the potential for Other Projects to cause cumulative impacts is limited to the forestry plots associated with the Ballynalacken Windfarm Project.

**EIAR 6.3.2.3.3 Evaluation of Cumulative Impacts**

The Other Projects which occur within the Cumulative Study Area are identified in the table below and in **Figure 6.4: Other Projects considered for Cumulative Effects to Land** (included at end of this chapter).

The Ballynalacken Windfarm Project is examined below for cumulative effects with each of the Other Projects within the Cumulative Study Area. An evaluation of the collective cumulative. The evaluation takes into account any existing sources of pollution or damage identified in Section EIAR 6.3.2.1.2

**Table 6-7: Evaluation of Ballynalacken Windfarm Project cumulatively with Other Projects**

Other Project	Status	Evaluation of Cumulative impact
Laois-Kilkenny Grid Reinforcement Project	Under Construction	<u>Neutral Cumulative Impact:</u> No potential for cumulative impacts to forestry land at the Ballynalacken Windfarm site as a result of the new or existing pylons and pole sets due to the separation distance from the forestry parcels to the Laois-Kilkenny Grid Reinforcement Project, with the Moatpark-Loan 38kV OHL already in existence. Overall, there will be a Neutral impact on commercial forestry activity at a local or regional scale, given the small scale of forest cover loss. In addition, no overlap of construction phases as this Other Project will be completed by the time the Ballynalacken Project commences construction.
Moatpark – Loan 38kV Overhead Line	Existing	
Offsite Project – Forestry Replant Lands (outside of cumulative geographical boundary)	Future activity	<u>Neutral Cumulative Impact:</u> At a national level, the impact to Forestry will be Neutral with the replanting of forestry offsetting the felling required for the Ballynalacken Windfarm Project.
Secondary: Other Energy Projects connecting to Tinnalintan Substation	Future project, unknown	<u>No Likely/Imperceptible Cumulative Impact:</u> a future possible connection by another energy projects into the Tinnalintan Substation, could possibly consist of a cable route/overhead line through forestry landholdings involved in the Ballynalacken Windfarm Project. However, these possible future works (cable trench/pole sets) would be temporary works, small scale, with lands returned to landowner for use once the trench/pole works are complete. The landowner would be compensated for the loss of timber and any forestry felling would be required to be offset through the replanting of the equivalent area of forestry on other lands. Therefore, the impact on forestry landuse

Other Project	Status	Evaluation of Cumulative impact
		would be negligible and any cumulative impacts would be imperceptible.

As detailed in the evaluations in the table above, the Ballynalacken Windfarm Project will not result in significant cumulative impacts with any of the Other Projects within the Cumulative Study Area.

When the effects of the Ballynalacken Windfarm Project are considered collectively with all of the Other Projects within the Cumulative Study Area, it is evaluated that due to the minimal/small footprints of the projects cumulatively in the context of the abundance of forestry lands in the area, and considering the relatively small scale of forest loss along cable routes or associated with overhead lines, that the **collective cumulative impact to Forestry Lands will not be significant**.

#### **EIAR 6.3.3 Statement on Certainty and Sufficiency of Information Provided**

A clear documentary trail is provided throughout this chapter and chapter appendices to the competency of data and methods used and the rationale for selection of same. The information used to compile this chapter is collated from reports and documents generated by local authorities and statutory agencies, with remit in the regulatory field, including the Department of Agriculture, Food and the Marine, the EPA and Kilkenny County Development Plan 2021. All documentation used is referenced at the end of the chapter.

In respect of Land, no material limitations or difficulties were encountered during the course of the studies carried out to inform the assessment of impacts of the Ballynalacken Windfarm Project on Land.

## EIAR 6.4 Summary Conclusion

**AGRICULTURAL LAND:** Some low levels of impact during construction. However, due to the Low sensitivity of Agricultural Landuse, and with the implementation of mitigation measures, the residual impact of the proposal on Agricultural Land will be Imperceptible.

**FORESTRY LAND:** Some low levels impact during construction and operation. However, due to the Low sensitivity of Forestry Landuse, and with the implementation of mitigation measures, the residual impact of the proposal on Forestry Land will be Imperceptible.

**CROSS FACTOR CLIMATE CHANGE EFFECTS:** A positive impact is anticipated in stabilising adverse climate impacts on farming and forestry and providing security and certainty on energy supply and price.

