2 DEVELOPMENT DESCRIPTION

2.1 INTRODUCTION

This chapter of the EIAR provides a description of all elements of the proposed Tirawley Wind Farm (the 'Proposed Development'). This is required by Article 5(1)(a) and Annex IV paragraph 1 of the EIA Directive and Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (as amended).

The requirements for the description of the Proposed Development are outlined below:

(a) A description of the Proposed Development comprising information on the site, design, size and other relevant features of the Proposed Development.

(b) A description of the location of the Proposed Development;

(c) A description of the physical characteristics of the whole Proposed Development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;

(d) A description of the main characteristics of the operational phase of the Proposed Development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;

(e) An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases

2.2 OVERVIEW

For the purposes of this EIAR, where the 'Wind Farm Site' is referred to it includes all elements within the Redline Boundary, the wind turbines, 110 kV Substation, Site Access Tracks, public roads and Site Drainage to be upgraded, Turbine Hardstands, permanent Operations Building, internal cabling, Spoil Deposition Areas, Battery Energy Storage System (BESS), permanent 80 m Met Masts, Temporary Construction Compounds (TCC), Biodiversity Enhancement Measures and all other site infrastructure.

This chapter also provides a description of the proposed temporary works required along the Turbine Delivery Route (TDR) which are outside the Redline Boundary (such as the temporary removal of road signage during the transportation of turbine blades) and which together with the works within the Redline Boundary and the Grid Connection Route (GCR) are defined as the 'Proposed Development' which form the basis of the assessments presented within chapters 5 to 17. This chapter provides details of the construction, operational and decommissioning phases.

This EIAR has considered three possible Turbine Delivery Routes (TDR) with a particular focus on the final leg of the TDR between the Wind Farm Site and the Northern part of Ballina town Co. Mayo. Option 1: Turbine components will be transported from Killybegs Port (Donegal) to the Wind Farm Site via the R263, N56, N15, N4, N59, L-1141, R294, L-1119, N59, L-1108, R315, L-51722, L-51732 (**Figure 2.8**).

Option 2: Turbine components will be transported from Galway Port (Galway) to the Wind Farm Site via the R339, R336, N83, N17, N5, L-1331, N5, N58, N26, N59, L-1108, R315, L-51722, L-51732 (**Figure 2.9**).

Option 3: Turbine components will be transported from Foynes Port (Limerick) to the Wind Farm Site via the N67, N69, N18, M18, M17, N17, N5, L-1331, N5, N58, N26, R294, N59, L-1108, R315, L-51722, L-51732 (**Figure 2.10**).

One preferred Grid Connection Route (GCR) has been assessed as part of the Project EIAR. The GCR connects to the national grid via a 110 kV underground cable system in permanent cable ducts from the proposed Onsite Substation in the townland of Barroe to the existing Tawnaghmore 110 kV Substation located in Killala Business Park, in the townland of Tawnaghmore Upper.

The overall length of the grid connection is 13.55 km, of which 12.43 km is located along the public road corridor and 1.12 km is located within the Killala Business Park grounds. This infrastructure will be constructed to the requirements and specifications of EirGrid, will become an asset of the national grid, and will remain in place upon decommissioning of the Wind Farm.

The preferred GCR connects to the national grid via an underground cable connection from the Onsite Substation to the Tawnaghmore 110 kV Substation.

This chapter includes an overview of the Proposed Development followed by a detailed description of the main components and their methods of construction. Measures that have been built into the design of the Wind Farm Site to reduce environmental effects, also known as 'Embedded Mitigation Measures', are set out in the various technical chapters, and in this chapter. In addition to these Embedded Mitigation measures, chapters 5 to 17 also present mitigation and enhancement measures where specifically relevant to their assessment topic.

This chapter of the EIAR is supported by Figures in **Volume III** and the following Appendix documents provided in **Volume IV**:

- Construction Environmental Management Plan (CEMP) in **Appendix 2.1**

Common acronyms used throughout this EIAR can be found in **Appendix 1.4**. A summary of all mitigation measures from the EIAR is included in **Appendix 18.1**.

2.2.1 Statement of Authority

This section has been prepared by Mr. Darren Timlin and Mr. Michael Garvey of Jennings O'Donovan & Partners Limited (JOD) and reviewed by Mr. David Kiely of JOD.

Mr. Darren Timlin is a Graduate Environmental Scientist and holds a Bachelor (Hons.) Degree in Environmental Science from the Atlantic Technological University. Darren has 3 years' experience drafting EIAR's and Screening Reports, Appropriate Assessments for Wind Farms, Hydrogen Plants and Power Generation Plants. He forms part of the Environmental team responsible for preparing the EIAR Chapters. Darren has experience drafting EIAR's and Screening Reports, Appropriate Assessments for Wind Farms, Hydrogen Plants and Power Generation Plants. He has experience in the use of Arc GIS Pro and Auto CAD 2D.

Michael holds a B.Eng in Civil Engineering and a diploma in Project management. He is an experienced Chartered Professional Engineer (Ontario - Engineers Canada) with over 15 years of client-side and contractor/consultant experience on various Major Multi-Discipline Infrastructure Projects. Experienced in all stages of project life cycles from inception to operations. Projects varied from Design/Build, EPC, EPCM and P3 projects in Ireland, Australia and North America.

The Chapter has been reviewed by Mr. David Kiely of JOD. Mr. Kiely has 43 years' experience in the civil engineering and environmental sector. He has obtained a bachelor's degree in civil engineering and a Masters in Environmental Protection, has overseen the construction of over 50 wind farms and has carried out numerous soils and geology assessments for EIAR's. He has been responsible in the overall preparation of more than 60 EIA Reports (EIARs).

2.3 PROJECT DESCRIPTION

The Proposed Development will consist of the following:

- Construction of 16 no. Vestas V117 (4.3 MW) IEC IIA – T wind turbines. This specific model with a blade tip height of 135 m, was selected as the candidate turbine and its associated parameters were used to determine the significant environmental effects associated with the Proposed Development. No flexibility in terms of turbines dimensions is sought as part of the application for Planning Permission
- Construction of permanent Turbine Hardstands and Turbine Foundations
- Change the use of a residential site and vacant dwelling to a Permanent Operations Compound consisting of an operations office, storage area and staff parking
- Construction of two Temporary Construction Compounds with associated temporary site offices, parking areas and security fencing
- Installation of 1 no. (35-year life cycle) meteorological mast with a height of up to 80 m and a 4 m lightning pole on top
- Development of 17 no. permanent onsite spoil deposition areas
- Construct 5 no. new permanent site entrances as described in the EIAR **Chapter 17: Traffic and Transport** and **Figure 2.1**.
- Upgrade 9 no. existing site entrances as described in the EIAR **Chapter 17**: **Traffic and Transport** and **Figure 2.1.**
- Works for new and upgraded entrances include clearing visibility splays of vegetation, widening the entrances to allow HGVs turn onto local public roads and the R314, excavation to solid formation level, installation roadside drainage features, placing entrance sub-base with rockfill materials, placing capping level and providing surface dressing where necessary.
- Road construction works within the Wind Farm Site consisting of the construction of approximately 9.64 km of new Site Access Tracks through the Wind Farm Site. The upgrading of 1.76 km of private Access Tracks and 1.58 km of public roads within the Wind Farm Site, road verge widening, hedge trimming and all associated infrastructure and drainage works as described in EIAR **Chapter 17: Traffic and Transport** and the **Turbine Delivery Route Report Appendix 17.1.**
- Forestry felling of approximately 31.86 ha of coniferous forest will be required to facilitate the construction of the Proposed Development. For the purposes of this Proposed Development, the Developer commits that the location of any replanting (alternative afforestation) associated with the Proposed Development will be greater than 10 km from the Wind Farm Site and also outside any potential hydrological pathways of connectivity i.e. outside the catchment within which the Proposed Development is located. The extent of felling required to be licensed for the purpose of giving effect to the Proposed Development can only be determined once planning permission for the Proposed Development has been granted. It will be a condition of

the felling licence that an equivalent area of land required to be felled shall be replanted. The felling will be subject to a separate planning application which, in practical terms, can only be made once planning permission for the Proposed Development has been granted.

- All associated site development works including berms, landscaping, and soil excavation.
- Development of an internal site drainage network and sediment control systems.
- Construction of 1 no. 110 kV electrical substation including 2 no. control buildings with welfare facilities, all associated electrical plant and equipment, security fencing and gates, all associated underground cabling, wastewater holding tank, and all ancillary structures and works (the 'Wind Farm substation').
- Installation of battery arrays located within container units (20 no. units) and associated electrical plant for grid stabilisation adjacent to the Onsite Substation building (with up to 150 MW storage capacity) with surrounding palisade fence 2.65 m in height;
- All associated underground electrical and communications cabling connecting the wind turbines to the Wind Farm substation.
- All works associated with the permanent connection of the Wind Farm to the national electricity grid comprising of a 110 kV underground cable system in permanent cable ducts from the proposed, Wind Farm substation, in the townland of Barroe to the existing Tawnaghmore substation at the Killala Business Park.

A 10-year planning permission and 35-year operational life from the date of commissioning of the entire Wind Farm (apart from the substation) is being sought. However, part of the substation and all of the grid connection will be handed over to EirGrid networks to own and operate. As part of the national grid infrastructure, their life can extend beyond the life of the wind farm. Accordingly, permission is sought for the grid connection and substation in perpetuity.

The EIAR assesses the Project which includes the Proposed Development as outlined above; it includes improvements and temporary accommodation requirements to the existing public road infrastructure to facilitate delivery of abnormal loads and turbine delivery.

The Redline Boundary and all works assessed as part of the Proposed Development are shown on **Figure 1.1** and **Figure 1.3**.

2.4 SITE LOCATION AND ENVIRONS

2.4.1 Introduction / Existing Land Use

The Proposed Development, as shown in **Figure 1.1**, is located ~14.5 km northwest of Ballina Town, ~5.2 km northwest of the village of Killala and ~4 km east of Ballycastle village in north Co. Mayo. The Wind Farm Site is located ~10.5 km east of the county border between Mayo and Sligo. The Wind Farm Site has a total area of ~108.06 ha. The Wind Farm Site is accessed via local public roads which branch off the R314 which joins Killala in the southeast to Ballycastle in the northwest. These local public roads serve numerous dwellings and associated farm buildings scattered in lands surrounding the Wind Farm Site.

The Wind Farm Site is comprised of blanket bog, coniferous forestry, transitional woodland scrub and agricultural pastures. Land cover at the Wind Farm Site is mapped by Corine (2018) as inland wetland peat bogs, with some smaller areas of coniferous forestry, semi natural areas and agricultural pastures (www.epa.ie). No significant land use changes have been recorded by historic Corine mapping (1990-2018). Land cover at the Wind Farm Site has been verified by site walkover surveys completed by HES. The Wind Farm Site is comprised of agricultural pastures with fields typically separated by hedgerows and stonewalls. Local pockets of coniferous forestry and peat bogs are also located within the Wind Farm Site. A former abandoned quarry is also located in the northeastern section of the Wind Farm Site in the townland of Castlelackan Demense. Local pockets of coniferous forestry and peat bogs are also located within the Wind Farm Site.

The Wind Farm Site is located within the townland of Ballymurphy, Ballynaleck, Barnhill Lower, Barnhill Upper, Barroe, Billoos, Carn, Carrickanass, Carrowmore, Castlelackan Demesne, Castletown, Conaghra, Glebe, Lackanhill, Lecarrowntemple, Lissadrone East and Lissadrone West.

The GCR, which extends over a length of 13.55 km is in the townlands of Barroe and onto the townlands of Carrad More, Tawnaghmore Upper, Rathbaun, Carrickanass, Cloonavarry, Doonamona, Rathcash, Castlereagh, Rathowen West, Rathowen East, Magherabrack, Cloonawillin, Killala, Mullafarry, Lisglennon, Tawnaghmore Lower, Ballinteean and Carrowreagh.

The EIAR assesses the Proposed Development as outlined above, including improvements and temporary accommodation requirements to the existing public road infrastructure. These infrastructure works, required to facilitate turbine delivery, are situated in the townlands of Annagh Beg, Creevagh More, Garranard, and Billoos.

The Wind Farm Site is located in a rural setting and housing density in the area is low. There are 266 houses within 2 km of the proposed turbines. The closest inhabited dwelling to a turbine not associated with the Proposed Development (H3) is located 554 m from the nearest turbine (AT08). The V117 turbine with a 135 m blade tip height (4 x 135 m = 540 m) maintains 540 m housing buffer. All residential dwellings located within 2 km of the proposed turbines are shown in **Figure 2.3**.

There is 1 no. disused vacant dwelling (H1) located c. 265 m southwest of AT12 This dwelling is under the control of the Developer and as part of the planning application, permission is sought for it to be converted and used as an operations building for the lifespan of the Proposed Development (**Section 2.7.8**).

