



# Pinewoods Wind Farm Substation & Grid Connection

## Chapter 3: Description of the Proposed Development

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### 3.1 Introduction

The purpose of this chapter is to provide a description of the proposed development in sufficient detail, which, when taken together with the descriptions of the existing environment provided in this EIAR, will allow an independent reader to understand the significant environmental effects likely to arise from the proposed development.

The description considers the location of the proposed development together with its main physical characteristics including design, size, scale and land-use requirements of all relevant phases of the existence of the project from its construction through to operation and decommissioning. The proposed development described in this chapter was arrived at following the consideration of various reasonable alternatives described in **Chapter 2**.

This chapter should also be read in conjunction with the technical plans and drawings submitted with the planning application and photomontages provided in **Annex 9.2** of this EIAR. Further descriptions of specific elements of the proposed development and the existing baseline environment are also provided in individual chapters of this EIAR as they relate to particular environmental factors including, for example, in combination with other proposed developments; the nature and quantity of materials and natural resources used; and the possible production of residues, waste, pollution, noise and nuisances etc.

The description of the proposed development also addresses other off-site/secondary developments which occur as a direct result of the proposed development, including the immediately adjacent permitted Pinewoods Wind Farm and Laois-Kilkenny 110kV Grid Reinforcement Project electricity transmission line, together with haul routes for the importation of aggregates, materials and electrical equipment to facilitate construction of the proposed development.

The proposed development will be commissioned as a single construction phase with the Pinewoods Wind Farm and the construction period is likely to last for approximately 15-18 months. The description of the proposed construction phase includes land-use requirements; proposed site construction works; off-site/secondary developments; description of materials, plant and equipment used to facilitate construction together with a description of likely emissions; waste and traffic etc.

### 3.2 Project Duration

A ten-year planning permission is being sought for this proposed development. That is, planning permission would remain valid for ten years following the final grant of permission by the Board. The Wind Energy Development Guidelines for Planning Authorities 2006 state that *“Planning Authorities may grant permission for a duration longer than 5 years if it is considered appropriate, for example, to ensure that the permission does not expire before a grid connection is granted. It is, however, the responsibility of the applicants in the first instance to request such longer durations in appropriate circumstances”*. A ten-year planning permission is considered appropriate for a development of this nature to ensure all other required licenses and consents are in place and to ensure that the Laois-Kilkenny Grid Reinforcement Project electricity transmission line, to which it is proposed to connect the proposed development, is at an advanced stage of construction/commissioning.

The proposed substation has been determined by An Bord Pleanála to be SID (see **Section 1.2 (Volume I)**) and will, once operational, become a ‘node’ on the national electricity network and will be largely operated and maintained by Eirgrid as part of

the national electricity network. As a result, the proposed substation does not have a specified operational period and is highly likely that it will continue to be operated following the decommissioning of the Pinewoods Wind Farm (i.e. after its 25-year operational period) and, therefore, decommissioning of the electricity substation is not proposed. Therefore, we request that An Bord Pleanála does not impose a condition of consent on the proposed development specifying a time limited operational duration.

### 3.3 Site Location & Context

The proposed development site is located c. 1.2km north of the county boundary between County Laois and County Kilkenny in the townland of Knockardagur, County Laois; approximately 17km south-west of Portlaoise and 25km north of Kilkenny City, and approximately centred at Irish Transverse Mercator (ITM) Grid Reference 650427, 682395.

The nearest towns are Abbeyleix, approximately 8km north-west, and Castlecomer, approximately 8km south-east. The village of Ballinakill is c.4km south-west of the subject site. There are also a number of smaller nucleated and crossroad settlements throughout the wider environs of the subject site together with numerous dispersed 'one-off' dwellings and farmsteads outside of any identified settlements. The general location of the proposed development site, in a regional context, is illustrated in **Figure 3.1**.

