Forestry Report

Proposed Windfarm at Tirawley, Co. Mayo.

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Definition of Terms

- **Afforestation:**
  The establishment of a forest in areas where the preceding land use was not forest.
- **Age Class:**
  The age range of tree crops divided for classification or use. Also pertains to trees included in such an interval.
- **Aquatic zone:**
  Any natural river, stream or lake (but not an artificial drain) illustrated on an Ordnance Survey 6-inch map.
- **Brash Mat:**
  A protective layer comprised of residual woody debris from harvested trees that is laid along machinery routes to preserve soil quality. Brash mats help to spread out the weight of heavy machinery and to decrease soil compaction.
- **Check (Trees in…):**
  Describes trees that are displaying signs of stunted growth.
- **Clear-felling:**
  Typically, the final stage in a commercial forestry crop cycle, where an entire standing crop of trees is removed from an area.
- **Construction felling:**
  Relates to the construction phase of a wind farm development, where the temporary removal of trees is required to facilitate the construction works (e.g. borrow pits for stone, temporary site compounds etc.)
- **Coupe:**
  A designated area of forest where the felling of trees is planned or has occurred – coupes can vary in size and shape.
- **Eutrophication:**
  A process where a high concentration of nutrients has been introduced into a watercourse which promotes excessive growth of algae which can deplete oxygen levels in the water and deleteriously affect aquatic life.
- **Exclusion zone:**
  Describes a specific area where harvesting machinery is not permitted to operate or traverse for environmental protection.
- **Forest certification:**
  A voluntary process through which the quality of forest management is assessed by an independent third-party against an agreed set of standards and principles.
- **Hectare:**
  A unit of land area equal to 10,000 square metres or 2.4711 acres.
- **Infrastructure felling:**
  Describes trees that are permanently removed from a site in order to make way for infrastructure associated with the wind farm, such as access roads and turbine bases.
- **Mound Drains:**
  Formed by an excavator digging drains at regular intervals and heaping the excavated soil in mounds. Trees are then planted into the mounds, which provide an elevated vegetation-free zone.

- **Plantation:**
  A forest stand established by planting or seeding during afforestation or reforestation.
- **Relevant watercourse:**
  Any other watercourse that has the potential to function as a pathway for the movement of significant amounts of sediment and/or nutrients from the site to an aquatic zone. These include existing drains/channels and other potential pathways that may contain flowing water during and immediately after periods of rain.
- **Rotation:**
  The period of years required to establish and grow a timber crop to a specified condition of maturity, when it may be harvested, and a new tree crop started.
- **Sawlog:**
  The most profitable wood product that is widely used for construction. Sawlogs are logs that are 3.7 metres (or greater) in length and have a minimum diameter of 20cm.
- **Setback area:**
  Setback areas are used at the afforestation or replanting stages to introduce a buffer strip between a new forest and sensitive habitats or features, which is then managed for environmental protection and enhancement.
- **Silviculture:**
  The art and science of producing and tending a forest: the theory and practice of controlling forest establishment, composition, growth, and quality of forests to achieve the objectives of forest management.
- **Stand:**
  An aggregation of trees occupying a specific area and uniform enough in composition (species), age and arrangement to be distinguishable from the forest in adjoining areas and considered a homogenous unit for management purposes.
- **Turbulence felling:**
  Felling in the vicinity of turbines for the purpose of avoiding air turbulence that can be created by the forest canopy. It is conducted in order to increase the efficiency of the turbines and to reduce stress on the turbine components by reducing vibrations running through the blades.
- **Water hotspot:**
  An area of potential source of sediment or nutrient loss during harvesting and/or afforestation works (e.g. flushes, springs and areas of soft ground).
- **Windblow (or windthrow):**
  The uprooting/overturning of trees by wind.
- **Yield Class (YC):**
  Defined as the potential growth rate or yield of a forest, expressed as cubic meters per hectare per year (m^3/ha/year).

Site Overview

Site Location

The Proposed Development is located approximately five kilometres east of Ballycastle, County Mayo. The main approaching road is the R314 (Killala – Ballycastle) and there are several forest roads accessing the existing forestry within the Proposed Development Site. The geographic location of the Proposed Development presents restricted access to the harvesting network of timber buyers nationwide as the site is quite isolated in the northwest of the country.