There is 1 no. dwelling (H2) located c. 321 m southwest from AT01. This property is under the control of the Developer and the owner is a financial beneficiary of the Proposed Development. The owner has confirmed that this property will remain unoccupied for the operational lifespan of the Proposed Development.

2.4.2 Removal of Forestry and Replant Lands

The Wind Farm Site area contains approximately 172 ha of commercial forestry. Nine of the 16 turbines are surrounded by forestry. Therefore, tree felling will be required as part of the Project. To facilitate the Site Access Tracks, civil works, Met Masts and Turbine Hardstands. In all, some 31.86 ha of forestry will need to be clear-felled. The felling area proposed is the minimum necessary to construct the Proposed Development and to comply with any environmental mitigation (bats in particular).

A tree clearance method will be adopted that reduces the potential for sediment and nutrient runoff and will follow the specifications set out in the Forest Service Forestry and Water Quality Guidelines (2000) and in the Forest Harvesting and Environmental Guidelines (2000).

The use of existing forestry infrastructure will be maximised to lessen disturbance from machines used for felling.

In this regard, before any felling works commence onsite, all personnel (particularly machine operators) will be made aware of the following and will have copies of relevant documentation, including:

- The felling plan, surface water management, construction management, emergency plans and any contingency plans;
- Environmental issues relating to the site;
- The outer perimeter of all buffer and exclusion zones;
- All health & safety issues relating to the site.

All construction of tracks, including the creation of buffer zones and roadside drainage, will take into consideration the appropriate edition of the following specifications, which have been developed by the Forest Service:

- Forest Protection Guidelines
- Forestry and Water Quality Guidelines
- Forest Harvesting and Environmental Guidelines
- Forestry and Freshwater Pearl Mussel Requirements - Site Assessment and Mitigation Measures
- Forest Biodiversity Guidelines
- Forestry and The Landscape Guidelines
- Forestry and Archaeology Guidelines

This forestry to be clearfelled is mostly consisting of Sitka Spruce, Japanese larch, Lodgepole pine, Hybrid larch and additional broadleaves and is expected to take up to 3 months.

Detailed consideration of the approach to afforestation requirements associated with the Proposed Development is attached in **Appendix 13.1**. The permanent clearfelling of trees in the State requires a felling licence. The associated afforestation of alternative lands equivalent in area to those lands being permanently clearfelled is also subject to licensing ('afforestation licensing'). The Forest Service of the Department of Agriculture, Food & the Marine is Ireland's national forest authority and is responsible for all forest licensing. In light of the foregoing and for the purposes of this Proposed Development, the location of any replanting (alternative afforestation) associated with the Proposed Development will be outside any potential hydrological pathways of connectivity i.e., outside the catchments within which the proposed project is located and also at a distance so as to not create any potential cumulative effects. On this basis it is reasonable to conclude that there will be no direct, indirect or in-combination effects associated with the afforested lands. The developer commits to not commencing the Proposed Development until both felling and afforestation licenses are in place and this ensures the afforested lands are identified, assessed and licensed appropriately by the relevant consenting authority."

2.4.3 Wind Farms in the Area

There are 14 operational, consented and proposed wind farms for which planning applications are already submitted for determination within 20 km of the Wind Farm Site. **Figure 2.4** shows the location of proposed, permitted and operational wind farms within a c. 20 km radius of the proposed turbines. **Table 2.1** below provides further information on these wind farms. The nearest operational wind farm is Killala Community Wind Farm, which is located c. 5.2 km south-east of the Wind Farm Site. There is 1 no. domestic turbine located c. 1 km north of the Wind Farm Site and 1 no. domestic wind turbine located c. 3.5 km southeast of the Wind Farm Site.

Table 2.1: Wind Farms within c. 20 km of the Proposed Turbines

No.	Name	Planning Ref.	No. WTG	Direction from the Development	Approx Distance to the Development (km)	Planning Status
1	Killala Community Wind Farm (Phase 1)	17169	5	Southeast	6.0	Operational
2	Killala Community Wind Farm (Phase 2)	19260	1	Southeast	5.2	Operational
3	Lackan Wind Farm	22401	3	East	13.6	Operational
4	Oweninny (Phase 1)	ABP Ref. 16.PA0029	29	Southwest	13.9	Operational
5	Oweninny (Phase 2)	ABP Ref. 16.PA0029	31	South-west	19.6	Operational
6	Oweninny (Phase 3)	ABP-309375-21	18	Southwest	14.3	Consented
7	Dooleeg	20467	1	Southwest	19	Consented
8	Bellacorrick	901077	21	Southwest	16.8	Decommissioning*
9	Sheskin	Reg. Ref. 15/825, 19/457	8	Southwest	18.0	Operational
10	Sheskin South	ABP-310529-21	18	Southwest	19.9	Consented
11	Glenora	ABP-310528-21	22	West	6.9	Awaiting Decision
12	Knockboha (Domestic)	06343	1	North	1.1	Operational
13	Leadymore (Domestic)	1769	1	Southeast	4.1	Operational
14	Gortnahurra	N/A	16	Southwest	11.7	Preplanning
15	Keerglen Wind Farm	2460537	8	Southwest	6.5	Awaiting Decision
16	Keenagh, Owenboy &	N/A	20	Southwest	22.3	Preplanning

No.	Name	Planning Ref.	No. WTG	Direction from the Development	Approx Distance to the Development (km)	Planning Status
	Trista Windfarm					

* = Decommissioning of the Bellacorrick Windfarm will take place alongside the construction of the proposed Oweninny Phase (3)

2.4.4 Other Developments (Cumulative)

The only other developments or proposed developments (bigger than a one-off house and within the last 5 years) within 10 km are the developments or proposed developments listed below in **Table 2.2**. The 10 km radius distance search area and timeframe is selected for other developments, other than wind farms, is considered to be reasonable for cumulative impact assessment for EIAR and consistent with the EPA "Guidelines on the information to be contained in environmental impact assessments reports" (2022).

Table 2.2: Other Major Developments or Proposed Developments (bigger than a one-off house) within 10 km of the Wind Farm Site

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
Construction of slatted farm building	Granted	18703	06/11/2018	4.59 km	Northwest	Constructed
Construction of a slatted sheep shed adjoining existing hay shed	Granted	20901	06/01/2021	2.00 km	West	Constructed
Construct a hay/straw storage and machinery storage shed adjacent to existing animal housing facility together with associated site works	Granted	18140	27/04/2018	1.83 km	West	Constructed
Demolition of existing dwelling house and derelict structures, construction of 2 no. two storey dwelling house, connection to pub utilities and ancillary site development works	Granted	19773	22/11/2019	3.05 km	West	Constructed
Construction of 18m high free-standing communications structure with its associated antennae, communications dishes, ground equipment and all associated site development works	Granted	2185	12/08/2021	2.73 km	West	Not Constructed
Section 5: Construct a two bay open single slatted shed and tank and associate works	Permission	18589	28/08/2018	3.41 km	West	Constructed
A bell mouth road entrance with a 24m opening and a forest harvesting road of 142m log with a carriage wat of 3.4m and a standard loading bay with internal area	Granted	18267	12/06/2019	3.40 km	Southwest	Constructed
Construct slatted shed and associated works	Granted	18115	19/04/2018	3.12 km	South	Constructed
Construction of all-weather astroturf all weather playing, field, fencing and lighting with connections to existing services, including all associated development works and services	Granted	18783	06/12/2018	7.92 km	South-west	Not Constructed

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
Demolition existing storage building, construction of a 4-bay slated shed, cattle handling facility and underground slurry storage tank along with all associated site works	Granted	21735	02/09/2021	9.70 km	South	Constructed
Construction of roofed manure pit and 4 bay shed with a loose area and underground slurry storage tank along with all associated site works	Granted	20491	14/09/2020	4.18 km	South	Constructed
Construct a 4 bay double slatted shed with a creep area and underground slurry storage tank along with all associated site works	Granted	20266	10/12/2020	5.83 km	South	Not Constructed
A 4-bay slatted shed with a creep area and underground slurry storage tank along with all associated site works	Granted	19477	18/09/2019	4.31 km	South	Constructed
Construction of an agricultural machinery storage shed together will all ancillary site works	Granted	20230	17/08/2020	4.31 km	South	Constructed
Two Electricity Generating Units, operated as energy peaking plants, to only operate when there is a large surge in grid demand	Granted	062116	19/12/2006	7.02 km	Southeast	Constructed
Construction of an anaerobic digestion biogas facility and associated pipeline	Appealed	2193	08/06/2022	6.52 km	Southeast	Not Constructed
Construct a roofed collecting yard, a calf shed, a farmyard manure shed and all associated works	Granted	18753	26/11/2018	7.13 km	Southeast	Constructed
Construct a cattle underpass and effluent tank under the public road and all associated site works	Granted	17579	19/02/2018	6.78 km	Southeast	Constructed
Filling of lands with inert waste for the purpose of quarry restoration and all associated ancillary works	Granted	21342	23/11/2021	5.96 km	Southeast	Not Constructed
1.0 hectare extension to an existing authorised quarry and will comprise of the following	Appealed	211284	25/09/2022	6.15 km	Southeast	Refused

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
extraction of material by blasting means down to a level of -2.0mod; transportation of extracted material to the existing quarry for processing; landscaping and restoration of the site upon completion of works and all associated ancillary facilities. the applicant is seeking a 10 year permission						
Construct an ESB electricity substation with switch room building and the erection and operation of an asphalt mixing plant (height 20m), aggregate loading bins, hot storage bins and all associated ancillary works on 0.2 hectare area within the existing quarry complex	Granted	19205	24/10/2019	5.94 km	Southeast	Under Construction
Construct a 4-bay calving shed, replace existing 4 bay double shed over existing slatted tank with new 4 bay double along with cubicle extension and also the extension to existing collecting yard and construction of a 2 bay slatted underground slurry storage tank along with all associated site works	Granted	181017	14/02/2019	5.77 km	Southeast	Under Construction
Continued use and operation of the existing limestone quarry (c. 3.97 ha) including wheel wash, settlement lagoons, portable office, workshop and all associated ancillary activities, permitted under plan reg. Ref. No. 02/1931 and 08/1563; installation of a packaged wastewater treatment system and polishing filter	Granted	21708	12/01/2021	6.06 km	Southeast	Operational
Inert Waste Recovery Facility within an application area of c. 1.8 Ha.	Under Appeal	2360182	16/07/2023	6.08 km	Southeast	Under Review
A battery storage facility within a total site area of up to 1.18ha. To include 55 no. Self-contained battery container units with	Granted	18358	20/12/2018	6.83 km	Southeast	Not Constructed

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
associated HVAC cooling units, 15 converter and 15 set up transformer container units, associated compound cabling and ducting, a grid transformer, a single storey substation/control building with welfare facilities, a cable route grid connection to the existing ESB substation building, maintenance lighting, security fencing, a CCTV monitoring system, landscaping works and all associated ancillary infrastructure on lands within the Tawnaghmore generation station. A ten year planning permission is being sought to construct the development						
A nominal 50-megawatt electricity generating station, combusting woody biomass chips (domestic and imported) as well as a small proportion of fuel oil for boiler start-up and all associated site works and services. The total site area is 19.0ha of which approximately 7 ha will be developed.	Granted	2360134	----------	7.10 km	Southeast	Consented
The Proposed Development will consist of a Hydrogen Plant and an Energy Centre and all associated infrastructure and works within a total overall application boundary of 6.88ha. The Proposed Development includes the demolition and removal of the existing Asahi Plant buildings, foundations, as well as decommissioning and removal of the existing overhead and underground services.	Granted	2360266	27/05/2025	6.91 km	Southeast	Consented

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
Modifications to existing 12,000sqm vacant warehouse building to accommodate proposed data centre with offices and all associated works. The proposal also seeks permission for the construction of a new 13,200sqm purpose-built data centre located to the north of the existing warehouse to a varying height of 7-12m and all associated works and infrastructure.	Granted	16694	15/05/2017	7.09 km	Southeast	Not Constructed
Construction of 3 no. 2 storey terraced houses, connect to all public utilities and carry out all ancillary site works	Granted	19295	20/03/2020	4.94 km	Southeast	Not Constructed
Change of use of farm building to residential unit, alterations to elevations including raising the building height, connection to public sewer and all associated site works, retention for existing stables to rear of the farm building	Granted	19157	1/08/2019	4.96 km	Southeast	Not Constructed
1. Demolish existing commercial extension to the rear. 2. Construct a development to consist of: a.) renovations to the existing building to incorporate a bar/reception, 1 no. disable guest bedroom with ensuite on ground floor & 3no. guest bedrooms with ensuites on first floor. b) construct a new extension to the rear incorporating dining area, kitchen, 3no. guest bedrooms with ensuites, public toilets, storage on ground floor & 4no. guest bedrooms, storage, plant rooms on first floor. 3. retention of existing storage sheds to the rear of the property. 4. connection to existing public sewer & existing water mains. 5. provide car parking	Granted	21119	09/08/2021	5.65 km	Southeast	Not Constructed