**Overall, it is evaluated that the impact on the Environmental Factor, Land, will Imperceptible, and there is no likelihood for adverse significant effects.**

**EIAR 6.5 Reference List for Land**

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**EIAR 6.6 List of Figures for Land**FIGURES (overleaf)

Figure 6.1	Land-Use
Figure 6.2	Construction Stage Agricultural and Forestry Land-Use
Figure 6.3	Operational Stage Agricultural and Forestry Land-Use
Figure 6.4	Other Projects considered for Cumulative Effects to Land

**EIAR 6.7 List of Appendices for Land**APPENDICES (overleaf)

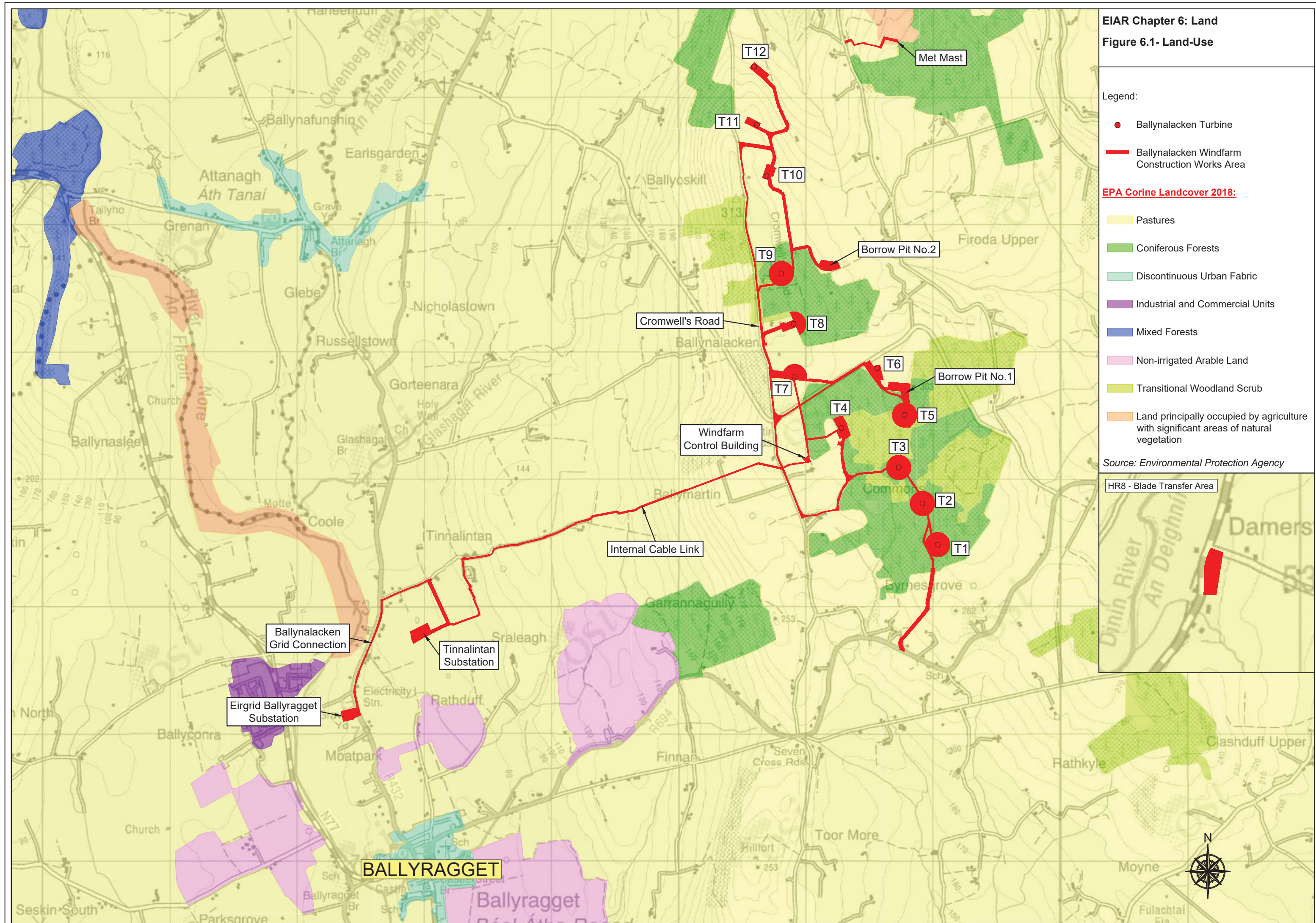
Appendix 6.1	Composition of Forestry at the Proposed Ballynalacken Project
Appendix 6.2	Methodology for the evaluation of Land