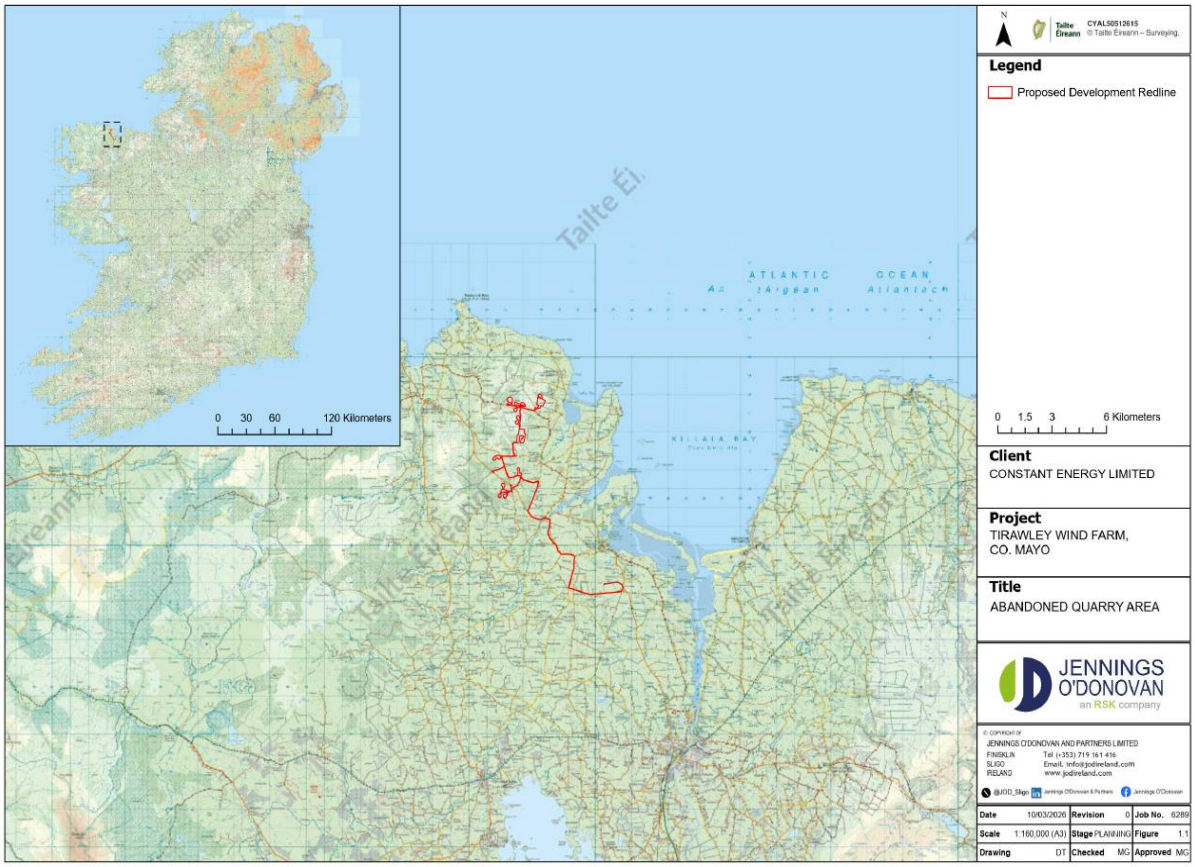

Figure 1: *Location of Proposed Development.*

Forest Description

The Proposed Development redline area comprises approximately 172 hectares of forestry. All of this forest is under private ownership and is being managed on a commercial basis. None of the forestry impacted by this development is currently being managed under forest certification. Some of the affected areas of forestry within the Proposed Development are of relatively low yield class, while other areas are displaying reasonable growth. The range of services that these forests provide would be limited but would encompass carbon capture and some limited biodiversity.

Figures 2, 3 and 4 illustrate the locations of the existing forestry within the Proposed Development Site, and the areas where these forests overlap with the planned infrastructural footprint of the Proposed Development.