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
spaces to the rear, including all other ancillary site works and services						
Construction of walled silage slab and slatted cubicle shed and underground slurry storage tank along with all associated site works	Granted	211313	03/08/2022	3.68 km	Southeast	Not Constructed
Construct loose house with cubicles and slatted shed with loose house and underground slurry storage tank along with all associated site works	Granted	19681	30/01/2020	3.98 km	East	Constructed
Construct cubicle shed wintering facility; cow collection and drafting yard; underground slurry storage tank; rotary milking parlour and meal bin; silage slab and concrete apron slab along with associated site works	Granted	20991	22/03/2021	0.56 km	East	Constructed
Construct agricultural shed (192sqm) for the storage of machinery, fodder and to provide wintering facilities for sheep and all associated site works	Granted	1995	22/07/2019	3.61 km	East	Under Construction
Erection of 3 no. New 18sqm single storey bespoke built electrical plant room containers (emod) and the erection of 1 no. 3.6sqm chiller unit, and retention permission for 1 no. 23sqm steeltech tool storage shed, and associated site works, all to be connected to the existing cable landing station	Granted	18362	11/07/2018	7.51 km	Southeast	Constructed
The development will consist of:1) demolition of existing storage extensions to the north and south of the existing Administration building (K2). 2)Construction of three new extensions to existing Administration building (K2) comprising of a) Cold storage extension to the North, b)	Granted	1915	11/01/2019	5.59 km	Southeast	Constructed

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
Workshop extension to the west and c) Extension to facilitate dispatch cold room, salting room & washing room to the south, along with all ancillary and site works. 3) Construction of new extension to the north of existing factory building (K1) located on the south of the property, to comprise of washing room and covered canopy, along with all ancillary and site works. 4) Retention planning permission is being sought for the retention of the existing extension building to the west of the existing Administration building (K2) used for the purpose of blast freezer, along with all ancillary and site works. 5) Retention planning permission is also being sought for: The retention of the existing stand-alone building used for the purposes of waste recycling, along with all ancillary and site works						
A 20m free-standing structure carrying telecommunications equipment together with associated infrastructure including underground cabling and all ancillary development	Granted	19351	15/05/2019	7.52 km	Southeast	Constructed
25-year permission for an energy storage facility. The development will comprise of a compound containing 4 no. Energy storage containers with a capacity of up to 15mv and associated transformers, switchgear, a primary metering cabinet, an auxiliary transformer unit, electrical cable ducting of approx. 112m and communications cable ducting of approx. 124m to connect to the existing 38kv substation on the	Granted	2012	17/01/2020	6.81 km	Southeast	Constructed

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
Killala community wind farm site and all ancillary development.						
Full planning permission for the following; (1) Close up existing entrance to the southwest corner of the site, with new replacement entrance to the front boundary, (2) 5.no self-contained glamping pods with on-site services , (3) Installation of 300sqm of free standing solar panels, including plant room ,(4) On-site waste water treatment unit , (5) Proposed reception area within existing building and (6) all associated site works at Ballinlena, Carrowmore-Lacken, Ballina, Co. Mayo.	Granted	2360248	18/08/2023	3.58 km	East	Not Constructed
Planning permission to install a 40ft metal shipping container underground with 3.2m high earth mounding to all sides for the safe and secure storage of pyrotechnics (Class 1 hazardous goods) along with 4.0m² timber shed for packing and unpacking of pyrotechnics, erect green mesh security fencing, erect stock proof fencing to site perimeter and to carry out all associated ancillary site works at Rathoma, Killala, Co. Mayo.	Refused	2360447	12/12/2023	6.26 km	South	Refused
Section 5 Declaration: Maintenance works to an existing culvert and watercourse to allow for the placing of a micro hydro turbine in the existing culvert serving the watercourse.	Awaiting Decision	24161	25/07/2024	2.23 km	Southeast	Awaiting Decision

Other Developments	Status	Planning Reference	Decision Due Date	Approximate distance to the Site Boundary	Direction from the Development	Development Status
The Killala Bay Reef Project will involve the preparation, transportation, positioning and placement of the MV Shingle on the seabed of Killala Bay, County Mayo, intending to create an artificial reef.	Granted	2460331	11/07/2024	9.37 km	East	Complete
Section 5 Declaration: Construction of a slatted shed with underground slurry storage tank along with all associated site works.	Awaiting Decision	23614	01/12/2023	5.77 km	Southwest	Awaiting Decision
Planning Permission for Development consisting of construction of a new slatted shed and underground slurry storage tank along with all associated site works. There will be one building constructed and all effluent will be collected and stored in the proposed slatted tank. The proposed slatted shed will be 7.300m in height and is to be constructed in an existing farmyard our clients family have been farming for years.	New Application	2660138	19/04/2026	0.34 km	East	Awaiting Decision

2.4.5 Land Ownership

The majority of the Wind Farm Site is located on lands under the ownership of third-party private landowners who have consented to the application and the Proposed Development.

2.4.6 Technical Difficulties/Limitations

Technical difficulties or limitations encountered during the design and assessment of the Proposed Development are addressed in **Chapter 3: Alternatives Considered**.

2.5 WIND RESOURCE

The Wind Farm Site experiences high average annual wind speeds, primarily on account of its location. The Irish Wind Atlas produced by Sustainable Energy Ireland shows average wind speeds for the country and it shows that wind speed resource at the Wind Farm Site is ideal for a windfarm development. Wind speeds from the north to the south of the Wind Farm Site range between 8.2 m/sec to 7.2 m/sec at 75 m, 8.6 m/sec to 7.7 m/sec at 100 m and 9.3 m/sec to 8.6 m/sec at 150 m. The megawatt output for the Wind Farm is anticipated to be 68.8 MW.

2.6 SITE INFRASTRUCTURE AND CONSTRUCTION

2.6.1 Proposed Layout Design

The layout of the Proposed Development has been designed to minimise the potential environmental effects of the Wind Farm while utilising the maximum energy yield from the Wind Farm Site's wind resource. The layout design was informed by the following constraints and buffers:

- No works will occur within a distance of at least 50 m from watercourses (excluding watercourse crossings)
- No works will occur within a distance to land drains of at least 20 m
- No works will occur within a distance to archaeological monuments and structures of at least 50 m.
- Distance from turbines to inhabited houses of at least 540 m.
- Distance of turbines AT01, AT05, AT07, AT08 and AT13 to active bat roosts of 88 m.
- Distance of turbines AT02, AT03, AT04, AT06, AT09, AT10, AT11, AT12, AT14, AT15 to active bat roosts of 94 m.
- Avoidance of ground slopes of greater than approximately 10 – 14%.
- Avoidance of existing telecommunications infrastructure.
- Avoidance of sensitive habitats, e.g. Wet heath, and/or watercourses containing Fresh Pearl Mussel (*Margaritifera margaritifera*)

The overall layout of the Wind Farm Site is shown in **Figure 2.5**. This figure shows the proposed locations of the wind turbines and associated hardstanding areas, electrical substation, Temporary Construction Compounds, internal Site Access Tracks and the Permanent Operations Building. The ITM coordinates of the turbines are listed in **Table 2.3**.

The 16-turbine layout (135 m tip height) features an irregular, dispersed design to maintain visual permeability and distant views. This configuration ensures the Proposed Development is well assimilated within the broad scale of the existing landform and land use patterns, avoiding undue scale conflicts with the underlying landscape. A full appraisal with 35 representative viewpoints is provided in **Chapter 12: Landscape and Visual Amenity**.

Table 2.3: Turbine ITM Coordinates

Turbine No.	Turbine Type	ITM Easting [m]	ITM Northing [m]	Distance to Nearest Residential Receptor (m)*
AT01	V117	515725	834020	559.39 → H5
AT02	V117	514978	832589	601.59 → H8
AT03	V117	514857	832846	604.24 → H8
AT04	V117	514889	833179	601.51 → H8
AT05	V117	514649	834627	555.40 → H4
AT06	V117	514381	834572	557.68 → H4
AT07	V117	515958	835555	625.87 → H12
AT08	V117	515991	835837	554.71 → H3
AT09	V117	515645	836489	601.02 → H3
AT10	V117	515700	836763	676.40 → H3
AT11	V117	515557	837162	841.61 → H22
AT12	V117	515244	837695	680.90 → H22
AT13	V117	515574	837498	885.85 → H22
AT14	V117	515940	837488	722.87 → H11
AT15	V117	516909	837891	601.44 → H7
AT16	V117	516972	837587	623.60 → H11

*Nearest residential receptor not financially involved with the Proposed Development.

2.6.2 Wind Turbine Technology

2.6.2.1 Vestas V117

With a blade tip height of 135 m, the Vestas V117 (4.3 MW) IEC IIA turbine and its associated parameters was used to determine the significance of environmental impacts associated with the Proposed Development (**Figure 2.23**). The Vestas V117 (4.3 MW) IEC IIA is pitched blade regulated with variable speed, three-bladed machine. The turbines appearance will be a matt non-reflective finish in a light grey colour (RAL 7035). The max foundation top-to-tip height of the turbine will be 135 m.

The turbine will have a circular based tower, sitting on a reinforced concrete foundation. The tower will support the nacelle, rotor hub, and rotor blades. Commercial wind turbine towers are typically made of steel or a hybrid of steel and concrete. The nacelle is mainly metal (steel, copper, aluminium, etc.) with a metal/plastic/glass-reinforced plastic (GRP) body, while the blades can be made of a matrix of glass-fibre reinforced polyester or wood-epoxy or similar composite materials.

A schematic drawing of the Vestas V117 (4.3 MW) IEC IIA turbine is shown on **Figure 2.23**.

The assessment considers and assesses the Vestas V117 (4.3 MW) IEC IIA parameters.

The turbine parameters can be seen in **Table 2.4**.

Table 2.4: Turbine Parameters - Vestas V117 (4.3 MW) IEC IIA

Turbine Parameter	Assessment Envelope
Turbine Blade Tip Height	135 m
Rotor Diameter	117 m
Hub Height	76.5 m

The turbine will be equipped with Serrated Trailing Edge (STE) technology as standard. This design feature mitigates noise emissions by effectively breaking up turbulence into smaller eddies, reducing the intensity of pressure fluctuations and lowering noise emissions by approximately 2.5 dBA without reducing energy output. Additionally, the turbines have software incorporated so that sound power levels can be reduced, allowing for operation in Sound Optimized Modes (SO1 and SO2) to ensure strict compliance with established noise limits under specific wind conditions. A comprehensive assessment of potential noise and

vibration effects, including technical specifications and the project's curtailment strategy, is provided in **Chapter 11: Noise**.

2.6.3 Turbine Foundation and Turbine Hardstands

All proposed turbines will be erected on the Vestas V117 (4.3 MW) IEC IIA hardstand as shown in **Figure 2.6**. The Turbine Hardstand is designed to accommodate the delivery, laydown, and assembly of turbine components (in particular, rotor assembly) prior to turbine lifting and assembly. The Turbine Hardstands are needed to support the cranes during turbine construction, operational and maintenance and for decommissioning. The Turbine Hardstands will be constructed first and will be used to facilitate foundation construction, such as steel reinforcement delivery and pouring of concrete.

Construction of the Turbine Hardstand will require the excavation of soils, the laying of a geotextile material on the formation surface and placing engineered stone and a top dressing of crushed, well- graded stone.

The total Turbine Hardstand area is broken down as follows:

- Turbine Hardstands – (Main Crane Hardstand Area) is 26,000 m^2
- Turbine Hardstands Foundations is 5,863 m^2
- Assist Crane Pads (Temporary) is 5,980 m^2

A combined total of 37,843 m^3 of imported stone. Of which 11,352 m^3 will be the finishing layer and 26,490 m^3 for the subbase of the Turbine Hardstand area.

The Turbine Foundations will be approximately 21.6 m in diameter and will range in depth from 0.5 m at the edge to 2.7 m at the centre. The central part of the foundation (plinth) as shown in **Planning Drawing 6289-PL-502-01** will be a maximum of 6 m in diameter and will be raised 0.795 m from the main Turbine Foundation. It will encompass a cast-in insert or bolts to connect to the bottom of the turbine tower and reinforced bar structural.

The area around and above the Turbine Foundation will be backfilled with compacted stone or crushed rock.

Further site investigations will be undertaken post consent to confirm that conditions do not vary from those encountered when initial investigations took place. This will confirm that the mitigation measures to be implemented remain accurate in protecting the environment. Traditional gravity foundations are considered for EIA purposes. These are concrete

structures that depend on their own weight to achieve sufficient stability against overturning and sliding.

Turbine Foundations will need to be taken down to a level where the underlying soil or rock can bear the weight of a structure without shifting or compressing. This will be done by excavating through the peat / soil, subsoil and rock where necessary (depending on the various geological locations).