Figures for Land







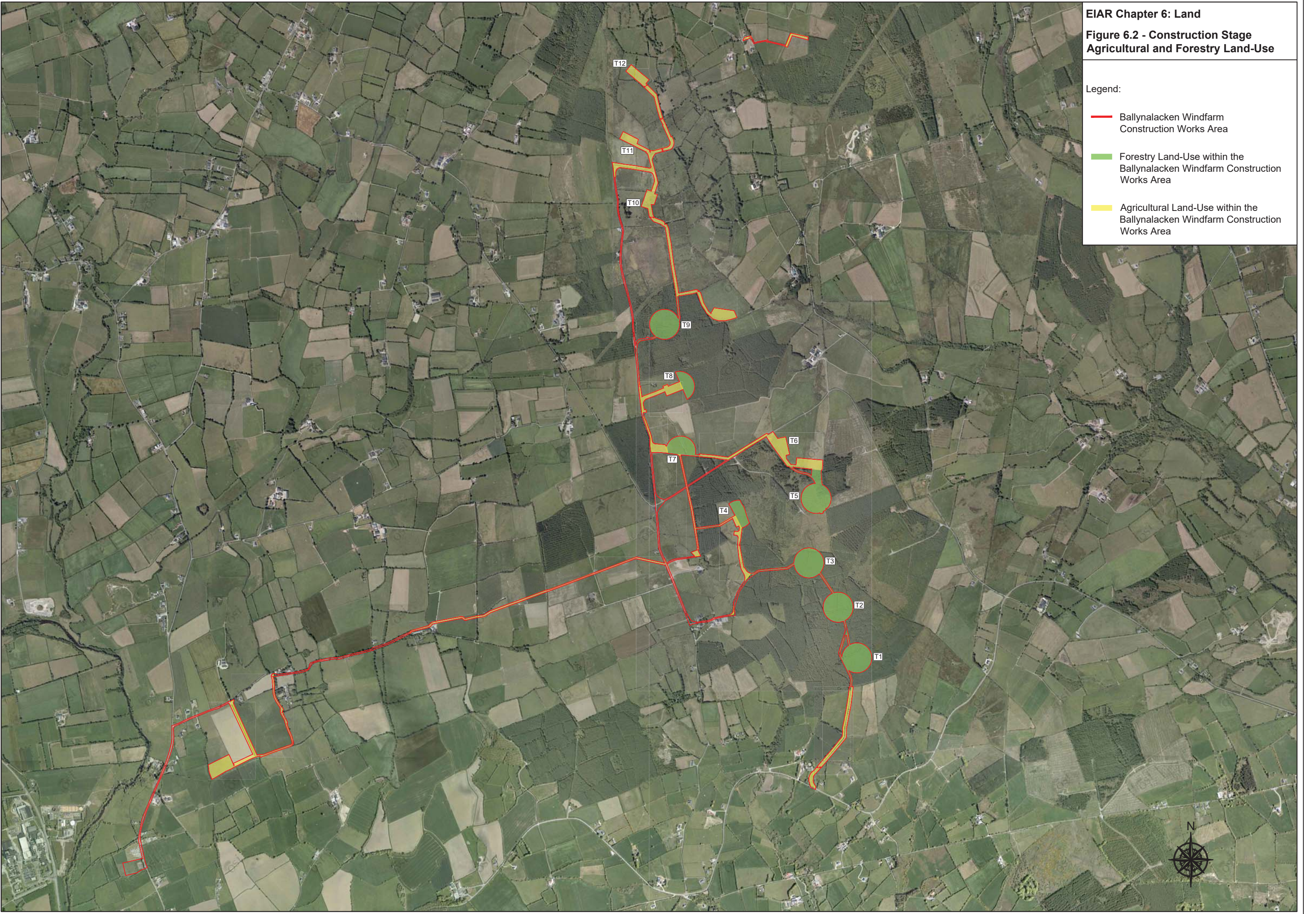




EIAR Chapter 6: Land  
 Figure 6.2 - Construction Stage  
 Agricultural and Forestry Land-Use

Legend:



- 
 Ballynalacken Windfarm Construction Works Area
- 
 Forestry Land-Use within the Ballynalacken Windfarm Construction Works Area
- 
 Agricultural Land-Use within the Ballynalacken Windfarm Construction Works Area





EIAR Chapter 6: Land  
 Figure 6.3 - Operational Stage  
 Agricultural and Forestry Land-Use

Legend:

-  Ballynalacken Windfarm Operational Works Area
-  Forestry Land-Use within the Ballynalacken Windfarm Operational Works Area
-  Agricultural Land-Use within the Ballynalacken Windfarm Operational Works Area