The topography in the wider environs of the subject site is dominated by the upland area known as the Castlecomer Plateau, characterised by undulating hills and steep escarpments at its fringes. Dissecting the lowlands on either side of the plateau are the rivers Barrow and Nore, which lie to the east and west respectively. The lowlands are a mixture of pasture and tillage with fields typically bordered by mature broadleaf tree lines and hedgerows. Agricultural land-uses extend into the upland areas in the form of more marginal grazing with scrubby hedgerow field boundaries.

Extensive commercial conifer plantations emerge on higher slopes and throughout the Castlecomer Plateau. There are also occasional small patches of woodland associated with demesne landscapes within lowlands as well as narrow strips of riparian vegetation at the margins of streams and rivers. A number of quarries are also present in the wider area.

The proposed development site was selected for a number of reasons including its proximity to both the permitted Pinewoods Wind Farm (which it will serve) and the permitted Laois-Kilkenny Grid Reinforcement Project electricity transmission line. The location of the subject site vis-à-vis the fixed location of both of these permitted projects, makes it the most suitable location for the proposed development.

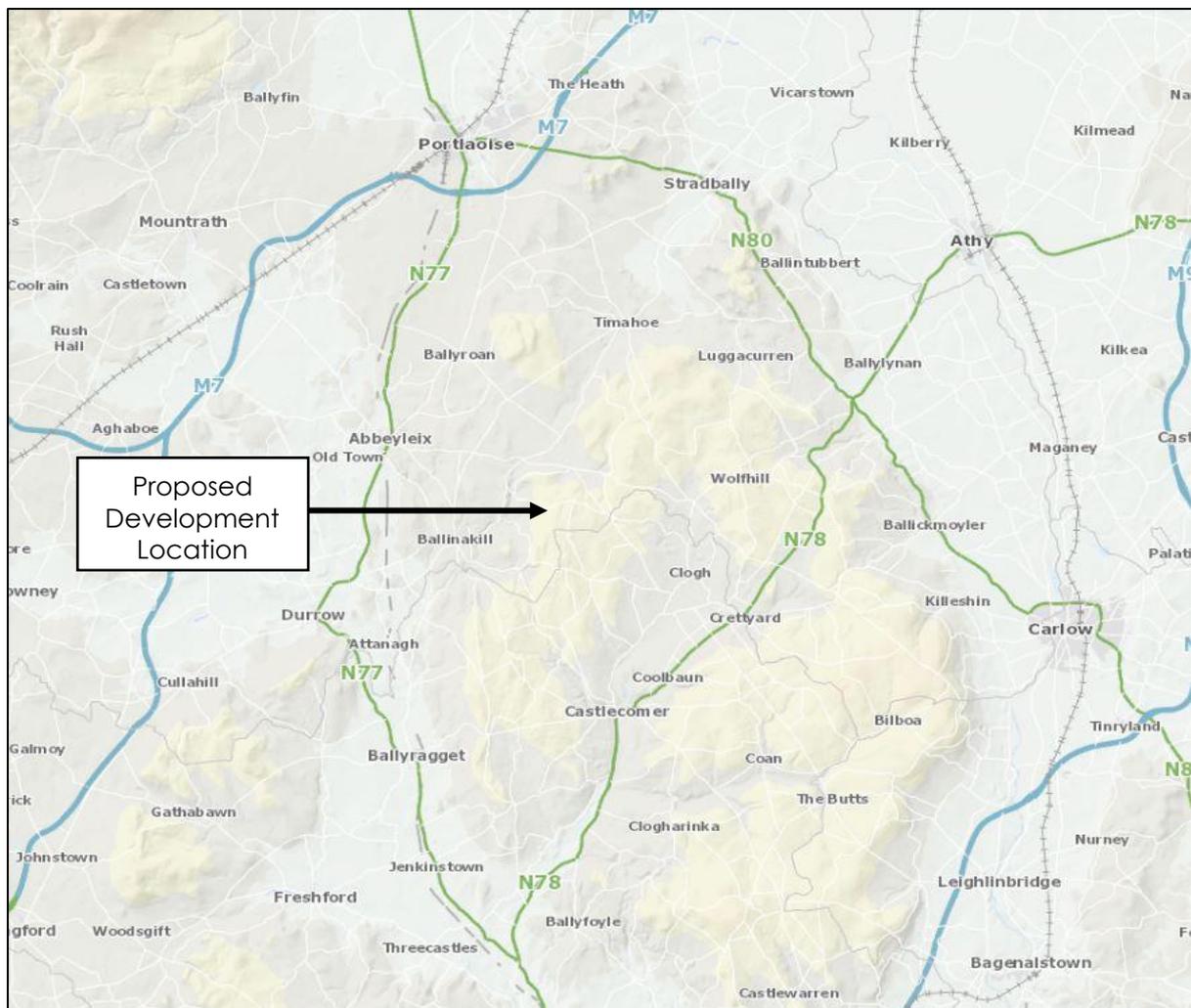
The proposed development site is also located in a relatively remote and benefits from good separation distances to residential dwellings, with just 5 no. dwellings within 500m; the nearest of which is c. 100m east. The site also avoids sensitive habitats and the landscape is assessed to have the ability to assimilate a development of the type proposed.