The method of construction for a Turbine Foundation is described as follows:

- Install temporary drainage around the perimeter of the excavation;
- Excavated soil and rock and temporary storage adjacent to the work;
- Back fill the foundation with excavated rock to required level;
- Place lean mix concrete layer to form working surface;
- Install formwork. steel reinforcement, anchor cages and ducting;
- Pour the concrete;
- Cure concrete;
- Once the concrete has set and the earthing system is in place, backfill the foundation with stone and excavated soil depositions;
- Use retained excavated soil deposits to build up the area around the turbine base

2.6.4 Machinery Access for Tree Felling

For the tree felling, it is intended that much of the existing forest access track infrastructure will be utilised. The turbine layout seeks to maximise use of the forestry access tracks and fire lines already present. Where there is already an access track there will be less intrusion and disturbance to the soil and surrounding trees. Some widening and building up of the existing road network will be required which will minimise impacts on habitats compared to the construction of new forest tracks. These upgraded tracks will also be used for access for felling.

2.6.5 Access to the Wind Farm Site

There is a total of 14 proposed site entrances associated with the Proposed Development: consisting of 5 no. new site entrances opening out onto public roads and the upgrading of 9 existing entrances and the widening of 1 no. junction located on the R314. Works will include the removal of existing vegetation for visibility splays and widening to facilitate the use of each entrance for the delivery of construction materials and turbines to the Wind Farm Site.

The locations and details of each of these entrances are detailed in **Chapter 17: Traffic and Transportation.** The TDR and the Construction Haul Routes (CHR) will utilise site entrance 1-14, refer to **Figure 2.1** and **Appendix 17.1 Turbine Delivery Route**.

2.6.6 Proposed Turbine Delivery Routes

This EIAR has considered three possible TDRs:

Option 1: It is proposed that turbine nacelles, tower hubs and rotor blades will be landed in Killybegs Port (Donegal). From there, they will be transported to the Wind Farm Site via the R263, N56, N15, N4, N59, L-1141, R294, L-1119, N59, L-1108, R315, L-51722, L-51732 and the R314 as shown on **Figure 2.7.**

Option 2: It is proposed that turbine nacelles, tower hubs and rotor blades will be landed in Galway Port (Galway). From there, they will be transported to the Wind Farm Site via the R339, R336, N83, N17, N5, L-1331, N5, N58, N26, N59, L-1108, R315, L-51722, L-51732 and the R314 on **Figure 2.8**.

Option 3: It is proposed that turbine nacelles, tower hubs and rotor blades will be landed in Foynes Port (Limerick). From there, they will be transported to the Wind Farm Site via the N67, N69, N18, M18, M17, N17, N5, L-1331, N5, N58, N26, R294, N59, L-1108, R315, L-51722, L-51732 and the R314 as shown on **Figure 2.9.**

Delivery of turbines to the Wind Farm Site will require co-ordination with a number of statutory bodies including Transport Infrastructure Ireland (TII) Mayo County Council, and An Garda Síochána.

This EIAR has assessed the above three options with a particular focus on the final leg of the TDR between the Wind Farm Site and the Northern part of Ballina town Co. Mayo. All assessments, reports, route maps and relevant figures can be found in **Chapter 17: Traffic and Transportation** and **Appendix 17.1 Turbine Delivery Route Report**.

2.6.6.1 Turbine Delivery Route Works

Works on the turbine supply routes are described in detail in the TDR report included in **Appendix 17.1.** For abnormal loads between Killybegs Port and the Proposed Development Site, Galway Port and the Proposed Development Site, and Foynes Port and the Proposed Development Site, works will be required to facilitate the delivery of turbine components. Some of these will be relatively minor in nature for example temporary removal of street furniture and signage. These works may have a slight, negative, temporary effect

on residents, businesses and road users due to the increased noise and vibration resulting from construction activities and increased journey times and delays due to temporary traffic management. However, these effects will be confined to a very short period during the construction phase, prior to the delivery of the turbine components and hence, are not predicted to have a significant effect.

Once works have been completed, the works will be reinstated in accordance with the requirements of the relevant County Councils. The extent of works from Ballina towards the Proposed Development Site has been determined by reference to the swept path analysis drawings (see **Appendix 17.1** for Swept Path Analysis Drawings prepared for the turbine TDR between Ballina and the Wind Farm Site)**.**

2.6.7 Site Access Tracks

The Site Access Tracks are necessary to allow access for cranes and delivery trucks during construction of the Proposed Development and to facilitate servicing/repairs to the wind turbines during the operational lifespan of the Proposed Development.

At locations within the Wind Farm Site where existing farm and forestry tracks exist, these tracks will be scraped back and upgraded to new Site Access Tracks for the Proposed Development. Refer to Access Track Road Details in **Figure 2.10** and **Figure 2.11**. This will minimise additional land take and destruction of undisturbed habitats. These existing tracks will be upgraded as necessary so that the minimum width will be 4.5 m.

Site Access Tracks will be wider at bends and at passing bay locations with a width of 6 m is provided. Gradients will be limited to 1 in 7 (approximately 12%) and a stone layer provided for good grip during wet weather. All information, location maps and figures can be found in **Chapter 17: Traffic and Transportation** and **Appendix 17.1 Turbine Delivery Route Report**.

Table 2.5 Estimated Excavation for Road Construction

Road Section	Length (m)	Surface Width (m)	Average Peat Depth (m)	Depth to firm Sub-soil/ Rock (m)	Depth of Sub soil to be excavated (m)	Total Volume to be excavated (m^3)	Vol of peat to be excavated (m^3)	Vol of soil to be excavated (m^3)	Vol of rock to be excavated (m^3)
New Site Access Track	9,642	5*	0.5	0.8	0.2	33,747	24,105	9,642	-
Upgraded Existing Private Access Track	1,763	2	0.5	0.8	0.2	2,468	1,763	705.2	-
Totals	**11,405**					**36,215**	**25,868**	**10,347**	**-**

*Excavation volumes for Site Access Tracks were conservatively estimated using a 5 m width, exceeding the required 4.5 m

Approximately 9.64 km of new Site Access Tracks is required throughout the Wind Farm Site. These will be constructed to provide a width of 4.5 m and will cover an area of c. 43,389 m^2.

Approximately 2.28 km of existing private tracks within the Wind Farm Site will be upgraded for the Proposed Development. These private tracks will be widened to provide a width of 4.5 m (an additional c. 2 m road width) and will cover an additional area of c. 3,526 m^2.

Approximately 1.58 km of existing public roads require widening within the Wind Farm Site. These existing public where required will be widened to provide a width of 4.5 m (an additional c. 2 m road width), will cover an additional area of c. 3,156 m^2.

A total of 18,155 m^3 of imported crushed stone is estimated to be required for the combined access tracks.

The Site Access Tracks will be upgraded and constructed to carry a minimum of 12 tonne axle construction loading. They will be constructed using rock and capping stone from nearby quarries listed in **Chapter 17: Traffic and Transport**.

The Site Access Tracks and public roads will facilitate a minimum 12 tonne axle construction loading. The design will consist of 250 mm to 510 mm of sub-base material. The Site Access

Tracks construction, the public road widening detail and the existing private road widening detail are shown in **Figures 2.10** and **Figure 2.11**.

The Site Access Track layout avoids environmental constraints and follows the natural contours of the land where possible. Every effort has been made to minimise the length of road necessary.

The surface of the Site Access Tracks will have to be maintained during the construction phase. Harmful constituents such as hydrocarbons pose a risk of environmental contamination and also a risk to human health if found in drinking water sources. All stone required for structural work will be manufactured in local quarries and will have undergone appropriate testing to Transport Infrastructure Ireland (TII) specifications.

Mitigations measure outlined in **Chapter 9: Hydrology and Hydrogeology - Section 9.5** and can be found in the **CEMP** in **Appendix 2.1**.

The Proposed Development includes a total of 12 no. water crossings of land drains and natural streams along the internal Site Access Tracks and public roads within the Wind Farm Site. Many of these crossings are located at existing culvert crossings. The Proposed Development includes 5 no. new watercourse crossings. Four new water crossings will be via a bottomless or clear span culvert and one new water crossing will be via Horizontal Directional Drill (HDD). The existing banks will remain undisturbed as much as possible. The culverts will be constructed with reinforced concrete and will join to the gravel Site Access Tracks. Timber post and rail fencing will be included with galvanised chain link fence on the internal face. Further to consultation with Inland Fisheries Ireland (IFI), the proposed crossings have been designed in accordance with Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters, 2016 as set out in Management Plan 2 of the CEMP (**Appendix 2.1**). A typical bottomless culvert water crossing detail is included in **Planning Drawing: 6289-PL-204**. A typical HDD water crossing detail is included in **Planning Drawing: 6289-PL-205**.

In addition to this, 10 no. water crossings including 4 no. culvert crossings and 2 no. stream crossing, 4 no. river bridge crossing will be along the GCR. Details of the crossings are included in **Planning Drawings**: **6289-PL-GR-1201** to **6289-PL-GR-1210**.

2.6.8 Met Mast

As part of the EirGrid grid code[1] requirements and as an independent assessment of Wind Farm performance, all wind farms with an installed capacity of greater than 10 MW are required to supply continuous, real-time weather data for the Wind Farm location. The data required is the wind speed and wind direction at turbine hub height, air temperature and air pressure. The data required for the Proposed Development will be provided by one dedicated meteorological mast measuring 80 m in height with a 4 m lightning mast (location as detailed in **Figure 2.12**).

The Met Mast will be situated in the southwest of the Wind Farm Site as shown in **Figure 2.12**. It will be a free-standing lattice type structure as shown in **Figure 2.13.** The Met Mast foundation will be 10 m by 10 m, with a depth of 2.25 m. It will be designed and constructed similarly to the Turbine Foundations. It will encompass a cast-in insert or bolts to connect to the bottom of the Met Mast and reinforced bar structural elements. The area around and above the foundation will be backfilled with compacted crushed rock. The Met Mast will be linked to 110 kV Substation via buried Internal Cabling for power and communication. It will be required for the full operational duration of the Proposed Development.

2.6.9 Electrical Substation, Control Building and Associated Compound

It is proposed to construct a new tail fed 110 kV Gas Insulated Switchgear (GIS) substation on the Wind Farm Site (**Figure 2.15** and **Figure 2.16**)**,** together with an underground cable measuring approximately 13.55 km in length to connect to existing Tawnaghmore 110 kV substation.

The proposed GIS Electrical Substation will be located south of wind turbine AT01. The Onsite Substation compound will include 1 no. GIS Building and an associated outside compound which will contain 4 no. transformers. There will be up to 3 no. monopole lightning protection masts which will be approximately 14 m in height and associated works. Warning / health & safety signage will be displayed as is normal practice for such installations. The GIS substation is an 8 bay, gas insulated, high voltage system contained within a two-storey building (GIS Building). The building will measure approximately 15 m high with a footprint of approximately 741.24 m^2 and will be secured by a 2.65 m high palisade fence. A permanent access road will be constructed to allow vehicle movement in and out of the compound. Adequate lighting will be installed around the compound on the lighting mast within the compound.

[1] EirGrid (15 December 2021). EirGrid Grid Code Version 10

The more modern GIS substation design as described above is housed within a building contrary to the existing traditional AIS substation. The GIS substation also has a significantly reduced footprint when compared to an AIS of a similar capacity. GIS substations typically require a basement to facilitate a cable pit. Rock removal will be required to a greater depth in comparison to the rest of the Proposed Development buildings in order to facilitate the electrical substations building foundation. The additional depth is to allow for the cable pit and relay room situated on the ground floor of the electrical substation building.

The ground floor will house the cable pit, relay room, battery room, workshop, generator room, a hoist area and welfare facilities. The ground floor will comprise of a 150 mm reinforced concrete floor slab on 95 mm extruded polystyrene insulation on 50 mm sand screed on layers of compacted clause 804. The foundation slab will be on sand screed and radon barrier.

The first floor will house the GIS room, a store and a hoist area. The buildings outer leaf (a portable frame structure material) will comprise of a selected non-combustible metal wall cladding panels or similar approved. The colour of which is anticipated be anthracite grey RAL 7016. The building's roof material will comprise of non-combustible metal roof cladding panels or similar approved. The colour of which is anticipated be anthracite grey RAL 7016. The proposed Onsite Substation will be secured by a 2.65 m high palisade fence and equipped with intruder and fire alarms in line with ESBN and EirGrid standards.

Electricity transmitted between the turbines and the substation on the Wind Farm Site will be at 33 kV. The layout of the substation and compound is further detailed in **Figure 2.15** and **Figure 2.16**. Elevations of the substation and compound is further detailed in **Figure 2.19** and **Figure 2.18**.