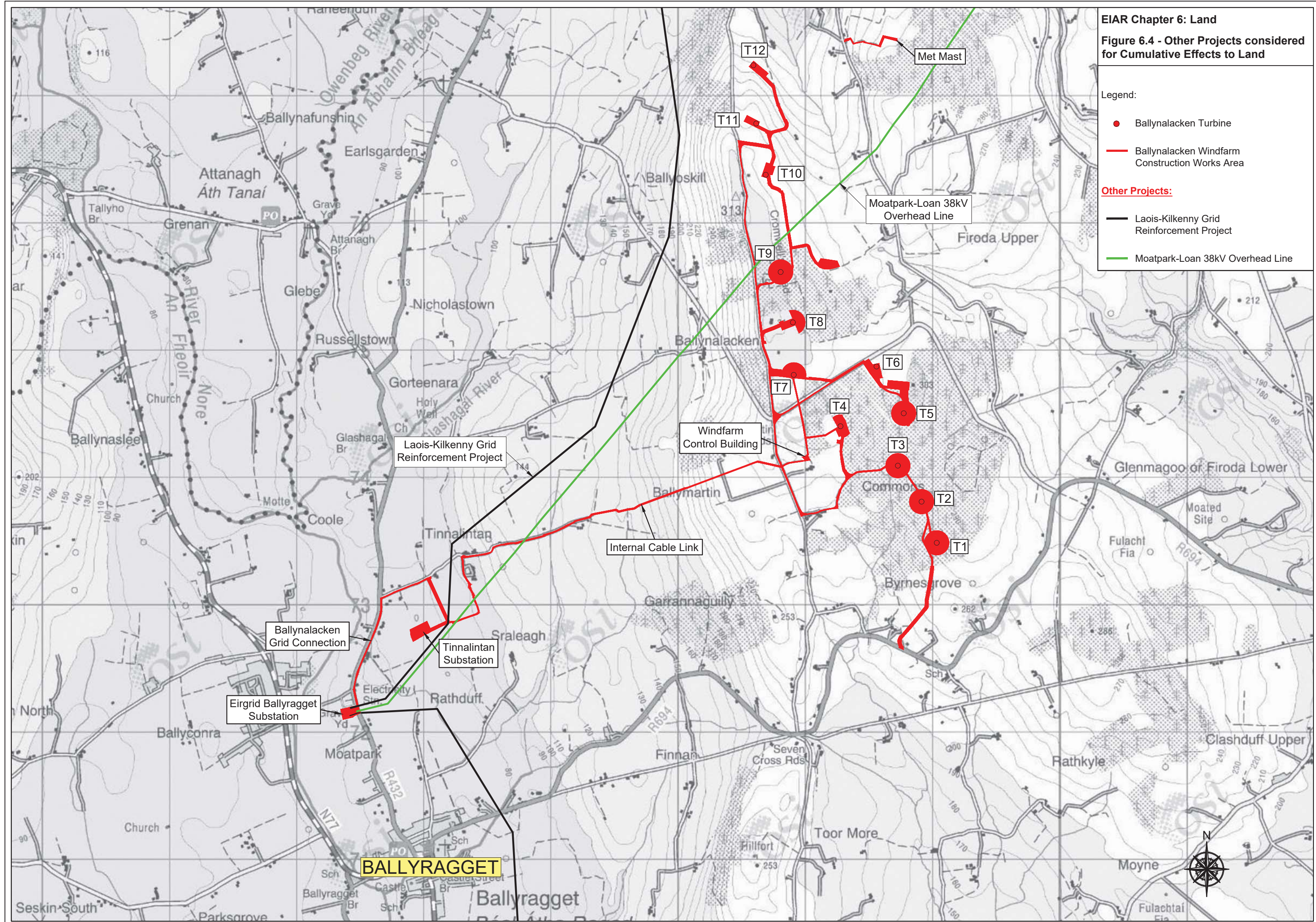
EIAR Chapter 6: Land  
Figure 6.4 - Other Projects considered for Cumulative Effects to Land

Legend:

- Ballynalacken Turbine
- Ballynalacken Windfarm Construction Works Area

**Other Projects:**

- Laois-Kilkenny Grid Reinforcement Project
- Moatpark-Loan 38kV Overhead Line





## **Appendix 6.1: Composition of Forestry at the Proposed Ballynalacken Project**





## **Appendix to Chapter 6: Land**

### **Appendix 6.1: Composition of Forestry at the Proposed Ballynalacken Project**



# **Composition of Forestry at the Proposed Ballynalacken Project**

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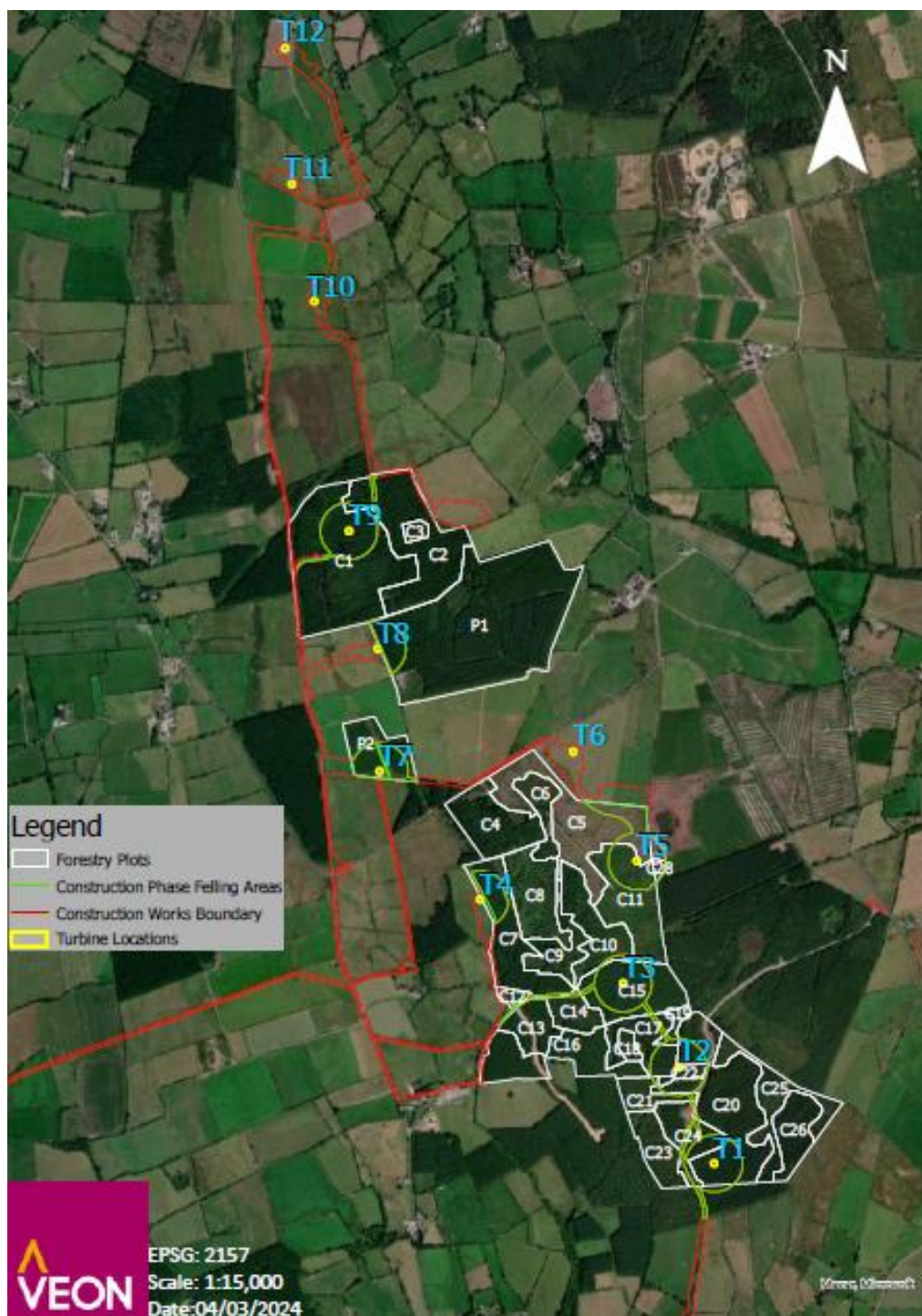
Forestry, Ecology & Environment

**March 2024**

### Forest Description

There is approximately 275 ha of forestry in the vicinity of the Ballynalacken project. The majority of which would be classed as commercial forestry, with a high percentage also having very good growth rates (yield class) and having good quality timber. The maps below illustrate the locations of all forestry growing within the proposed site layout.

To facilitate the development of the windfarm approximately 19.90 ha of commercial forestry will need to be permanently clearfelled. All turbine locations and felling areas are illustrated below on Map 1.



**Map 1: illustrates the forestry plots in close proximity to the windfarm.**

The Construction Work will interact with forestry for 8 out of the 12 turbine locations. A summary of the affected forestry is broken down in the following table, with access roads also cutting through some of the plots.

Note: Yield Class (YC) is defined as the potential growth rate or yield of a forest, expressed as cubic meter per hectare per year. The higher the YC the quicker the forest is growing, in Ireland YC usually ranges from YC 14 (poor growth) up to YC 24 + (very good growth).

Infrastructure	Forestry Plot	Species Mix	Plant Year	Yield Class	Estimated Fell Year
T1	C20	Norway spruce	Circa 1999	22	2032
	C24	Norway spruce		22	2032
T2	C20	Norway spruce	Circa 1999	22	2032
	C21	Norway spruce		22	2032
	C24	Norway spruce		22	2032
T3	C15	Sitka spruce	Circa 2000	24	2029
T4	C7	Sitka spruce	Circa 2002	20	2030
T5	C5	Sitka spruce	2022	24	2050
	C11	Sitka spruce	2013	24	2041
	C27	Unplanted	NA	NA	NA
	C28	Sitka spruce	2016	16	2050
T7	P2	Sitka spruce and Japanese Larch	Circa 2014	24	2053
T8	P1	Sitka spruce and Japanese Larch	Circa 2006	26	2038
T9	C1	Sitka spruce	2000	18	2031
	C2	Sitka spruce	1998	24	2031
Access	Multiple	Mixture, mostly Sitka	Multiple	Multiple	Multiple

All 3 No. tree species identified above are typical of commercial forestry. The forestry within the affected areas is mixed in relation to quality of timber, the majority of the forestry being affected by the proposed layout is of good quality with high yield class productivity and will produce a high-quality timber product at the end of the rotation.





Photos 1 and 2 illustrate the approx location of T5, on the west side is a young crop of commercial Sitka spruce in C11, at 5 meters tall, with on the east side a very young only replanted commercial crop of Sitka spruce in C5, at 1 meter tall.



Photo 3 illustrates the approx location of T4 at the edge of plot C7, a semi mature crop of commercial non thinned Sitka spruce, at circa 14 meters tall. Photo 4 illustrates the approx



location of T3 in the middle of plot C15, a semi mature crop of commercial thinned Sitka spruce, at circa 14 meters tall.



Photos 5 and 6 illustrate the type of forestry present in forestry plots C20, C21 and C24 at the approx location of T2, a middle aged crop of commercial thinned Norway spruce, at circa 15 meters tall.