The proposed development site is located within a single agricultural landholding comprising agricultural grassland/pasture with mature hedgerows, and occasional trees, at the boundaries.

The topography of the site is sloping with elevations ranging from approximately 225m above ordnance datum (AOD) to the west of the site and approximately 245m AOD to the east. The sloping nature of the proposed development site necessitates a requirement for a bespoke 'split-level' design which is further described at **Section 3.4.1** below.

The proposed development site is drained by the Knockardagur stream, immediately south of the footprint of the proposed substation. Based on field assessments undertaken (see **Chapters 5** and **7**) the stream is generally dry and is assessed as only likely to contain flow following periods of intense or prolonged rainfall. Due to the sloping nature of the proposed development site, all surface water runoff flows towards the Knockardagur stream either directly to the stream or via agricultural drains which then discharge to the stream.

The proposed development site is accessed via a local-tertiary road, the L77951, which generally experiences extremely low volumes of vehicular movements.



**Figure 3.1: Proposed Development Location**



**Plate 3.1: General View across the Proposed Development Site**

### **3.4 Description of the Proposed Development**

The proposed development will comprise a 110kV electricity substation, including all associated development works to accommodate its construction, operation, maintenance and the export of electrical power generated by the permitted Pinewoods Wind Farm to the national grid via the immediately adjacent permitted Laois-Kilkenny Grid Reinforcement Project. This will include:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electrical substation with a 'split level' design, including 2 no. single-storey control buildings (with a Gross Floor Area of 589 square metres), 1 no. transformer bay, 2 no. line bays and all associated electrical equipment, services and lighting within an up to 2.95 metre high fenced compound (with a total footprint of 13,100 square metres);
- 2 no. lattice-type strain towers with a maximum height of up to 21m and approximately 70m of 110kV overhead electricity lines to facilitate connection of the proposed substation to the permitted 110kV Laois-Kilkenny Grid Reinforcement Project electricity transmission line (An Bord Pleanála Reference PL11.VA0015);
- Approximately 0.65km of on-site access track with associated site entrance from local public road (L77951); and

- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure and surface water protection measures.

The site of the proposed development has a total area of c. 5.5 hectares. The proposed development will facilitate the export of renewable electricity generated at the permitted 'Pinewoods Wind Farm' (An Bord Pleanála Reference PL11.248518/Laois County Council Planning Register Reference 16/260 & An Bord Pleanála Reference PL10.248392/Kilkenny County Council Planning Register Reference 17/62) to the national electricity grid.

The layout of the overall proposed development is illustrated at **Figure 3.2**, below, and replicated at **Annex 3.1 (Volume II)**.