2.6.10 Battery Energy Storage System (BESS)

A standalone BESS compound is proposed immediately to the east of the substation. The BESS compound is not part of the substation and can be completed either at the date of construction of the substation or at a later date. The BESS compound area will be approximately 6,360 m^2 (60.7 m x 104.8 m) and is shown on **Planning Drawing: 6289-PL-2000**. The foundation will be up to 0.5 m in depth and will be constructed from engineered stone material, using similar construction techniques as for the Turbine Hardstands. The proposed will comprise containers approximately 10.96 m x 3.88 m placed on concrete plinth foundations 150 mm above the general site level and will be assembled on terraces over permeable granular unbound surfacing (battery containers are shown on **Planning**

Drawings: 6289-PL-2004). Each container will house a modular array of lithium-ion (Li-on) batteries, or similar type technology. The battery array will be placed in modular racks which will allow them to be taken out and replaced as needed. The containers will contain control equipment, HVAC equipment, fire safety equipment and inverter units. The transformer units will be housed in separate containers located in front of each of the main battery containers, **Planning Drawings: 6289-PL-2002**.

The current energy storage technology favoured today is Li-ion batteries. These batteries are used widely due to their fast response time, which makes them preferable for grid-scale deployment. The Li-ion batteries vary in cell chemistries (e.g., Lithium Iron Phosphate, Lithium Nickel Manganese Cobalt Oxide, Lithium Cobalt Oxide, Lithium-Titanate) and cell arrangement (e.g., cylindrical, pouch, prismatic). Chemistry and arrangement will dictate the batteries' performance characteristics. The final selection of energy storage technology for the battery used will be based on the latest technology available at the time of construction, there will not be any difference to the environmental effects, regardless of the type of battery used.

While the precise storage technology may vary, the dimensions of the battery modules will be within the footprint shown on **Planning Drawing: 6289-PL-2000**.

Each battery module is connected to a set of power conditioning units which regulate power flow to and from the battery modules. To reduce any visual effects on the surrounding area, the colours proposed for the Battery module containers will be either dark green or grey which is not considered to change the visual assessment. However, this will be decided at detailed design stage of the Proposed Development. The modules will be non-reflective to ensure there will be no reflection or glare which may affect avian species.

2.6.11 Transformers and Internal Cabling

The power generated by each wind turbine will be transmitted via underground Wind Farm Internal Cabling to the proposed 110 kV Onsite Substation also, the communications signal cabling will be installed in the same trench.

The trenches will house power ducts and communication ducts at a depth of one metre (1 m) in depth. The trench will measure approximately 730 mm wide (twin circuit) or 435 mm wide (single circuit) **Planning Drawing: 6289-PL-1001**. There will be approximately 15.76 km of Wind Farm Internal Cable trenching. The power and fibre-optic cables running from the turbines to the substation compound will be run within Site Access Tracks and/or in

verges. The cable ducting will be installed to ESB Networks specifications. A cross-sectional drawing is show in **Figure 2.20**. There is one number water crossing along the internal cabling route that will be constructed by means of directional drilling technology. The directional drill location is further detailed in **Planning Drawing: 6289-PL-205**.

The Wind Farm Internal Cabling routes will be bedded in surplus excavated soil material. Danger tape, incorporating a metallic strip, will be laid during backfilling. Where the Wind Farm Internal Cabling is to cross Site Access Tracks, suitable electrical ducting will be provided. Permanent posts will mark the trenches at regular intervals and at all changes in direction. An as-built layout plan showing the location of underground Wind Farm Internal Cabling will be on permanent display within the control building.

Clay plugs or concrete cut offs will be installed at regular intervals in the cable trenches (particularly where they are located on slopes) to prevent the trenches from becoming preferential flow paths for runoff from the Wind Farm Site.

Transformers will be located inside each turbine.

Excavated material will be stored uphill of the trench excavations which will prevent any sediments from being washed downhill. Silt fences will be installed down gradient of the excavations to prevent silt runoff.

2.6.12 Grid Connection

Connection will be sought from the grid system operators by application to EirGrid. The substation will connect via underground 110 kV cable at the existing Tawnaghmore 110 kV Substation. The cable will connect into existing infrastructure within the confines of the substation and its compound.

The route of this underground grid connection is provided in **Figure 2.2**. The overall length of the grid connection between the Wind Farm substation and the existing Tawnaghmore 110 kV substation is 13.55 km, of which 12.43 km is located along the public road corridor and 1.12 km is located within the Killala Business Park grounds.

The Grid Connection will be constructed to the requirements and specifications of EirGrid. The electricity will be transmitted as a three-phase power supply meaning there will be three individual conductors in each cable circuit. The three conductors will be laid in separate ducts which will be laid in accordance with EirGrid functional specifications (CDS-GFS-00-

001-R1[2]) for 110 kV underground cables. The width of a 110 kV cable trench with a trefoil formation will be 600 mm. The depth of the trench for 110 kV cables is 1.335 m. A separate duct will be provided within the trench for fibre-optic communications, refer to **Figure 2.20 Standard 110 kV Roadway Trench Trefoil Design (160 mm Duct).**

The following is a summary of the main activities for the installation of ducts:

- All relevant bodies i.e. EirGrid, Gas Networks Ireland, Eir, Mayo County, Uisce Éireann etc. will be contacted and up to date drawings for all existing services will be sought.
- Immediately prior to construction taking place, the area where excavation is planned will be surveyed using a Cable Avoidance Tool (CAT) and all existing services will be verified. Temporary warning signs will be erected.
- Clear and visible temporary safety signage will be erected all around the perimeter of the live work area to visibly warn members of the public of the hazards of ongoing construction works.
- A 13-tonne rubber tracked 360-degree excavators will be used to excavate the trench to the dimensions of 600 mm wide by 1.335 m deep.
- A silt fencing filtration system will be installed on all existing drainage channels before and for the duration of the cable construction to prevent contamination of any watercourse.
- Once the trench is excavated, a 50 mm depth base layer of sand (in road trench) or 15 Newton CGBM B concrete (off road trench) will be installed and compacted. All concrete will be offloaded directly from the concrete truck into the trench.
- uPVC ducts will be installed on top of the compacted base layer material in the trench.
- Once the ducts are installed, couplers will be fitted and capped to prevent any dirt entering the unjointed open end of the duct.
- The as-built location of the installed ducts will be surveyed and recorded using a total station/GPS before the trench is backfilled to record the exact location of the ducts.
- The co-ordinates will be plotted on as-built record drawings for the grid connection cable operational phase.
- When ducts have been installed in the correct position on the trench base layer, sand (in road trench) or Lean-mix CBM4 (CL1093) (off road trench) will be carefully installed in the trench around the ducts, so as not to displace the duct and compacted.
- Spacer templates will be used during installation so that the correct cover of duct surround material is achieved above, below and at the sides of the duct in the trench.

[2] https://www.eirgridgroup.com/site-files/library/EirGrid/110kV-Underground-Cable-Functional-Specification-General-Requirements.pdf

- A red cable protection strip will be installed above the layer of material surrounding the duct and for the full length of the cable route.
- A layer of Lean-mix CBM4 (CL1093) (in road) or excavated material (off road) will be installed on top of the duct as a surround material to a level 300 mm below the finished surface level.
- Yellow marker warning tape will be installed for the full width of the trench, and for the full length of the cable route, 300 mm from the finished surface level, 400 mm below ground level where existing culvert tape is present or dropped to a max depth of 300 mm below party service marker tape.
- The finished surface of the road will then be reinstated to its original condition. For off-road sections of the GCR, the trenches will be reinstated with the related excavated material.
- Precast concrete cable joint bays (junction boxes see **Section 2.6.13.1** below) will be installed along the cable trench at typically 0.5 km centres.
- The junction boxes will be backfilled and the finish surface above the junction box will be finished as per its original condition. The cable junction boxes will be opened a second time during cable pulling and jointing, after which the finished surface above the joint bays will be reinstated to the requirements of the *Guidelines for Managing Openings in Public Roads (Department of Transport, 2017)*.
- When trenching and ducting is complete, the installation of the grid connection cable will commence between the Wind Farm Substation and the existing 110 kV Substation at Tawnaghmore.
- The underground cable will be pulled through the installed ducts from a cable drum set up at one joint bay and using a winch system which is set up at the next joint bay, the cable will be pulled through.
- The cables will be jointed together within the precast concrete cable junction box (Joint Bay).
- The finished surface above each cable joint bay will be reinstate on a permanent basis to requirements of the *Guidelines for Managing Openings in Public Roads (Department of Transport, 2017)*.

2.6.12.1 Joint Bays

Joint Bays are pre-cast concrete chambers where individual lengths of cables will be joined to form one continuous cable. A joint bay is constructed in a pit. Each joint bay typically will be 6 m long x 2.5 m wide x 2.5 m deep. A reinforced concreted slab will be constructed on top of the bay.

The joint bay locations have been dictated by suitable terrain and access to facilitate the operation of cable pulling equipment at any phase of the development and future operation of the installation in accordance with the ESB Networks Limited specifications.

Communication chambers, which are pre-cast concrete structures with an access cover at finished surface level, will be installed at every joint bay location to facilitate connection of fibre-optic communication cables between on the Onsite Substation and existing Tawnaghmore 110 kV Substation. The communication chambers will be approximately 1.30 m x 1.03 m and have a depth of 1.29 m, **Planning Drawing: 6289-PL-GR-1310**.

2.6.12.2 Directional Drilling Works

There are ten water crossings along the GCR, three of which are expected to require Horizontal Directional Drilling (HDD). The three directional drill locations and further details are in **Planning Drawings: 6289-PL-GR-1203, 6289-PL-GR-1206-02** and **6289-PL-GR-1208-02**. HDD is the practice of drilling holes in a non-vertical direction for the laying of ducts which contain cables beneath features such as a watercourse. Directional drilling is the practice of drilling holes in a horizontal direction for the laying of ducts which contain cables beneath features such as watercourses. The directional drilling commences at the launch pit which is the entry point for pipes and ducts to be placed. Pipes and ducts are brought through the drilled hole to a receiving pit on the opposite side of the hole to the launch pit. The crossings will comprise 4 x 110 mm High Performance Polyethylene (HPPE) pipes/ducts each directionally drilled. Two separate excavations will be made to a depth of 2 metres to accommodate the directional drilling launch and reception pits in the road on either side of the crossing (no third-party lands either side of the road are anticipated to be required). Spoil arisings will be loaded onto trucks for disposal offsite as soil is excavated. The excavation launch and reception pits will be reinstated using compacted layers of crushed stone on completion of drilling and jointing operations.

The drill head will be placed in the open excavation (launch pit) and it will be guided in by the operator for the first 1-2 metres. A series of drill rods will be connected to the head as it travels further along the shaft.

The drill position is always known to the operator and the drill can be manoeuvred in 3 planes / axis. A surveyor will monitor drilling works to provide that the modelled stresses and collapse pressures are not exceeded. A drilling lubricant will be required and this will be delivered directly to the drill head by hydraulics. The lubricant will be chemically inert bentonite slurry mixture which lubricate the drill head and remove the drilled earth and

stone. Once the conduit is completed, the drill head is exposed at the reception pit and removed. Once the first pilot hole has been completed a hole-opener or back reamer will be fitted in the exit pit and will pull a drill pipe back through the bore to the entry side. The drill rods are connected to the duct pipe and the drill is reversed pulling the pipe back through the conduit. A spoil volume of approximately 5 m³ will be excavated for each 100 m run of 4 pipes. This spoil will be largely subsoil material. This material will exit the launch pit within the bentonite slurry mixture. A mobile bunded tank will be located next to the launch pit into which the material/slurry mixture will be pumped. This will be stored outside of the 25 m watercourse buffer zone.

The following measures will be implemented during the directional drilling works:

- No in-stream works will be permitted.
- Works shall not take place at periods of high rainfall and shall be scaled back or suspended if heavy rain is forecast.
- A floating hydrocarbon boom and spill kit will be available.
- Plant will travel slowly across bare ground at a minimum of 5 km/hr. If truck rutting is observed, then bog mats or rolling road will be employed.
- Silt fencing will be erected between work area and the watercourse.
- Any excess construction material will take place onsite or within 5 m of any watercourse
- All construction workers will be given a toolbox talk addressing the environmental topics concerning the drilling prior to commencement of construction.

2.6.12.3 Trench Layout

The trench layout will be as per the appropriate ESB Networks specifications. The specification of Mayo County Council will be followed for the excavation and reinstatement of the ducted cable trenches. When the trench has been excavated to the required depth and all loose material and protruding stones have been removed, a bedding layer of sand will be laid and compacted to a minimum thickness of 65 mm.

2.6.13 Borrow Pits

No borrow pit is proposed on the Wind Farm Site. Rock will be imported from local quarries, as identified in **Chapter 17: Traffic and Transportation**.