Photo 7 illustrates the approx location of T7 at the edge of plot P2, a young crop of mostly commercial non thinned Sitka spruce, at circa 5 meters tall. Photo 8 illustrates the approx location of T8 at the edge of plot P1, a middle aged crop of commercial thinned Sitka spruce, at circa 13 meters tall.





Photo 9 illustrates the approx location of T9 in the middle of plot C1, a semi mature crop of commercial thinned Sitka spruce, at circa 19 meters tall. Photo 10 illustrates the approx location of the access road into T9 in the middle of plot C1, a middle aged patchy crop of commercial thinned Sitka spruce, at circa 11 meters tall.

## Potential for windblow

The removal of sections of forestry has the potential to impact on the remaining forestry and environment in the area. These impacts include encouragement of encroaching windblow. Windblow is defined as the uprooting of trees due to wind.

With clearing areas of trees the remaining forest can sometimes be disturbed depending on a number of factors (aspect, elevation, remaining tree shelter etc.). Opening areas of the forest for structures and tracks etc. may lead to some trees becoming unstable and prone to windblow.

The wind farm development intends to utilise much of the existing forest infrastructure. The turbine layout seeks to maximise use of the existing forestry access tracks and fire lines already present. Map 1 above illustrates the forestry plots in close proximity to the windfarm. As detailed above, the windfarm access is creating new paths through the forest creating new forest edges not previously exposed to wind.

Proposed turbine locations T6, T10, T11 and T12 are located outside of the forest perimeter and should not have any effect on the forestry. The remaining 8 no. turbines locations will potentially have an effect on the surrounding forestry.

T1, T2, T8 and T9 are located in a predominantly middle-aged commercial conifer woodland that have been thinned previously and will be thinned again in the future. Some windblow is



possible at these locations, However the forestry owners will be compensated for any loss of timber.

The affected forestry present in the proposed locations for T5 and T7 is relatively young, meaning the tress are small in height. Any clearance or removal of trees this size is far less intrusive or potentially damaging to the surrounding forestry. Removing areas to facilitate the turbines and roading infrastructure should not increase the risk of extensive windblow as the trees will have time to stabilise before the risk of windblow materialises.

Where the proposed turbine locations are situated in more mature forested areas where the trees have a very high growth rate (T3 and T4), clearfell harvesting operations will most likely be scheduled in advance of any wind farm development being built, meaning the large trees will not be present. Infrastructure arrangements should be kept in mind at replanting stage to allow for developments.

## **Appendix 6.2: Methodology for the evaluation of Land**



## **Appendix to Chapter 6: Land**

### **Appendix 6.2: Methodology for the evaluation of Land**



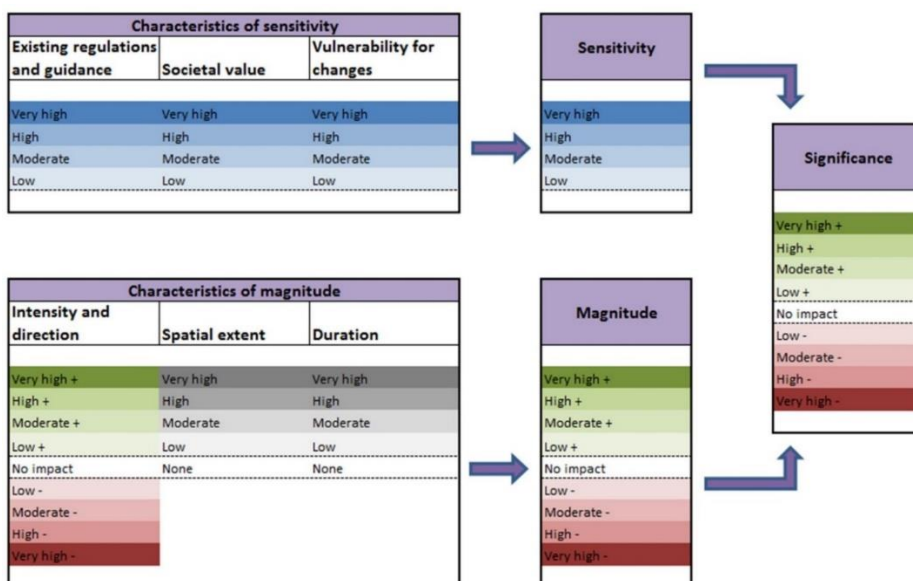
## A6.2 Methodology Applied

In the absence of specific guidance on the evaluation of Land for an EIA Report, in addition to the desktop surveys and fieldwork carried out for the Project as detailed in Section EIAR 6.1.3 of Chapter 6: Land, *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022), along with the ARVI approach for impact significance assessment developed under the EC IMPERIA LIFE11 Project, are employed for this evaluation. The ARVI approach has been used to evaluate impact significance using a multi-criteria decision analysis, where the sensitivity of the receptor in the environment and the magnitude of the change caused by a particular project are rated, and then an overall significance can be determined.