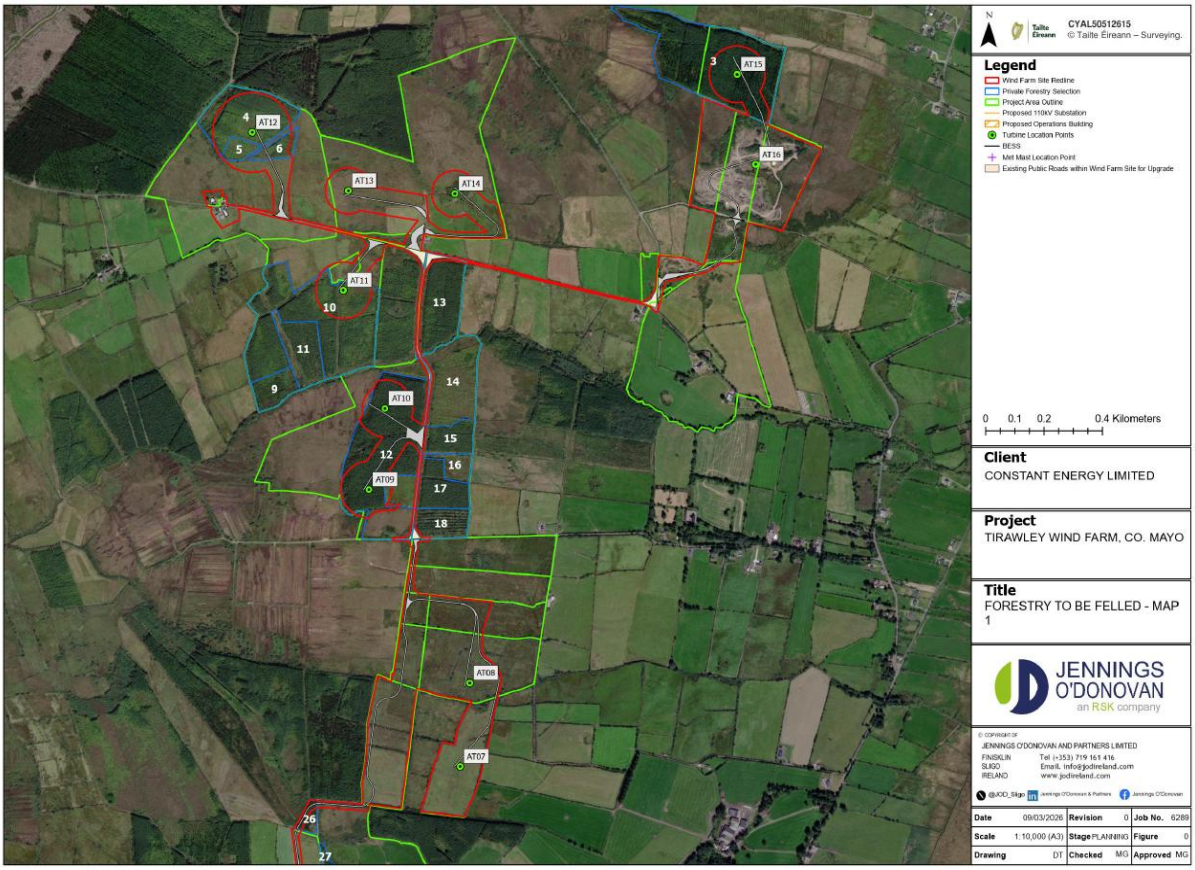

Figure 2: *Forestry interacting with Proposed Development (1 of 3).*

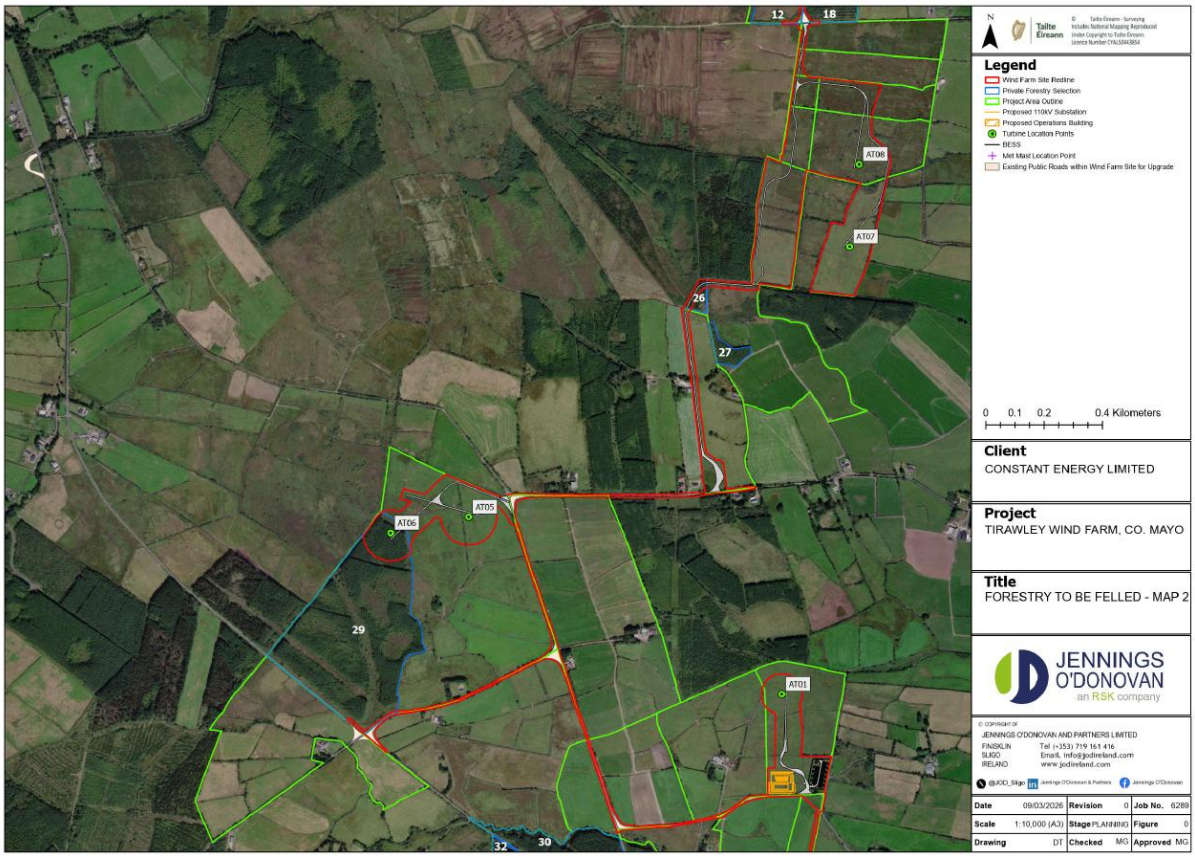

Figure 3: *Forestry interacting with Proposed Development (2 of 3).*

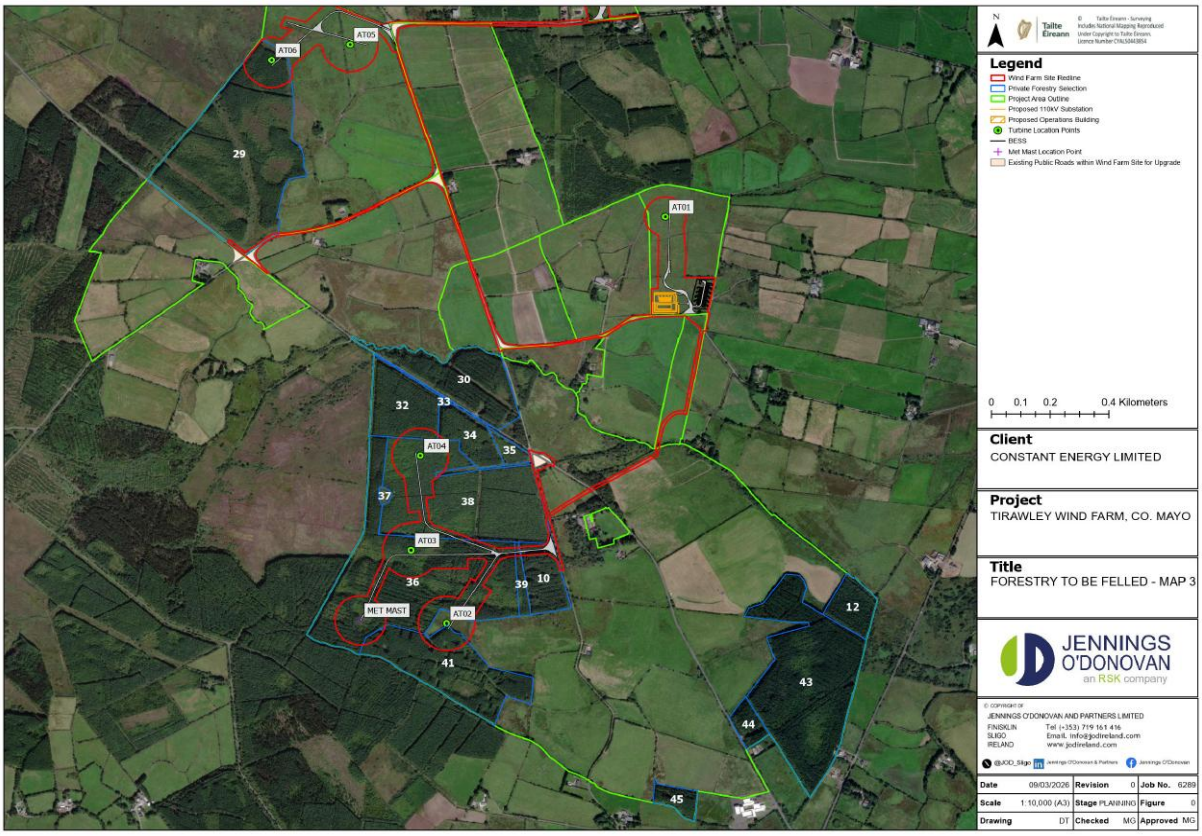

Figure 4: *Forestry interacting with Proposed Development (3 of 3).*

As illustrated in Figures 2–4, the Proposed Development overlaps with forestry at nine of the planned turbine locations. Additionally, the planned location for a Met Mast and various sections of the planned access roading also overlap with forested areas. To enable the construction of the Proposed Development, areas of forestry and any trees outside of forests that overlap with the infrastructural footprint will first need to be removed by felling.

The overlapping forestry on the Proposed Development Site is between 13–32 years old, and in the main comprises commercial coniferous species, including Sitka spruce (*Picea sitchensis*), Japanese larch (*Larix kaempferi*), and Lodgepole pine (*Pinus contorta*). A summary of the forestry that overlaps with the infrastructural footprint of the Proposed Development is presented in Table 1.