2.6.14 Onsite Drainage

The existing surface water runoff is contained within natural and artificial drainage channels that include stream and river waterbodies, drainage ditches, and other minor natural and manmade drainage features.

Drainage measures will be provided to attenuate runoff, guard against soil erosion and/or soil compaction, and safeguard local water quality. There is a total of 48 no. stilling ponds located throughout the Wind Farm Site and can be seen on **Planning Drawing: No. 6289-PL-100** to **6289-PL-109**. Details of the drainage system are shown on **Planning Drawing: No's. 6289-PL-200** to **6289-PL-203** and outlined in detail in the Surface Water Management Plan, part of the outline CEMP (**Appendix 2.1**). Full details of the proposed drainage are provided in **Chapter 9: Hydrology and Hydrogeology.**

The Wind Farm Site is drained by several small streams. Many of these natural watercourses originate in the vicinity of the Wind Farm Site and flow downslope before discharging into the Cloonalaghan River to the southeast or directly into Lackan Bay.

Within the Wind Farm Site there are 12 no. watercourse crossings, 7 are existing along the public roads, 1 new culvert crossings are proposed along public roads where road widening is required and 3 culvert crossings are proposed along the Site Access Tracks. Along the internal cable route, 1 new water crossings will require directional drilling to cross the Carn River. One directional drill crossing will facilitate a 33 kV internal collector cable.

The GCR contains a total of 10 no. watercourses. All water crossings are located at existing bridges and culvert crossings. HDD will be used at 3 of these crossings:

- One no. directional drill crossing at Palmerstown Bridge over the Cloonaghmore River.
- One no. directional drill crossing at a bridge over the Rathowen East Stream.
- One no. directional drill located along a local road to the south of Killala Business Park where the GCR crosses the Moyne 34 Stream.

Where Site Access Tracks and the 1 no. HDD along the internal circuit route will be constructed at watercourse crossings within the Wind Farm Site and the 3 HDD sites along the GCR; construction methods incorporating mitigation measures from this EIAR are set out in the CEMP **Appendix 2.1, Management Plan 3**.

Sustainable Drainage System (SuDS) principles namely separation of overland flow from construction areas, the mimicking of diverted overland flow around construction areas and treatment trains to treat water from construction areas, will all be employed as explained in **Chapter 9: Hydrology and Hydrogeology**. Associated controls are listed below:

Source controls:

- Interceptor drains, vee-drains, diversion drains, flume pipes, erosion and velocity control measures such as use of sandbags, oyster bags filled with gravel, filter fabrics and other similar/equivalent or appropriate systems.
- Small working areas, covering temporary stockpiles, weathering off of side-cast peat/spoil, cessation of works in certain areas or other similar/equivalent or appropriate measures.

In-line controls:

- In-line controls are directly applied to the surface water body, including interceptor drains, vee-drains, oversized swales, erosion and velocity control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt bags, silt fences, sedimats, filter fabrics, and collection sumps, temporary sumps, sediment traps, pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems.

Treatment systems for surface water:

- Temporary sumps and attenuation ponds, temporary storage lagoons, sediment traps, and settlement ponds, and proprietary settlement systems such as Siltbusters and/or other similar/equivalent or appropriate systems. When heavy rainfall is predicted, then works will be suspended or scaled back. It is proposed that all drainage will be left in place upon completion of the construction phase.

Further details on drainage management and mitigation can be found in **Chapter 9: Hydrology and Hydrogeology** and the **Surface Water Management Plan** attached as **Appendix 2.1**.

2.6.15 Development Infrastructure Metrics

The key development infrastructure metrics are contained in **Table 2.6** and provides a reference for the reader(s) of this EIAR.

Table 2.6: Key Development Infrastructure Metrics

Description	Length [m]	Width [m]	Depth [m]	No.	Area [m^2]
New Site Access Tracks	9,642	4.5	0.80	-	43,389
Upgraded Site Access Tracks	1,763	2.00	0.80	-	3,526
Upgraded Public Roads (Inside Proposed Development Redline)	1,578	2.00	0.80	-	3,156
Upgraded Public Roads (Outside Proposed Development Redline)	901	2.00	0.80	-	1,802
Turning Heads	n/a				
Internal Cabling (Power & Communications)	15,763	0.60	0.9	-	9,458
Met Mast Foundation	8	8	2.7	1	64
Met Mast Hardstand	12	20	-	1	120
Turbine Hardstands – (Main Crane Hardstand Area – Not Including Turbine Foundation)	65	25	-	16	26,000
Turbine Foundations (21.6 m diameter)	21.6 m Diameter		3.5	16	5,863
Blade Laydown Areas	n/a				
Assist Crane Pad Levels (Temporary)	-	-	-	32	5,980
Electrical Substation Building	48.9	15.68	1.6	1	741
Electrical Substation Transformer Base	37.8	7.8	0.6	1	277
Temporary Site Compound 1	45	30	0.8	1	1350
Temporary Site Compound 2	45	30	-	-	1350
110 kV Cable Trench	13,550	0.6	1.335	1	8,130
Turbine Transformer V117	-	-	-	16	-
Permanent Operations Building	9.98	7.68	-	1	-
BESS Compound	61	105	0.5	1	6,360
Total (m^2) Permanent Land Take	**-**	**-**	**-**	**-**	92,109
Total (m^2) Temporary Land Take	**-**	**-**	**-**	**-**	14,170
Total (m^2)	**-**	**-**	**-**	**-**	**114,409**

Taking the above figures into consideration, the permanent land take from the Proposed Development will be 92,109 m^2 (9.21 ha) which is the sum of the figures above which are to be retained following construction e.g., Site Access Tracks, Turbine Foundations, Turbine Hardstands, Met Mast foundation and Met Mast hardstand. Temporary land take areas within the Proposed Development will be 14,170 m^2 (1.42 ha) not including the GCR.

The GCR will involve works on of c. 8,130 m^2 of which c. 7,458 m^2 is located on public roads and a short section of the Killala Business Park, to be reinstated during the following the laying of the ducts and so is classed as temporary land take.

The expected value of spoil to be generated is approximately 157,952 m^3. For further details on the calculation of spoil volumes, **Appendix 2.1 – Management Plan 4 – Peat and Spoil Management Plan (PSMP)**.

2.6.16 Site Signage

Signs will be placed on the R315 and the R314 showing directions to the Wind Farm Site. Additional signage will be placed on the L-5177-0,5176-0, L-1107-99, L-1110-87, L-1110-117 and L-1111-0 road safety, warning of construction vehicles entering and egressing the Wind Farm Site. The site entrances will have a sign confirming that it is the entrance to the Wind Farm Site and the speed limit of 25 km/h will apply within the Wind Farm Site. There will also be additional signs during the construction phase confirming that construction works are taking place, and proper precautions must be taken by anyone entering the Wind Farm Site. There will be no entry to unauthorised persons or the general public during construction. Additional details can be found in **Chapter 17: Traffic and Transport.**

2.6.17 Spoil Management

Excavated material can be used onsite in several ways. Suitable excavation material can be used onsite for reprofiling and landscaping or it can be permanently reposited onsite. Excess material will be re-used offsite.

Excavated material for reuse and for permanent repository onsite will be managed in accordance with the Peat & Spoil Management Plan contained as part of the CEMP in **Appendix 2.1**.

2.6.17.1 Spoil Quantities

The quantities of spoil likely to be generated at the Proposed Development have been calculated by Whiteford Geoservices Ltd. and checked by Jenning O'Donovan & Partners.

It is estimated that that based onsite surveys, the amount of spoil predicted to be generated during construction of the Wind Farm is approximately 157,952 m^3. PSMP No. 4, to the **CEMP Appendix 2.1**, contains the calculation of spoil volumes and how spoil will be managed onsite. Volumes are based on the Site Investigations undertaken to date, i.e. peat probing and trial pit excavations.

2.6.17.2 Landscape & Reinstatement

Topsoil and surface vegetation excavated during the construction works will be used to reinstate exposed areas around site infrastructure such as slopes or graded ground. Reinstatement and reprofiling of, and around, infrastructure will be carried out during the construction phase as outlined in the **PSMP No. 4**, to the **CEMP**, **Appendix 2.1**. All areas subjected to reinstatement will be fenced with stock-proof fencing to prevent livestock disturbance until vegetation has become established. A requirement as a minimum that any fencing posts are set in concrete and that the fencing is of a large animal stock proof material.

Approximately 157,952 m^3 of excavated material will be permanently reposited onsite. Repository areas include areas around AT01, AT03, AT04, AT05, AT06, AT07, AT09, AT10, AT11 and the abandoned quarry at AT16. Excavated material for reuse onsite and for permanent repository onsite will be managed in accordance with **PSMP**, **No. 4**, to the **CEMP**, **Appendix 2.1**. Permanent repository areas onsite are shown in **Planning Drawing 6289-PL-100** to **Planning Drawing 6289-PL-109**.

Berms will generally consist of side cast topsoil, covered with peat, maintaining a distance of c. 5 m from the Site Access Tracks and site infrastructure. These berms will be 5 m wide at base; 2 m at top; 2 m high. Berm storage and permanent spoil repository areas shall have side slopes battered back to a safe angle of repose not exceeding 60 degrees to the horizontal. These areas will be compacted, further helping to reduce any potential for slippage. Spoil Repository areas will be tapered to the existing ground level. Typical berm storage locations and permanent spoil repository design is outlined in **Planning Drawing No: 6289-PL-1008-01** and **Planning Drawing 6289-PL-1008-02**.

2.6.17.3 Non-reusable Spoil

There will be an estimated spoil volume, generated from the GCR works of 10,853 m^3. During excavation, the top layer of the road cover material (a minimum of 100 mm) from excavated cable trenches in existing roads will be re-used offsite after treatment at a suitable facility according to **Management Plan 4: Peat and Spoil Management Plan** due

to the presence of bituminous material and hydrocarbons. The volume of the bituminous material is estimated to be c. 813 m^3.

2.7 CONSTRUCTION

The first phase of the Proposed Development will comprise the construction phase. This phase will begin with site preparation works and will be complete when the turbines are built and ready for commissioning, and when all wastes have been removed from the Wind Farm Site. For this Proposed Development, it is envisaged that the construction phase will last approximately 21 months. An indicated construction program is set out at **Table 2.7**.

Table 2.7: Indicative Construction Programme

Activity	Month														
	0-7					7-14					14-21				
Site Establishment/ Felling and Fencing	X	X													
Internal Site Access Track Construction		X	X	X	X										
Substation & Compound Construction				X	X	X	X								
Substation Electrical Works									X	X	X	X	X	X	
Substation Commissioning										X					
Excavation & Construction of Turbine Foundations & Hardstands		X	X	X	X	X	X	X	X						
Internal Cabling Installation								X	X	X					
Turbine Delivery and Erection										X	X				
Grid Connection									X	X	X	X	X		
Energisation														X	
Turbine Commissioning														X	X
Site Restoration														X	X

2.7.1 Micrositing

The Proposed Development infrastructure is designed around considerations of technical, economic, and environmental constraints. While the site layout has been optimised as far as practicable and EIA standard environmental investigations have taken place, adverse geotechnical ground conditions may require the minor micrositing of the Proposed Development's infrastructure. As per Section 5.3 Ground Conditions/Geology of the current 2006 Wind Energy Planning Guidelines ("the 2006 WEPG"):

"Provision must be made for carrying out site-specific geo-technical investigations in order to identify the optimum location for each turbine. These investigations may suggest minor adjustments to turbine location. In order to accommodate this practice there should be a degree of flexibility built into the planning permission and EIS. The extent of flexibility will be site specific but should not generally extend beyond 20 metres. Any further changes in location beyond the agreed limits would require planning permission."

Any such movement will only be implemented if necessary and the above noted requirements of the 2006 WEPG will be followed. Such variations in ground conditions will only become apparent following excavation of the turbine foundation area during the construction phase. A movement of the turbine will require the associated turbine hardstand and site access track to 'follow' the turbine foundation move.

2.7.2 Construction and Environmental Management Plan (CEMP)

A CEMP is appended to the EIAR in **Appendix 2.1**. The CEMP includes all the mitigation measures proposed within the EIAR. A summary of the mitigation measures is included in **Appendix 18.1**.

The CEMP provides a commitment to mitigation and monitoring and reduces the risk of pollution whilst improving the sustainable management of resources. The environmental commitments of the Proposed Development will be managed through the CEMP and will be secured in contract documentation and arrangements for construction and later phases, such that there is a robust mechanism in place for their implementation. The CEMP will govern the construction phase, and will be continued through to the commissioning, new operational phase and decommissioning management plans will be developed as appropriate. An Environmental Manager and an Ecological Clerk of Works (ECoW) with appropriate experience such as working on large scale renewable projects and with relevant qualifications e.g. BSc in ecology or environmental management and accreditation such as CIEEM will be appointed for the duration of the construction phase so that the CEMP is effectively implemented.