The IMPERIA Project Report Guidelines for the systematic impact significance assessment – the ARVI approach (2015) is included in full as Appendix 2.1 of this EIAR, with the methods used for determining sensitivity, magnitude and significance reproduced below. The author's extensive experience with EIA preparation also informs this report.

### A6.2.1 Overview of the IMPERIA Project ARVI approach

In the framework developed under the EC LIFE project - IMPERIA, the evaluation of impact significance uses a replicable, multi-criteria decision analysis, where the sensitivity of the receptor (i.e. the sensitivity of a Sensitive Aspect of the environment) and the magnitude of the change caused by a project are rated using sub-criteria or scales, and then the overall significance is evaluated using a matrix.



The criteria for determining the overall sensitivity of a receptor and magnitude of the change (effect) to the receptor, is provided in the tables below. The matrix for determining the significance of the effect to the receptor is provided after these tables.

### A6.2.2 Criteria for Evaluating the Sensitivity of a Receptor

**Sensitivity** of the receptor is a description of the characteristics of the receptor or aspect of the environment which will be affected by the development. It is a measure of 1) existing regulations and guidance, 2) societal value and 3) vulnerability for the change. The sensitivity of a receptor is estimated in its current state prior to any change implied by the project.

Existing regulations and guidance describes whether there are any such objects in the impact area, which have some level of protection by law or other regulations (e.g. prohibition against polluting groundwater and

Natura areas), or whose conservation value is increased by programs or recommendations (e.g. landscapes designated as nationally valuable).

Societal value describes the value of the receptor to the society and depending on the type of impact may be related to economic values (e.g. water supply), social values (e.g. landscape or recreation) or environmental values (e.g. natural habitat). Societal value measures general appreciation from the point of view of the society. When relevant, the number of people impacted is taken into account.

Vulnerability for the change describes how liable the receptor is to be influenced or harmed by changes to its environment.

Sensitivity	Criteria Existing regulations/guidance	Criteria Societal value	Criteria Vulnerability to change
Low	Few or no recommendations which add to the conservation value of the impact area, and no regulations restricting use of the area (e.g. zoning plans).	The receptor is of small value or uniqueness. The number of people impacted is small.	Even a large external change would not have substantial impact on the status of the receptor. There are only few or none vulnerable receptors in the area.
Moderate	Regulation sets recommendations or reference values for an object in the impact area, or the project may impact an area conserved by a national or an international program.	The receptor is valuable and locally significant but not very unique. The number of people impacted is moderate.	At least moderate changes are needed to substantially change the status of the receptor. There are some vulnerable receptors in the area.
High	The impact area includes an object that is protected by national law or an EU directive (e.g. Natura 2000 areas).	The receptor is unique and valuable to society. It may be deemed nationally significant and valuable. The number of people impacted is large.	Even a small external change could substantially change the status of the receptor. There are many vulnerable receptors in the area.
Very High	The impact area includes an object that is protected by national law or an EU directive (e.g. Natura 2000 areas).	The receptor is highly unique, very valuable to society and possibly irreplaceable. It may be deemed internationally significant and valuable. The number of people affected is very large.	Even a very small external change could substantially change the status of the receptor. There are very many vulnerable receptors in the area.

### A6.2.3 Determining the Overall Sensitivity of a Receptor

The overall sensitivity of a receptor is assessed by the competent expert on the basis on his/her assessment of the components of sensitivity. A general guide for deriving the overall sensitivity is to pick the maximum of existing regulations and guidance and societal value and then adjust that value depending on the level of vulnerability.

Determining the Overall Sensitivity of a Receptor	
Low	The receptor has minor social value, low vulnerability for the change and no existing regulations and guidance. Even a receptor which has major or moderate social value may have low sensitivity if it's not liable to be influenced by the development.
Moderate	The receptor has moderate value to society, its vulnerability for the change is moderate, regulation may set reference values or recommendations, and it may be in a conservation program. Even a receptor which has major social value may have moderate sensitivity if it has low vulnerability, and vice versa.

High	Legislation strictly conserves the receptor, or it is very valuable to society, or very liable to be harmed by the development.
Very High	Legislation strictly conserves the receptor, or it is irreplaceable to society, or extremely liable to be harmed by the development. Even minor influence by the proposed development is likely to make the development unfeasible.

#### A6.2.4 Criteria for Evaluating the Magnitude of an Impact

**Magnitude** of the impact describes the characteristics of the changes or effects that the planned project is likely to cause. Magnitude is a combination of 1) intensity and direction, 2) spatial extent, and 3) duration. Assessment of magnitude evaluates the likely changes affecting the receptor *without* taking into account the receptors sensitivity to those changes.

Intensity describes the physical dimension of a development. The direction of the change/effect is either positive (green) or negative (red).