Table 1: *Overview of existing forestry interacting with proposed wind farm infrastructure.*

Plot No.	Infrastructure	Species	Planting Year	Est. Yield Class	Est. Fell Year
3	AT15	SS, LP	2000	22	2032
4	AT12	SS, JL	2010	16	2050
5	AT12	SS, JL	2010	6	-
6	AT12	SS, JL	2010	6	-
10	AT11	SS, JL	2010	20	2045
12	AT09 + AT10	SS, JL	2004	22	2035
29	AT06	SS, JL	2001	22	2032
32	AT04	SS, JL	2003	24	2036
34	AT04	SS, JL	1999	24	2032
36	AT02 + AT03 + Met Mast	SS, JL	1994	20	2032
38	AT03 + AT04	SS, JL	2013	24	2046
41	AT02 + Met Mast	SS, JL, BI	1999	20	2037
Access roads	Multiple plots	SS, LP, JL, ADB	1994-2013	4-24	2032-2050

The forests within the affected areas are mixed in terms of timber quality: some forestry overlapping with the Proposed Development contains poor-quality trees, with low yield class productivity, which will likely result in low-quality timber products at the end of respective growing rotations. Other areas of forestry were observed to be growing well and are likely to produce high-quality sawlog at rotation-end. Some of the existing forestry has been managed under a no-thin policy, whereas areas of forestry underlain by better soils have previously been thinned. A proportion of the existing forestry is at an early stage of the growing cycle and will not be eligible for harvesting for several years. Harvesting infrastructure will need to be designed and built before this can be achieved the proposed windfarm road layout will aid as an access option to remove some of this timber.

Plate 1 illustrates the access road into plot 3 south of AT15, the trees present at the approximate location of AT15, and the exposure of the site as seen from plot 3.

Plate 1

Plate 2 illustrates the trees present at the proposed location for AT12 in plot 4, the bog looking towards the entrance to AT12, and the approach road giving access into AT11.

Plate 2

Plate 3 illustrates the forestry located at the approximate proposed location of AT11 in plot 10, the proposed location for AT09 in plot 12, and proposed location for AT10 also in plot 12.

Plate 3

Plate 4 illustrates the existing access road leading towards plots 39, 36 and 41, the poor-quality trees and wet ground conditions at the approximate proposed location of AT04 in plot 32, and the younger trees to the left of plot 38: with the older trees in plot 38 found to the right of a ringfort [MA014-056----] in plot 37.

Plate 4

Plate 5 illustrates the good-quality trees growing in plot 38 leading towards AT04, and the poor-quality trees and wet ground conditions at the proposed locations of the Met Mast and AT03 in plot 36.

Plate 5

Plate 6 illustrates a watercourse outside of plot 41 and the good-quality trees growing within plot 41 where the construction of turbine AT02 is planned.

Plate 6

Felling Methodology

Timber harvesting typically includes the cutting down of trees and the extraction of timber to the roadside, usually during thinning or clear-felling operations. Outside of some exempted scenarios, the felling of trees can generally only occur once a tree felling licence has been granted by the Department of Agriculture, Food, and the Marine (DAFM).

A felling licence provides authority under the Forestry Act 2014 to fell or otherwise remove a tree, or trees, or to thin a forest for silvicultural purposes. The Forestry Act 2014 prescribes the functions of the Minister and details the requirements, rights, and obligations associated with tree felling licences. The Forestry Regulations 2017 (S.I. No. 191 of 2017) are the principal set of regulations giving further effect to the Forestry Act 2014.

Harvesting Types

Thinning is a silvicultural intervention that removes inferior-quality trees from a stand. It affords the remaining stems more growing space and resources, thereby increasing the overall quality and size of the remaining forest and producing a more saleable product. First thinning in conifer forests typically involves the complete removal of every sixth or seventh line of trees (called racks) to gain access to a forest, while inferior trees are then selected for removal between these racks. The resulting timber is generally used for pulpwood, fencing, pallet products or wood energy (Teagasc, 2013).

Clear-felling is the harvesting of all marketable trees in a given stand at the end of a forest rotation, which is generally followed by replanting of the stand to replace the harvested trees (Forest Service, 2000b). Clear-felling typically occurs when a conifer forest is 30-50 years old, and much later for a broadleaf forest.

Continuous Cover Forestry (CCF) is an alternative silvicultural approach to clear-felling where trees are periodically removed from a forest, though the forest canopy is permanently maintained, and no felling coupes are formed. As outlined in DAFM (2017), CCF is applicable where timber production is an objective, but where other considerations would benefit from continuous forest cover (e.g. biodiversity or recreation), or where a conifer plantation is to be converted into a native woodland owing to proximate environmental sensitivities (e.g. a high-status objective waterbody).

Harvesting Operations

Harvesting operations may involve the felling of selected trees or coupes of trees, the removal of branches, the cross-cutting of stems into size categories, the stacking of logs along tracks in the forest and extraction of timber to the roadside for subsequent loading onto timber lorries. During wind farm construction, ‘keyhole’-type felling is typically conducted which concentrates on the felling of smaller coupes of forest that overlap with the wind farm infrastructure layout.

Manual Felling of Trees

Up until the early 1990s, motor-manual felling of trees with chainsaws was the predominant harvesting method but was eventually replaced by mechanised harvesting. Today, manual felling remains a useful option in small-scale forestry, or where trees stand within an exclusion zone - outside the reach of the harvesting arm and where machinery access is precluded (Teagasc, n.d.).

Mechanised Felling of Trees

Figure 5: *A typical forestry harvester.*

Mechanised harvesting is currently the predominant method of tree felling in Ireland and involves purpose-built, ground-based machines called harvesters (Figure 5). Harvesters are fitted with specialised cutting heads that are capable of felling and processing tree stems rapidly. The machine operator controls the movement of the machine from the harvester cab, which contains an onboard computer system that can be programmed to cut standing trees to the size and length specified by the customer. The harvester will process trees down to 7cm in size. The remainder of the trees will be placed on the rack in front of the harvester, along with the branches, to function as a brash mat for the harvester to travel on, reducing the risk of soil damage.

Processed timber logs are placed to the side of the rack where the forwarder can easily access them as it follows the harvester. The harvester also treats conifers tree stumps with urea as it fells trees, preventing butt rot disease (*Heterobasidion annosum*) in the future. This is generally a condition of a felling licence where the soil type is mineral soil or where a peat soil is less than 25cm (excluding the litter layer). The application of urea is not permitted within 10m of an aquatic zone or a relevant watercourse (DAFM, 2019).

Timber Extraction

Figure 6: *A typical forestry forwarder.*

To remove timber from the forest, specialised wheeled machines called forwarders (Figure 6) are the most widely used extraction method in Ireland. A forwarder contains a base machine similar to a harvester but comprises a powered trailer with a hydraulic grapple arm attached for picking up logs. A forwarder follows a harvester to collect and extract logs to the roadside, where timber is stacked for loading onto timber trucks. These machines can typically remove circa 9–12 tonnes of timber per journey (Teagasc, n.d.).

Environmental Considerations

Forestry harvesting holds the potential to have a negative impact on the forest environment and the wider landscape. Forest Service (DAFM) guidelines, as outlined in the mitigation section, have therefore been developed to ensure best practice during forestry harvesting in order to safeguard watercourses, soils, wildlife habitats and ancient heritage sites.