In the event planning consent is granted for the Proposed Development, the CEMP will be updated prior to commencement of the Proposed Development to address the requirements of any relevant planning conditions, including any additional mitigation measures, which are conditioned and will be submitted to the planning authority for written approval.

The following sections describe key activities without the introduction of the appropriate mitigation measures described in this EIAR may cause harm or nuisance to the public. The potential effects of each are considered in the relevant chapters of this EIAR.

2.7.3 Refuelling

Vehicles will be refuelled offsite where possible. For vehicles that require refuelling onsite, fuels will be stored in the Temporary Construction Compound(s) and bunded to at least 110% of the capacity of the largest tank within the bund or 25% of the total tank capacity, whichever is greater. Refuelling will take place via a mobile double skinned fuel bowser. The bowser will be a double axle refuelling trailer which will be towed to the refuelling locations by a 4x4 vehicle. The 4x4 will carry a drip tray, spill kit and absorbent mats in case of any accidental spillages. Only designated competent personnel will refuel plant and machinery on the Wind Farm Site.

2.7.4 Concrete

There will be no concrete batching on the Wind Farm Site. Instead, it will be transported to the Wind Farm Site as it is required. A dedicated, bunded area will be created to cater for concrete wash-out and this will be within the TCCs located south of wind turbine AT01 and south of wind turbine AT12. This will be for the wash-out of the chutes only after the pour. Concrete trucks will then exit the site and return to the supply plant to wash out the mixer itself.

The chutes wash out onsite will require a small volume of water. This water will be directed to the concrete washout area which will be a temporary lined impermeable containment area or a siltbuster type washout unit or similar. The unit catches solid concrete and filters and contains the washout liquid for pH adjustment and solid separation. The residual liquids and sediments will be disposed of at an appropriately licenced facility, namely Killala or Ballycastle Wastewater Treatment Plant (WWTP).

If a temporary lined impermeable containment area is used, these are usually constructed using straw bales and lined with an impermeable geotextile membrane. An example is shown on **Plate 2.1**. An alternative construction method would be to dig a hole in the ground and place an impermeable geotextile membrane in the hole so that no wastewater can penetrate the cover and seep into the soil and groundwater.

Plate 2.1: **Typical Temporary Concrete Washout Area**

The washout area is covered when not in use during periods when wet weather is forecast to prevent ponding of rainwater. During periods of dry weather, the area can be left uncovered to allow evaporation of water. Once concrete pours have been completed, the remaining water will be tankered offsite to a licenced facility for disposal. Solid concrete remnants will be disposed of at an EPA waste licenced facility. It can be estimated that there will be approximately 1-2 m^3 of solid concrete waste per Turbine Foundation pour that will need to be disposed of, or a maximum of 38 m^3 in total in the case of the Proposed Development. The Turbine Foundations will be left in-situ during the Proposed Developments decommissioning and so will not require breaking up and disposal.

Deliveries of concrete for Turbine Foundation construction are generally carried out outside of normal working hours to limit impacts on traffic and local road users. Each turbine pour can take place in a single day, so over three days for this Proposed Development.

Further measures that will be used to mitigate the risk of pollution from concrete pours are as follows:

- The concrete trucks will not be washed out onsite but will be washed out on return to the batching plant.

- Site Access Tracks will be constructed so that all concrete trucks will be able to access all areas of the Wind Farm Site with ease and no concrete will be transported around the Wind Farm Site on open trailers or dumpers to avoid the risk of spillages.
- All concrete for the Turbine Foundations will be pumped directly into the shuttered formwork with rebars from the delivery vehicle. If this is not possible, the concrete can be pumped into a hydraulic concrete pump or into an excavator bucket for transfer to the required location.
- The Traffic Management Plan (**CEMP, Appendix 2.1, Management Plan 7**) will specify the exact routes and arrangements.
- Signage will be erected near concrete pour areas to advise drivers that concrete washout onsite is not permitted.

2.7.5 Dust Suppression

During periods of dry and windy weather, there is potential for dust to become friable and cause nuisance to nearby residences and users of the local road network. Damping down may be required in this instance to see that dust does not become friable. This is most likely to occur during periods of dry and/or windy weather. This requires wetting the material and ensuring water is supplied at the correct levels for the duration of the work activity.

To reduce mud and debris from getting onto the local road network, a wheel wash facility will be employed at exiting points onsite which will wash mud and debris from vehicles egressing the Wind Farm Site.

Where rock is sourced offsite (see location in **Figure 17.8**), HGVs entering the Wind Farm Site carrying rock will be covered to prevent dust generation. A road sweeper will be made available for use in case of any mud or debris making it onto the public road network.

2.7.6 Construction Hours

The Proposed Development will have 45 to 63 construction workers during the construction phase. Working hours for construction will be from 07:00 to 19:00 throughout the week, with reduced working hours at weekends, from 8:00 to 13:00 on a Saturday. It should be noted that during the turbine erection phase, operations will need to take place outside those hours with concrete pours commencing at 05:00 and continuing until 16:00, to facilitate Turbine Foundation construction and so that lifting operations are completed safely. Hours of working for Turbine Foundation construction will be agreed with Mayo County Council prior to the commencement of turbine foundation construction. **Chapter 17: Traffic and Transportation** refers to this in further detail.

A detailed Traffic Management Plan ("TMP") (**Appendix 2.1**) will be implemented during the construction phase. This shall be agreed during the planning compliance stage with the Planning Authority so that strict controls described therein are in place with all suppliers coming to the Wind Farm Site.

2.7.7 Construction Compounds and Temporary Works Areas

To reduce the effect of construction traffic on the local road network during the construction phase, two TCCs will be set up upon commencement of the construction phase. The first TCC located in the south of the Wind Farm Site is located south of wind turbine AT01 and the second located in the north of the Wind Farm Site is south of wind turbine AT12 as shown in **Figure 2.21.**

The first TCC, currently a farmyard, will be 45 m by 30 m approximately 2,365 m² and 0.8 m in depth.

The second TCC will be 45 m by 30 m approximately 2,365 m².

Both compounds will be used as a secure storage area for construction materials and to contain temporary site accommodation units for sealed type staff welfare facilities. The compounds will contain cabins for office space, meeting rooms, canteen area, a drying room, parking facilities, and similar personnel facilities.

An area within each compound will be used for the storage of fuel and oils and this will be suitably bunded and the bund will be lined with an impermeable membrane in order to prevent any contamination of the surrounding soils, vegetation and water table. Double protection containers / equipment will be used along with drip trays. Full details will be included in the CEMP, included as **Appendix 2.1**.

During the construction phase, water will be supplied by water bowser. The maximum wastewater production is estimated to be the same as the maximum water consumption 2,000 litres per day (Taken from Table 3 EPA WW Treatment Manual). The Proposed Development will include an enclosed wastewater management system at the TCCs (**Figure 2.21**) capable of handling the demand during the construction phase with 45 to 63 construction workers onsite at peak. A holding tank is proposed for wastewater management. Wastewater will be removed offsite weekly, by a licensed wastewater disposal company and disposed at an appropriate licensed facility, likely to be in Killala or Ballycastle WWTP.

2.7.7.1 Change of Use Farmyard to Temporary Construction Compound

The second TCC to the north of the Wind Farm Site is currently a farmyard consisting of a hayshed, cattle shed and stables see **Figure 2.21**. It is proposed to change its use from a farmyard to a TCC as described in **Section 2.7.7** above. The farmyard lands are in the control and ownership of the applicant (the Developer).

2.7.7.2 Demolition of Existing Farmyard Buildings

The second TCC site to the north of the Wind Farm Site is currently a farmyard (**Figure 2.21** and **Plate 2.2**). It is proposed to demolish the existing buildings and use the area as a TCC as described in **Section 2.7.7**.

Plate 2.2: Farmyard Proposed for Location of the Secondary TCC to the North of the Wind Farm Site

Demolition will involve the dismantling and removal of the two bay slatted cattle shed and associated slurry pit (**Plate 2.2**), hay shed (**Plate 2.3**), 3 bay stables (**Plate 2.5**) and associated infrastructure (external pipe works, materials etc.). A refurbishment/demolition survey and report will be carried out by an appropriate qualified person(s) before any demolition activities take place. All materials, before being removed offsite will be segregated and disposed of at a licensed waste management provider.

Plate 2.3: Two Bay Slatted Cattle Shed and Associated Slurry Pit for Demolition

Plate 2.4: Hay Shed for Demolition

Plate 2.5: 3 Bay Stables

An experienced demolition contractor will be appointed to undertake the works required. Demolition works will be completed to current regulations, permits and codes of practice. The following management plans will be developed to manage work and disposal and treatment of materials:

- A Demolition Management Plan
- Construction Environmental Management Plan
- Traffic Management Plan
- Noise and Air Quality Management Plan
- Waste Disposal Management Plant
- Asbestos Management Plan

Full details of the removal and disposal of waste materials will be included in the CEMP, included as **Appendix 2.1**.

2.7.8 Permanent Operations Compound

To the north of the Wind Farm Site, there is a vacant dwelling located to the south of Wind Turbine AT12, this property is in control and ownership of the applicant (the Developer), see **Figure 2.22**.

A change of use is sought for this existing residential site (**Plate 2.6**) to a Permanent Operations Compound. This will involve the change of use of the existing dwelling to an operations office, providing meeting rooms and welfare facilities for the operational and maintenance staff. The remaining lands will be used as a compound for the secure storage of maintenance materials, light equipment, and staff parking. Existing services include a septic tank, existing water main, and electricity supply. The existing services will be upgraded to meet the needs of the Proposed Development including the septic tank to an appropriately sized effluent treatment system and percolation area in line with the appropriate guidelines.

Plate 2.6: Proposed Existing Residential Site to be Converted to an Operations Building

2.7.9 Construction of Crane Hardstands and Foundations

The construction method for all the crane hardstands will be via excavation. The crane hardstand (Turbine Hardstand) and Turbine Foundation for the wind turbines will be c. 1,758 m^2. Foundations will be taken down to competent bearing strata by excavating through the soil, subsoil, and rock if necessary.

The method of construction for Turbine Foundation is described in **Section 2.6.4.**

2.7.10 Turbine Assembly

Once on the Wind Farm Site, the wind turbine components will follow a detailed route and plan to minimise manoeuvring. Components will be placed on the component lay down area prior to assembly. One large crane will be required for erecting the turbines, assisted by a smaller crane. The same number of cranes will also be required for maintenance during the operational phase. As with all other vehicles, refuelling of cranes will be carried out in accordance with site procedures to minimise the risk of spillage or pollution.

The towers will be delivered in sections, and work on assembly will not start until a suitable weather window is available, e.g., Wind Gust Speed Thresholds of less than 6 m^{-1}. The bottom tower section will be lifted into position and bolted onto the concrete foundations. The mid tower section will be lifted into position and bolted to the bottom tower section. Finally, the top tower section will be lifted into position and bolted to the mid tower section. Three methods can be used to attach the blades:

- The blades can be attached to the nacelle and hub on the ground. The hub and blades are then lifted as one. The nacelle of a wind turbine houses the drive train and other tower-top components. The hub of the wind turbines connects the blades to the main shaft and ultimately to the rest of the drive train.
- The hub can be attached to the nacelle and two blades attached to the hub while the nacelle is on the ground – the "*bunny lift*". The nacelle is then lifted into position and the third blade lifted into place separately. This requires manoeuvring of several components on the ground and usually the repositioning of cranes.
- Lifting the nacelle and hub as one unit, as described above and then attaching the blades one at a time, rotating the hub between lifts. The blade lifting operations do not require repositioning of the crane.

The most appropriate method will be decided by the lifting contractor and the turbine manufacturer, prior to turbine erection.

2.7.11 Construction Traffic

It is estimated that during civil construction, approximately 11,022 HGV loads will be delivered to the Wind Farm Site. Based on the indicative timetables (**Table 17.25**, **Chapter 17 Traffic and Transport**) the peak times for HGV deliveries will be in months 2 to 11 when the Turbine Foundations will be constructed, Turbine Hardstands and the Wind Farm Site Access Tracks will be finished in imported stone and the Grid Connection works will be ongoing. This is estimated to result in a maximum of 853 trips each month with an average of 35 HGV trips per day in this period. Peak deliveries are expected to be during the period of concrete pours for Turbine Foundations when there will be approximately 55 loads per Turbine Foundation. If four Turbine Foundations are poured per month, then the balance of the loads in the busiest month would be 573 loads or 25 loads per day over the remaining days of the month

2.7.12 Reinstatement and Monitoring

Following completion of construction, all plant and machinery will be removed from the Wind Farm Site. The temporary works areas needed for the construction period such as blade laydown areas, will be reinstated using the original spoil material removed and stockpiled close to the location from where it was excavated. The GCR will be reinstated to its original condition.

The onsite installed drainage network will be left in place were considered beneficial to do so. This will be periodically monitored to see that it is operating to its stated design purpose.