Magnitude	Criteria – Intensity & Direction
Very High	The proposal has an extremely beneficial effect on nature or environmental load. A social change benefits substantially people's daily lives.
High	The proposal has a large beneficial effect on nature or environmental load. A social change clearly benefits people's daily lives.
Moderate	The proposal has a clearly observable positive effect on nature or environmental load. A social change has an observable effect on people's daily lives.
Low	An effect is <b>positive</b> and observable, but the change to environmental conditions or on people is small.
No impact	An effect so small that it has no practical implication. Any benefit or harm is negligible.
Low	An effect is <b>negative</b> and observable, but the change to environmental conditions or on people is small.
Moderate	The proposal has a clearly observable negative effect on nature or environmental load. A social change has an observable effect on people's daily lives and may impact daily routines.
High	The proposal has a large detrimental effect on nature or environmental load. A social change clearly hinders people's daily lives.
Very High	The proposal has an extremely harmful effect on nature or environmental load. A social change substantially hinders people's daily lives.

Spatial extent describes the geographical reach of, or the range within which, an effect is observable.

Duration describes the length of time during which an impact is observable and it also takes other related issues such as timing and periodicity into account. These are relevant for impacts which aren't observable all the time such as periodic impacts.

Magnitude	Criteria Spatial Extent	Criteria Duration
Low	Impact extends only to the immediate vicinity of a source. Typical range is < 1 km.	An impact whose duration is at most one year, for instance during construction and not operation. A moderate-term impact may fall into this category if it's not constant and occurs only at periods causing the least possible disturbance.



<b>Moderate</b>	Impact extends over one municipality. Typical range is 1-10 km.	An impact lasts from one to a number of years. A long-term impact may fall into this category if it's not constant and occurs only at periods causing the least possible disturbance.
<b>High</b>	Impact extends over one region. Typical range is 10-100 km.	An impact lasts several years. The impact area will recover after the project is decommissioned.
<b>Very High</b>	Impact extends over several regions and may cross national borders. Typical range is > 100 km.	An impact is permanent. The impact area won't recover even after the project is decommissioned.

#### A6.2.5 Deriving the overall magnitude of the change from components of magnitude

Magnitude of the change is a comprehensive synthesis of its component factors. In a case, where intensity, spatial case and duration all get the same value, the magnitude would also be given this value. In other cases, intensity should be taken as a starting point, and the assessment should be adjusted based on spatial extent and duration to obtain an overall estimate. The aim is that the overall assessment should capture the characteristics of an effect. The table below describes some example descriptions of different categories for the magnitude of the change.

<b>Determining the Overall Magnitude of the Change/Effect</b>	
<b>Very High</b>	The proposal has beneficial effects of very high intensity and the extent and the duration of the effects are at least high.
<b>High</b>	The proposal has beneficial effects of high intensity and the extent and the duration of the effects are high.
<b>Moderate</b>	The proposal has clearly observable positive effects on nature or people's daily lives, and the extent and the duration of the effects are moderate.
<b>Low</b>	An effect is positive and observable, but the change to environmental conditions or on people is small.
<b>No impact</b>	No change is noticeable in practice. Any benefit or harm is negligible.
<b>Low</b>	An effect is negative and observable, but the change to environmental conditions or on people is small.
<b>Moderate</b>	The proposal has clearly observable negative effects on nature or people's daily lives, and the extent and the duration of the effects are moderate.
<b>High</b>	The proposal has harmful effects of high intensity and the extent and the duration of the effects are high.
<b>Very High</b>	The proposal has harmful effects of very high intensity and the extent and the duration of the effects are at least high.

#### A6.2.6 Assessing the significance of an impact

The **assessment of the overall significance uses the matrix below**, where positive impacts are in green and negative in red. The matrix is based on the **magnitude of the change** affecting a receptor and on the **sensitivity of the receptor** to those changes.

The values obtained from the table are indicative because the most relevant dimensions for characterising an impact are dependent on the type of impact. Thus, some discretion from the expert is required, in particular in cases, where the one component is low and the other one high or very high.

<b>Determining the Overall Significance of an Impact</b>										
<b>Impact Significance</b>		<b>Magnitude of change</b>								
		Very High	High	Moderate	Low	No Change	Low	Moderate	High	Very High
<b>Receptor Sensitivity</b>	Low	Significant*	Moderate*	Slight	Imperceptible	Neutral	Imperceptible	Slight	Moderate*	Significant*
	Moderate	Significant	Significant	Moderate	Slight	Neutral	Slight	Moderate	Significant	Significant
	High	Profound	Significant	Significant	Moderate*	Neutral	Moderate*	Significant	Significant	Profound
	Very High	Profound	Profound	Significant	Significant*	Neutral	Significant*	Significant	Profound	Profound

\* Especially in these cases, significance might get a lower estimate, if sensitivity or magnitude is near the lower bound of the classification

**Note on Terms used in 'Determining the Overall Significance of an Impact' Table:** The Significance rating ascribed in the Table above have been refined from the ARVI tool, to provide a more nuanced understanding of the significance and also to be compatible with the terms used throughout this EIA Report, which have been informed by the EPA Guidelines on Information to be contained in EIAR (2022) for description of effects.

In the above Table - Low has been refined as Slight or Imperceptible depending on context; High has been renamed as Significant; Very High has been renamed as Profound; No Impact is understood to also mean Neutral effect, which is defined in the EPA Guidelines as 'no effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error'.