Harvesters and forwarders have been developed and designed to minimise soil damage, bearing large soft tyres to spread the machine weight over a wide area. In addition, it is a common forestry practice to lay dense layers of the brash and branch wood from felled trees along machinery routes, which forms a thick layer of protective foliage for harvesting machinery to travel over, helping to protect soils from compaction and rutting.

Water features in particular are sensitive to the effects of forestry harvesting as silt may arise from the movement of machinery and enter water features and have a negative impact on aquatic life. Best practice requires the cessation of mechanised harvesting operations during and immediately after periods of heavy rainfall which may result in the surface mobilisation of silt. Additionally, decaying branches on clearfell sites can lead to a release of nutrients which can cause eutrophication of aquatic zones. To counteract these effects careful planning is required and measures to be implemented may include limiting the size of felling areas to reduce the amount of nutrients or silt released, establishing exclusion zones from the edges of water features within which machinery is prohibited, minimising the crossing of streams and drains, or installing suitable temporary structures where crossing is unavoidable to prevent machinery from entering the water.

Harvesting operations can also impact wildlife habitats through noise disturbance or loss of habitats. It is therefore important when a felling operation is being planned that wildlife habitats are retained on a site and protected throughout a planned operation. Consideration must be given to the breeding and nesting seasons of important species, and associated features such as badger setts and heronries. Harvesting may be postponed until after the nesting season is complete to minimise impacts upon bird species. For biodiversity purposes, deadwood is also left in situ on harvesting sites: this may be in the form of naturally fallen trunks, standing dead trees, or logs intentionally left behind on the floor of the forest. As this deadwood decays, it provides a suitable habitat for insect and fungi species.

Best practice also requires that 20 metre (+) exclusion zones be established around all known archaeological features/sites within or contiguous to a harvesting site to ensure that these important features are protected. If an unrecorded archaeological site or artefact is discovered, the area is immediately excluded from the harvesting operation and is subject to an exclusion zone, and the relevant authorities are notified (Forestry Focus, 2026).

Potential Impacts

Potential Impact of Trees on Wind Turbines

A forestry crop, with a typically rough and uneven canopy, acts as a barrier to the wind and can cause wind shears (i.e. changes in wind speed and direction). Forestry in proximity to a wind turbine can give rise to substantial turbulence than what would otherwise occur over more open ground. This can reduce the overall wind speed above the forest canopy and turbulent airflow can send vibrations through the turbine blades, leading to increased stress on the turbine drive trains and a reduced capacity to exploit wind-generated energy (Department of Agriculture, Food and the Marine, 2017; Irish Wind Energy Industry, 2012).

Potential Impact of Wind Farms on Forestry

The removal of sections of forestry to accommodate the proposed wind farm infrastructure holds the potential to impact remaining trees and the local forest environment. Potential impacts include the encroachment of windblow into forest stands, disturbance to the existing drainage network, damage to soil (i.e. erosion, rutting and compaction) or surrounding trees during harvesting, and sediment inputs into sensitive environmental receptors (e.g. rivers or streams).

Where areas of trees are cleared, the remaining forestry can sometimes be impacted depending on a number of factors (e.g. aspect, elevation, underlying soils etc.). Opening up areas of the forestry for infrastructure and access roading may lead to some trees becoming unstable, and therefore prone to windblow. This section of the report outlines the perceived impacts of the planned felling on the surrounding forestry to remain.

Potential Impact of Proposed Development

To facilitate the construction of the Proposed Development, approximately 31.86 hectares of existing forest will first need to be felled. The planned infrastructural footprint will require additional access roading to be built through some forested areas. These new access roads will be designed and built to a specification that will allow timber lorries to use these roads in the future — access roads constructed for a wind farm would be built to a higher specification than those normally required for timber haulage.

Outside of the required felling areas, the proposed turbine layout seeks to maximise the use of existing forestry access routes. As a foundation already exists in these areas, widening and building up of the existing road network will only be required, which will help to minimise impacts on soils, habitats and the remaining forestry.

While the impacts of the felling activities are considered at this application stage it is recognised that the felling of trees for the construction of the Proposed Development is subject to and can only occur following the grant of a felling licence by the Forest Service (DAFM).

The planned locations of turbines AT01, AT05, AT07, AT08, AT13, AT14 and AT16 do not overlap with existing forestry so potential impacts were not considered at these locations.

Potential Impact of AT03, AT11, AT12 & Met Mast & Associated Access Roading

As detailed in previous sections, the proposed windfarm access is creating new paths through forestry, creating new forest edges that have not previously been exposed to wind. However, the forestry surrounding the proposed locations of AT03, AT11 and AT12 and the Met Mast is small due to later planting years or variable tree growth due to the poor underlying soil. The clearance or removal of trees of this nature 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 are small and should have time to stabilise before a risk of wind damage materialises.

These areas are located on wet peat soils, and as the trees are of such a low yield class and quality, from a cost-benefit analysis point of view, the cost to extract the trees post harvesting would not seem advantageous. By not extracting the timber to the roadside at the proposed locations for the Met Mast and AT03, AT11 and AT12, the harvesting machine will have more brash to use to create brash mats under the machine while harvesting, also eliminating the need for forwarding machinery to enter the site to extract timber. This will reduce the risk of soil erosion and impaction.

Potential Impact of AT04 & Access Roading

The trees growing in plot 38 where turbine AT04 (south side only in plot 38 where trees are younger and smaller than those in plot 32) and access roading are proposed are of a young age, and as such removing areas to facilitate the infrastructure required should not increase the risk of extensive windblow as the trees will be small and should have time to stabilise before the risk of windblow arises.

Potential Impact of AT02, AT04, AT06, AT09, AT10, AT15 & Access Roading

Where trees were planted in earlier years and have had reasonable growth rates (e.g. plots 3, 12, 21, 32 and 41), where the turbines AT02, AT04 (plot 32), AT06, AT09, AT10, AT15, and access roading are proposed, clearfell harvesting operations will be scheduled post the estimated timescale of the Proposed Development being built, meaning there will be larger trees in these areas that will need to be harvested to allow infrastructure (access roads, hardstands, bat buffer areas etc.) to be constructed.

The opening of new edges into forestry at these locations may encourage the development of windblow due to the size of the trees that will be present. In the majority of these plots, the proposed turbine locations are in the centre of the plot, which will result in new edges and wind tunnels throughout the forest. Early clear-felling may be necessary to prevent windblow encroaching into the forests and this is dealt with in the mitigation section to follow.