Water monitoring on nearby natural watercourses will be undertaken during and post construction to determine if any pollution has migrated offsite, and if so, implement measures to rectify the effect.

2.7.13 Construction Supervision and Monitoring

The construction activities will be monitored by a Geotechnical Engineer, a qualified archaeologist and an ecological clerk of works (ECoW). The Geotechnical Engineer will be contracted for the detailed design phase and their services retained throughout the construction and reinstatement phases. The Geotechnical Engineer will oversee all earthworks and excavation activities and monitor for issues such as ground stability, water ingress into excavations etc.

Daily monitoring of excavations by the Geotechnical Engineer will occur during the construction phase. If high levels of seepage inflow occur, excavation work will immediately be ceased and a geotechnical assessment undertaken. Further details of what this will involve are detailed in **Chapter 8: Soils and Geology** and **Chapter 9: Hydrology and Hydrogeology**.

The ECoW will be employed prior to the commencement of the construction phase to monitor and review the pollution control measures and working practices during construction and have input into site remediation. The ECoW will have the authority stop work if, for example, there is potential for a sensitive habitat features to be encroached upon or there is the possibility of silt/pollution runoff to natural watercourses.

The potential exists for the presence of unrecorded, subsurface archaeological features within green field locations in proposed construction areas within the Wind Farm Site. The archaeologist will have responsibility for ensuring that potential archaeological features are protected and will also have the authority stop work should any be discovered during excavations. The Wind Farm Site will be accessible to the appointed archaeologist. The archaeologist is to ensure that any features discovered during excavations are protected. If any potential archaeological features are discovered, the archaeologist will inform the National Monuments Service (NMS).

A Water Quality Management Plan has been prepared as part of **Appendix 2.1** and will be implemented prior to commencement of construction. Regular inspections of the installed drainage system will be undertaken, especially after heavy rainfall events, to check

blockages and see that there is no build-up of standing water in any part of the system where is it not designed to be.

Excess build-up of silt at check dams, attenuation/settlement ponds or any other drainage feature will be removed by scraper or excavator and under the supervision of the ECoW. During the construction phase, field testing and laboratory analysis of a range of parameters with relevant regulatory limits and Environmental Quality Standards (EQSs) will be undertaken for each primary watercourse close to the Wind Farm Site, and specifically following heavy rainfall events (i.e. weekly, monthly and event based).

The CEMP for the Proposed Development will set out the proposed site organisation, sequencing of works, methodologies, mitigation measures (including these outlined above) and monitoring measures.

The local road network near the Wind Farm Site used to transport construction materials will be monitored during construction, so that any damage caused by construction traffic associated with the project can be identified and repaired. Any required monitoring program will be agreed with the local authority, prior the commencement of any construction works. Ready mix concrete and rock will be sourced from local quarries and monitoring may also be undertaken on the route as required. This is detailed and assessed in **Chapter 17: Traffic and Transportation**.

2.7.14 Construction Sequencing

It is envisaged that the following will be the sequence of construction for the Proposed Development:

1. Temporary Contractor Compounds and Welfare Facilities
2. Site Preparation
3. Site Access Tracks
4. Turbine Hardstands
5. Turbine Foundations
6. Met Mast Foundations
7. Wind Farm Internal Cabling
8. Installation of the Grid Connection Route
9. Erection of Met Mast
10. Erection of Wind Turbines
11. Commissioning and Energisation

The 110 kV substation and BESS will be constructed in parallel with Turbine Hardstands, foundations and ducting. The first step will be to construct the TCCs and Welfare Facilities. Access to the first TCC area will be via Site Entrance 2. Access to the second TCC area will be via Site Entrance 10. The next step will be to prepare the areas of the Wind Farm Site where site infrastructure is to be located by marking out the construction works corridor and the relevant environmental buffer zones as needed.

Following the site preparation, the Site Access Tracks will be constructed according to the specifications of the chosen turbine manufacturer. The next step will involve construction of the crane hard-standing areas for the 16 no. turbines according to the specifications of the chosen turbine manufacturer. The 16 no. Turbine Foundations can then be excavated, and foundations constructed using rebar and imported concrete.

Following the construction of the Turbine Foundations, internal cables from the turbine locations to the onsite 110 kV substation will be laid in trenches along the constructed Site Access Tracks and public roads.

The grid connection will be installed in trenches within the regional and local road network infrastructure from the Wind Farm Site to the 110 kV substation located in Tawnaghmore Upper, Killala. The ducts to be installed in an excavated trench will be 600 mm wide and 1.335 m deep.

The last step will be to erect the 16 no. wind turbines on the previously constructed foundations using two cranes. Commissioning and testing of the turbines can then proceed.

2.7.15 Construction Employment

It is estimated that 45 to 63 construction workers will be employed onsite during the peak period of Turbine Foundation construction.

2.8 COMMISSIONING

Wind Farm commissioning can take in the region of 2 months to complete from the erection of the final turbine to the commercial export of power from the wind farm. It involves commissioning engineers working through an entire schedule of SCADA (Supervisory Control and Data Acquisition) and electrical and mechanical testing and control measures to check that the Wind Farm will perform and export power to the national grid, as designed.

2.9 AERONAUTICAL LIGHTING

The Irish Aviation Authority (IAA) will be consulted and upon request, any specific turbine or obstacle 100 m or greater will be installed with a warning light system under direct specification and in accordance with International Civil Aviation Organisation (ICAO) Annex 15 requirements.

The following data will be supplied to the IAA:

- The WGS84 coordinates (In degrees, minutes and seconds) for each turbine.
- Height above ground level (to blade tip) and elevation above mean sea level (to blade tip) in both meters and feet.
- Horizontal extent (rotor diameter) of turbines and blade length where applicable in both meters and feet.
- Lighting of the Wind Farm, which turbine(s) is/are lit, and what type of lighting.

2.10 OPERATIONS AND MAINTENANCE

During the operation of the Wind Farm, the turbine manufacturer, the Transmission System Operator (TSO) (EirGrid), the operator, or a service company will carry out regular maintenance of the turbines. In addition, operation and monitoring activities will be carried out remotely with the aid of computers connected via a telephone broadband link. Routine inspection and preventative maintenance visits will be necessary to provide for the smooth and efficient running of the Proposed Development.

2.11 DECOMMISSIONING

The Applicant is applying for a consent for a period of 35 years. At the end of that time period, cranes of similar size to those used for construction will be used to disassemble each turbine using the same Turbine Hardstands. The towers, blades and all components will then be removed from the Wind Farm Site and reused, recycled, or disposed of in a suitably licensed facility. The turbine transformers will also be removed from the Wind Farm Site. There is potential to reuse turbine components, while others can be recycled. The Met Mast will also be disassembled and removed from the Wind Farm Site.

Underground cables will be removed while the ducting will be left in-situ. The foundations will remain in-situ, apart from the above ground sections. Hardstand areas will be remediated to match the existing landscape as closely as possible. Site Access Tracks will be left in-situ for use by the landowners.

Any structural materials suitable for recycling will be disposed of in an appropriate manner. The financial costs of decommissioning, at current material values, will be more than met by the recycling value of the turbine components.

Prior to wind turbine removal, due consideration will be given to any potential effects arising from these operations. Some of the potential issues could include:

- Potential disturbance by the presence of cranes, HGVs, and personnel onsite;
- Onsite temporary compound would need to be located appropriately; and/or
- Time of year and timescale to be outside sensitive periods.

Prior to the decommissioning work, a comprehensive plan will be drawn up that takes account of the findings of this EIAR and the contemporary best practice at that time, to manage and control the component removal and ground reinstatement.

A decommissioning plan is included as part of the CEMP in **Appendix 2.1**.

2.12 COMMUNITY BENEFIT

In addition to helping Ireland reduce environmentally damaging fossil fuel emissions and helping avoid significant fines from the EU, Tirawley Wind Farm will also contribute positively to the national and regional economy.

A SEAI report indicated that in 2023 wind energy generated 33.7% of all electricity, avoided 4.55 million tonnes of CO_2 emissions[3]. Additionally, a report published by Baringa in January 2025, analysing both wind and solar energy found that their cumulative deployment from 2000 to 2023 resulted in a net financial saving for Irish consumers of €840 million. This equates to an approximate per capita saving of €165 over that period[4].

The Baringa report also highlighted significant environmental benefits from renewable (wind and solar) energy generation in Ireland between 2000 and 2023, including:

- Avoiding emissions of over 47 million tonnes of CO_2 from the power sector more than six times the sectors total 2023 emissions.
- Avoided consumption of fossil fuels valued at €7.4 billion displacing approximately 190 TWh of gas and TWh of coal

[3] SEAI (2024), Energy in Ireland 2024 Report, Available at: https://www.seai.ie/sites/default/files/publications/energy-in-ireland-2024.pdf [Accessed: 16/03/2026]
[4] Baringa (2025), Good for your Pocket, Available at: https://windenergyireland.com/images/files/20250114-finalbaringaweigoodforyourpocket-.pdf [Accessed: 16/03/2026]

The Proposed Development has the potential to bring significant positive benefits to local communities. It will support sustainable local employment; it could contribute annual rates between €770,560 to €908,160 to the local authority (depending on the final installed capacity, and the Annual Rate on Valuation set by the council); and if consented the proposed Tirawley Wind Farm will also provide a community fund calculated in accordance with the Renewable Electricity Support Scheme (RESS) Terms and Conditions at €2 per MWh of electricity produced by the project. This is to be made available to the local community for the duration of the RESS (15 years). The average capacity factor of wind energy projects in Ireland is 28.3% (SEAI, 2019). Assuming this efficiency, and a capacity of c. 68.80 MW, the community benefit fund would amount to an average of €341,121 per annum. The actual fund will vary around this average from year to year, depending on each year's wind conditions. Wind resource monitoring undertaken in the Study Area indicate that Tirawley Wind Farm could be capable of achieving an above average capacity factor and therefore contribute towards a larger community fund.

The Proposed Development has the potential to contribute a sum of money per annum in the local area for community funding for the RESS period, consistent with Government Policy. However, the above figure is indicative only and is and will be dependent on the generation capacity of the Wind Farm which is influenced by a number of factors including:

- Number and type of wind turbines permitted
- Capacity and availability of energy production of the delivered turbines
- Quantity of wind and wind conditions in any given year

2.12.1 Fund Usage and Administration

The Community Benefit Fund belongs to the local community surrounding the Proposed Development. The premise of the fund is that it should be used to bring about significant, positive change in the local area. To make this happen, the first step will be to form a benefit fund development working group that clearly represents both the closest neighbours to the Proposed Development as well as nearby communities. This group will then work on designing the governance and structure of a community entity that will administer the Community Benefit Fund.

2.12.2 Community Investment

Should the Proposed Development receive planning permission, there are substantial opportunities available for the local area in the form of Community Benefit Funds. Based on the current proposal, a Community Benefit Fund in the region of €10,237,710 could be made available over the lifetime of the Proposed Development. The value of this fund would be

directly proportional to the installed capacity and/or energy Proposed Tirawley Wind Farm development at the site and will support and facilitate projects and initiatives including youth, sport and community facilities, schools, educational and training initiatives, and wider amenity, heritage, and environmental projects.

Under the current Renewable Energy Support Scheme (RESS)[5], future renewable energy project proposals must enable the possibility for local communities in close proximity to renewable energy projects, each year for the duration of the support scheme. The Developer is committed to working with external agencies to develop workable models of Community Investment under any incoming renewable energy support schemes that succeeded the existing scheme.

Further to the above, the recent Renewable Energy Support Scheme (RESS) Terms and Conditions, published by the Department of Communications, Climate Action and Environment on the 29th October 2021, make some high level provisions for how this type of benefit fund will work. Any project which wants to export electricity to the national grid, and is in receipt of a RESS contract, must abide by these broad principles. These include the following:

1. A minimum of €1,000 shall be paid to each household located within a distance of a 1-kilometre radius from the Proposed Development;
2. A minimum of 40% of the funds shall be paid to not-for-profit community enterprises whose primary focus or aim is the promotion of initiatives towards the delivery of the UN Sustainable Development Goals, in particular Goals 4, 7, 11 and 13, including education, energy efficiency, sustainable energy and climate action initiatives;
3. A maximum of 10% of the funds may be spent on administration. This is to ensure successful outcomes and good governance of the Community Benefit Fund.
4. The balance of the funds shall be spent on initiatives successful in the annual application process, as proposed by clubs and societies and similar not-for-profit entities, and in respect of Onshore Wind RESS 1 Projects, on "near neighbour payments" for households located outside a distance of 1 kilometre from the Proposed Development but within a distance of 2 kilometres from such Proposed Development.

[5]https://www.gov.ie/pdf/?file=https://assets.gov.ie/251854/86c32a4e-c3a1-4bda-9140-853e89a0f000.pdf#page=null [Accessed: 16/03/2026]