Other Considerations

Beyond the risk to the remaining forestry, there are a number of other potential impacts to consider for mitigation during the planned felling works:

Soil and water quality: issues relating to potential soil damage and water pollution from construction activities are dealt with in the Biodiversity, Soils and Water Chapters of the EIAR. The risk of soil damage and harvesting residues entering waterways during felling for the Proposed Development is no different to the risk arising from the regular harvesting of these crops as part of normal forest management.

Wildlife habitats: the effects on loss or change of habitats are considered in the biodiversity chapter of the EIAR.

Archaeology: harvesting operations involving the movement of heavy machinery hold the potential to cause structural damage to archaeological sites if not carefully planned. However, this risk applies to the normal harvesting of the existing forestry and is not especial to the planned felling for the proposed wind farm.

Road traffic and noise disturbance: the felling of merchantable trees will require timber lorries to transport logs from the Proposed Development Site. Any increase from existing felling plans is likely to be minimal and the impacts a temporary negative effect. Additionally, harvesting and timber haulage would occur during daylight hours, and the resulting noise would resemble that of agricultural machinery in the local environs.

Carbon sequestration: the permanent removal of trees for wind farm construction will reduce the carbon sequestration capacity of the existing forestry. However, an equivalent area of alternative land will be planted on a compensatory basis for all infrastructure felling areas, where newly planted trees will absorb carbon as they grow. Additionally, trees that will be felled as part of this development will be converted to timber products where carbon will be stored long-term.

Mitigation

Concerning the Proposed Development, maximum use of existing forestry infrastructure has been considered during the planning of the project, thereby minimising the areas of existing forestry to be removed for the construction of access roads etc. Existing forestry within the Proposed Development was originally planted as part of silvicultural rotations and would be due for harvesting in the future as a commercial crop, irrespective of whether a wind farm is being constructed or not. By the time the Proposed Development has reached the construction phase, some areas of mature forestry may have reached the end of rotation naturally and felling may be imminent or may already have occurred — replanting could then be planned around the Proposed Development.

In some areas of the Proposed Development, the trees are of low yield class and quality, and from a cost-benefit analysis point of view, the cost to extract the trees post-harvesting would not seem advantageous. This would allow the harvesting machine to use more brash as padding under the machine when moving across the site, while also eliminating the need for forwarding machinery to enter the site to extract timber.

If economical, the felling and extraction of timber will, as far as possible, be undertaken at the same time as currently licensed extraction activities in order to minimise traffic and noise disturbance.

Other additional areas may need to be clear-felled earlier than the planned rotation length. Felling in these instances will be required to prevent the remaining trees from becoming unstable and blowing over due to wind. While the timescale of this felling to be brought forward is not considered significant, various measures should be taken to minimise any potential adverse impacts.

Harvesting Operations

An overview of standard mitigation measures for tree harvesting works is provided below, based on existing standards and guidelines - additional measures may be required within the conditions of a felling licence (where approved).

General Considerations

- Proposed works to be conducted in strict accordance with all relevant standards and guidelines developed by the Forest Service (DAFM), including:
    - Forest Biodiversity Guidelines (Forest Service, 2000a)
    - Forest Harvesting and the Environment Guidelines (Forest Service, 2000b)
    - Forestry and Water Quality Guidelines, (Forest Service, 2000c)
    - Forestry and Archaeology Guidelines (Forest Service, 2000d)
    - Forestry and the Landscape Guidelines (Forest Service, 2000e)
    - Forest Protection Guidelines (Forest Service, 2002)
    - Felling and Reforestation Policy (DAFM, 2017)
    - Standards for Felling & Reforestation (DAFM, 2019)
    - Environmental Requirements for Afforestation (DAFM, 2025)
    - Forestry Standards Manual (DAFM, 2026)
- Contingency plans to be designed according to Section 5 of the *Standards for Felling & Reforestation* (DAFM, 2019) and to be triggered if necessary.
- Harvest plan to be designed for all associated harvesting operations. This will outline access points, environmental/service features and exclusion zones, fuelling and maintenance areas, log stacking areas, timber extraction routes, drain crossing points (if required), silt trap locations, and to include a Hazard Identification and Risk Assessment (HIRA).
- If deemed economically viable, the felling and subsequent extraction of timber should—as far as possible—be conducted at the same time as currently licensed extraction activities to minimise the risk of increased local traffic and noise disturbance.
- The responsible forester to walk the site with harvesting operators to highlight any prominent site risks or any sensitive habitats that are present.
- The CEMP should be consulted by all site operators before any work is completed.
- Harvesting works to only be conducted by experienced and competent contractors - all relevant P.P.E. must be worn while working on the site.
- On-site supervision to be present to ensure all harvesting operations are conducted according to standards, and to confirm mitigation measures are effective.
- Harvesting machinery to be fitted with up-to-date spill kits to mitigate against an accidental spillage.

- Felling and extraction to cease during and after periods of rainfall that could result in the surface mobilisation of silt until conditions improve and the risk is minimised.
- Trees to be directionally felled away from sensitive environmental features.
- Where fallen trees with exposed root plates are being cut during tree felling, the exposed root plates can be manoeuvred back into their original positions, where appropriate and safe to do so, in order to eliminate possible sources of silt.
- It will typically be a condition of a felling licence to treat all conifer stumps with urea immediately upon tree felling where the soil type is mineral soil or where a peat soil is less than 25cm (excluding the litter layer) in depth. Treatment is not required where a conifer stand is being replanted with broadleaves, where conifers within a broadleaf stand are being removed or where broadleaf species constitute more than 85% of a stand.
- Any drains crossed during the extraction phase to be kept clear of any residues/debris to ensure no drainage issues arise for the remaining trees, which can be a major attributor to windblow.
- Any waste or hazardous materials that accumulate throughout operations to be carefully removed from the site when works are complete for appropriate off-site disposal.
- Forest infrastructure to be inspected for any signs of damage when works are complete and to be repaired if necessary.

Water Protection

- When planning harvesting activities, minimize the crossing of drains, relevant watercourses and aquatic zones during felling and extraction. Stacking areas to be located at least 50 metres from aquatic zones.
- 10-metre machinery exclusion zone to be created from the edges of any aquatic zone, water hotspot or water abstraction point that overlaps with the harvesting area.
- 5-metre exclusion zone to be established from the edges of any relevant watercourses present.
- Prior to harvesting works, silt traps to be installed within existing forest drains that connect with aquatic zones, either directly or indirectly through other relevant watercourses. Silt traps to be constructed along the length of drains (outside of exclusion zones) and to be monitored and maintained as required throughout works.
- Storage, maintenance and refuelling area to be located in dry and sheltered location, at least 50 metres from aquatic zones and 20 metres from relevant watercourses.

Figure 7: *Silt trap for sediment control.*

- Harvesting machinery to be kept out of exclusion zones: trees standing within exclusion zone that are outside the reach of the harvester arm to be manually felled by an experienced chainsaw operator and removed by extended harvester arm for processing and stacking outside of the exclusion zone.
- Urea must not be applied to conifer tree stumps within 10 metres of an aquatic zone or a relevant watercourse.
- Temporary bridging points to be used where machinery routes must cross an existing water feature. Water features to be crossed at a right angle to the flow of water and any necessary crossing to be via an appropriate structure — see *Standards for Felling &*

Reforestation (DAFM, 2019). Temporary bridging points to be monitored for the duration of the felling works and to be maintained as required.

- When harvesting works conclude, temporary bridging points to be removed and the relevant areas restored to their original condition, with care afforded to avoid the release of any lodged sediment or residues.
- Regular visual monitoring of relevant watercourses and aquatic zones to occur to check for any silt/sediment discharge from site works.

Soil Protection

- Dense brash mats to be laid along all machinery routes to preserve soil quality.
- Additional brash to be deployed to reinforce any sections of soft ground which are subject to high levels of machinery passage.
- Brash mats to be renewed as soon as they show signs of wear.
- Timber extraction routes to be directed away from water features wherever possible.
- Once harvesting works begin, harvesting operators to follow general extraction routes and stacking areas as marked on a Harvest Map.
- While harvesting is ongoing, every effort to be made to avoid any damage to the site. Harvesting contractors to regularly monitor machinery routes for signs of soil damage and to use extra brash (where available) to pre-empt the risk of soil damage.
- Should ground conditions begin to visibly deteriorate, a new track to be promptly established containing a new brash mat layer.

Figure 8: *Brash mat on harvesting rack.*

- Load sizes on forwarders to be monitored during the timber extraction phase to ensure no overloading occurs.

Habitats

- Appropriate exclusion zone to be established for any wildlife habitats present within the harvesting areas, and the location of such exclusion zones to be marked on a harvest map and to be well known by all operators on the Proposed Development Site before any works commence.
- Old and windfirm broadleaf trees to be retained wherever possible, especially where these contain deeply fissured bark, cavities, ivy cover, woodpecker holes etc.
- Deadwood to be left *in situ* following harvesting operations- this may comprise standing dead trees, logs deliberately left behind on the forest floor or naturally fallen branches.

Archaeology

All guidelines concerning forestry and archaeology to be strictly adhered to:

- Appropriate exclusion zone to be established from outer edges of any known archaeological features — see *Environmental Requirements for Afforestation* (DAFM, 2025).
- In the event that an unrecorded archaeological feature is discovered during the planned harvesting works, it must be immediately reported to the National Museum of Ireland or the Garda Síochána. A minimum 20-metre exclusion zone to be established from the edges of the feature until the site of the find has been investigated by the appropriate personnel (Forest Service, 2000d).

Service Features

- Works scheduled to occur near overhead power lines to be conducted according to Section 7 of the *Forestry Standards Manual* (DAFM, 2026).
- Goalposts and safety signage to be erected where machinery / vehicles must pass near or under an overhead powerline.

Alternative Afforestation Obligations

The *Felling and Reforestation Policy* (DAFM, 2017) document outlines different tree removal scenarios. Table 2 outlines the main scenarios where permanent tree felling may be considered, and whether afforestation of alternative land and repayment of grants and premiums is required in each instance if approved. The planned felling to enable the construction of the Proposed Development relates to 'Scenario 2' in Table 2 and would therefore require the submission of a felling licence application to the Forest Service (DAFM).

Table 2: *Scenarios where the permanent removal of forestry may be considered (DAFM, 2017).*

Scenarios	Felling Licence application required?	Alternative afforestation required?	Refunding of grant & premiums required?
1. Overriding environmental considerations (e.g. to protect habitats/species listed as qualifying interests within SACs and SPAs)	Yes	No	No
2. Supporting renewable energy and energy security (e.g. wind farm installation)	Yes	See Table 3	See Table 3
3. Commercial development (e.g. development of industrial park)	Yes	Yes	Yes
4. Conversion to agricultural land	Yes	Yes	Yes
5. Public utilities (e.g. erection of an electricity power line)	No	No	Yes
6. Other land use change (may be considered on a case-by-case basis)	Yes	Case-by-case	Case-by-case

Note: Adapted from *Felling and Reforestation Policy* (DAFM, 2017), pp. 30. © Forest Service, Department of Agriculture, Food & the Marine.

As outlined in Table 3, repayment of grant and premium payments is required where an affected forest is still in receipt of payments or is still in contract under the Afforestation Grant & Premium Scheme. All areas of forest where permanent infrastructure felling is planned would also need to be replaced through the afforestation of an equivalent area of alternative land. The afforestation of any alternative land would first require written 'Technical Approval' from the Department for Agriculture, Food & the Marine under the Afforestation Scheme.

Table 3: *Requirements for each felling category associated with wind farm development (DAFM, 2017).*

Category of tree felling		Reforestation of felled area required?	Alternative afforestation required? (See Note 1)	Refunding of grant & premiums required? (See Note 2)
Infrastructure felling		No	Yes	Yes
Construction felling		Yes	No	No
Turbulence felling	**≤ 20 ha**	Yes	No	No
	> 20 ha	Yes	Yes - 10% of turbulence fell area	No

Note 1: If 'YES', the alternative site must be of an area equivalent in size (see Section 5.7 of 'Felling and Reforestation Policy'). If the forest area proposed for permanent removal is still in receipt of premiums and / or is still in contract under the Afforestation Grant & Premium Scheme, the alternative site may be eligible under the Afforestation Grant & Premium Scheme.

Note 2: If 'YES', the refunding of any afforestation grants and premiums already paid out by the Forest Service is required if the forest area proposed for permanent removal is still in receipt of premiums and / or is still in contract under the Afforestation Grant & Premium Scheme. Also, if 'YES' or 'NO', if premiums are still being paid, premium payments on the area will cease.

Note: Adapted from *Felling and Reforestation Policy* (DAFM, 2017), pp. 33. © Forest Service, Department of Agriculture, Food & the Marine.

To facilitate the construction of the Proposed Development, approximately 31.86 hectares of existing forestry is due for infrastructure felling (Table 4).

Table 4: *Total forestry to be removed and replaced for Proposed Development*

Infrastructure	Forestry plot(s)	Infrastructure felling area (ha)	Alternative land required (ha)
AT01	-	0.00	0.00
AT02 (incl. access road)	36, 41	2.91	2.91
AT03 (incl. access road)	10, 36, 38, 39	5.15	5.15
AT04 (incl. access road)	32, 34, 36, 38	4.21	4.21
AT05	-	0.00	0.00
AT06	29	1.58	1.58
AT07	-	0.00	0.00
AT08 (access road)	26	0.28	0.28
AT09 (incl. access road)	12	3.44	3.44
AT10 (incl. access road)	12	2.93	2.93
AT11	10	1.79	1.79
AT12 (incl. access road)	4, 5, 6	3.08	3.08
AT13	-	0.00	0.00
AT14	-	0.00	0.00
AT15 (incl. access road)	3	3.46	3.46
AT16	-	0.00	0.00
Met Mast (incl. access road)	36, 41	2.78	2.78
Public Road Widening	18, 29	0.25	0.25
Total:		**31.86**	**31.86**

While the impacts of the felling activities are considered at this application stage it is noted the felling of trees at the site for the purposes of the wind farm is subject to and can only occur following the grant of a felling licence by the Forest Service. Planning permission for the project may not be granted or, if granted, may have amendments introduced by condition(s). Therefore, the extent of felling required to be licensed for the purpose of giving effect to the windfarm project can only be determined once planning permission for the windfarm project has been granted. Furthermore, it will be a condition of a felling licence (if granted) that an equivalent area of land to that requiring infrastructure felling shall be afforested as per the *Felling and Reforestation Policy* (DAFM, 2017). Thus, the extent of the lands required for afforestation can also only be known once planning permission has been granted for the windfarm project. In these circumstances, the application for the licence can, in practical terms, only be made once planning permission has been granted.

In any event, it is prudent to progress the felling and afforestation licences closer to the time when the proposed felling activities are required, rather than far in advance during the wind farm planning submission stage: when the project programme remains uncertain and the exact areas cannot be fully confirmed. A DAFM-approved afforestation licence expires 3 years from the date which they are consented.

Given the dynamic nature of the receiving environment, the identification and licensing of alternative afforestation lands at a later point in time (post planning consent) has the added benefit of ensuring that the licensing process fully reflects current legislative requirements, and, more importantly, the most up-to-date environmental information, and that cumulative/in-combination assessment considers the wider environmental impacts at that point in time. In addition, the developer will not commence the project until written approval from DAFM has been received for the associated felling and afforestation licences. This will ensure that proposed alternative land has been identified, assessed and licenced appropriately by the relevant consenting authority.

The Forest Service may also require the developer to report on the potential loss of soil and biomass CO_2, and the reduction in productivity of the forest area associated with different wind farm forest management and landscape plans. The following will also apply concerning the afforestation of any alternative land:

- The proposed afforestation of any alternative land site must be evaluated and (if deemed suitable) receive written approval from the Department of Agriculture, Food and the Marine before an associated felling licence can be granted.
- The proposed alternative land should be submitted for afforestation approval as early as possible, ideally at the same time as the felling licence application is submitted.
- An afforestation licence must be applied for online by a registered Forester via the DAFM iFORIS iNET system.
- The standard procedures regarding the evaluation of afforestation applications generally will apply, regarding referrals, protocols, AA screening, EIA determination, etc.
- It will be a condition on a felling licence (if issued) that alternative land approved for afforestation is planted and managed as forest land, in accordance with the relevant standards set out in the *Forestry Standards Manual* (DAFM, 2026).

The developer is fully committed to the sourcing of suitable alternative lands for the purpose of afforestation to ensure a net forest loss would not occur as a result of the construction of the Proposed Development. In addition to a felling licence application, non-grant-aided

afforestation licence applications will be submitted to the Department of Agriculture, Food, and the Marine for all alternative land sites. These will outline everything proposed for the sites, including the areas proposed for afforestation and tree species to be planted, environmental setback areas, fencing and fertiliser requirements, and the drainage and ground preparation required to establish the trees.

Conclusion

The Proposed Development at Tirawley, County Mayo, will require the infrastructure felling of 31.86 ha of existing forestry. These trees are due to be removed to facilitate the construction of the various infrastructural components of the Proposed Development. With the proviso that all relevant mitigation and standards are adhered to during the harvesting works, no significant residual impacts are expected.

References

Department of Agriculture, Food and the Marine, (2017*). Felling and Reforestation Policy*. Forest Service, Department of Agriculture, Food and the Marine. Available at: https://assets.gov.ie/static/documents/felling-reforestation-policy.pdf

Department of Agriculture, Food and the Marine, (2019). *Standards for Felling & Reforestation*. Available at: https://assets.gov.ie/static/documents/standards-of-felling-and-reforestation-v-oct-2019.pdf

Department of Agriculture, Food and the Marine, (2025). *Environmental Requirements for Afforestation*. Available at: https://assets.gov.ie/static/documents/09fe3ad4/1EnvReqsAfforOct25061125.pdf

Department of Agriculture, Food and the Marine, (2026). *Forestry Standards Manual*. Available at: https://assets.gov.ie/static/documents/888075e3/1._Forestry_Standards_Manual_100326.pdf

Forestry Focus, (2026). *Harvesting*. Available at: https://www.forestryfocus.ie/growing-forests-3/harvesting/

Forest Service, (2000a). *Forest Biodiversity Guidelines*. Department of the Marine and Natural Resources. Available at: https://assets.gov.ie/static/documents/forest-biodiversity-guidelines.pdf

Forest Service, (2000b). *Forest Harvesting and the Environment Guidelines*. Department of the Marine and Natural Resources. Available at: https://assets.gov.ie/static/documents/forest-harvesting-and-environmental-guidelines.pdf

Forest Service, (2000c). *Forestry and Water Quality Guidelines*. Department of the Marine and Natural Resources. Available at: https://assets.gov.ie/static/documents/forestry-and-water-quality-guidelines.pdf

Forest Service, (2000d). *Forestry and Archaeology Guidelines*. Department of the Marine and Natural Resources. Available at: https://assets.gov.ie/static/documents/forestry-and-archaeology-guidelines.pdf

Forest Service, (2000e). *Forestry and the Landscape Guidelines*. Department of the Marine and Natural Resources. Available at: https://assets.gov.ie/static/documents/forestry-and-the-landscape-guidelines.pdf

Forest Service, (2002). *Forest Protection Guidelines*. Department of Communications, Marine and Natural Resources. Available at: https://assets.gov.ie/static/documents/forest-protection-guidelines.pdf

Irish Wind Energy Association, (2012). *Best Practice Guidelines for the Irish Wind Energy Industry.* Fehily, Timoney & Company.

Teagasc, (n.d.). *Timber Harvesting in Farm Forestry*. Farm Forestry Series No. 12.

Teagasc, (2013). *First Thinning in Conifers*. Farm Forestry Series No. 10.