**Figure 3.2: Proposed Development Layout**

Each element of the proposed development is discussed in turn below and all relevant technical plans, drawings and other particulars are included in the accompanying planning application plans and particulars.

### 3.4.1 Substation

As set out at **Chapter 2**; following consultations with Eirgrid and a comprehensive assessment of available alternative substation design technologies, it has been determined that the proposed development will comprise a 110kV 'loop-in/loop-

out' air-insulated switchroom (AIS). The footprint of the substation (overall compound area) will measure approximately 13,100m<sup>2</sup> and will be surrounded by a palisade fence, with associated gates, of up to 2.95m in height for safety and security reasons. The proposed substation will contain 2 no. control buildings and all necessary electrical equipment and apparatus to facilitate the export of electricity to the national grid. Ancillary infrastructure located within the footprint of the compound will include light posts and lightning masts.

At the location of the proposed substation, the Laois-Kilkenny Grid Reinforcement Project electricity transmission line will be broken and will be connected to the substation via approximately 70m of 110kV overhead line (OHL) suspended from 2 no. lattice-type strain towers. Once constructed, electricity being transmitted along the Laois-Kilkenny Grid Reinforcement Project electricity transmission line will be diverted through the proposed substation, allowing electricity generated by the Pinewoods Wind Farm to be exported to the national grid, before returning to the Laois-Kilkenny Grid Reinforcement Project; hence the 'loop-in/loop-out' nature of the proposed substation.

The layout of the proposed substation is illustrated at **Annex 3.2 (Volume II)**. It is important to note that this layout has been designed fully in accordance with current Eirgrid specifications; however, the Applicant may be instructed by Eirgrid to immaterially alter the precise siting of control buildings and/or electrical equipment within the overall substation. Any such immaterial alterations or deviations have been fully assessed and provided for within this EIAR.

The substation compound will be surfaced with free-draining crushed stone such that rainwater can percolate to ground. The boundaries of the proposed substation will be landscaped with native species to reduce any visual effects on the landscape. Further details of landscaping proposals are provided at **Chapter 9**.

The proposed substation will be connected to the Pinewoods Wind Farm via underground electrical cabling permitted pursuant to An Bord Pleanála Reference PL11.248518.

Due to the sloping nature of the proposed development site (see **Section 3.3** above) and in order to minimise the volume of material to be excavated to provide the substation footing (see **Section 3.4.5** below); the design of the proposed development has incorporated a split-level approach to ensure an optimum cut and fill balance, and to reduce impacts during construction, similar to that illustrated at **Figure 3.3**.

There will be a requirement to modify and redistribute subsoil material around the site to facilitate the achievement of the required levels for the buildings, structures and electrical substation equipment. In addition to reducing the volume of excavated material, the split-level design assists, from a visual perspective, in ensuring that the proposed development can set into the landscape thus fully exploiting the screening effects of the surrounding topography and of the mature vegetation which surrounds the proposed substation.

A typical 110kV AIS substation is illustrated at **Figure 3.3**.



**Figure 3.3: Example of a 110kV AIS Substation with split-level design**

#### 3.4.1.1 Control Buildings

The proposed substation will contain 2 no. control buildings; one of which, the Independent Power Provider (IPP) building, will be operated and maintained by the Applicant while the Transmission System Operator (TSO) building will be operated and maintained by Eirgrid.

The IPP building will measure approximately 21.4m x 6.5m (total footprint of c. 139m<sup>2</sup>) and will have an overall height of 5.25m from finished floor level (FFL). The building shall be constructed of blockwork and will be finished in sand and cement render, slate roof covering and steel doors. The IPP building will house switchgear and associated equipment such as incoming and outgoing circuit breakers, earth fault, protection devices, metering equipment, computers and servers while also providing welfare facilities for wind farm staff and maintenance personnel. The building will not require a dedicated water source due to infrequent use and the low volumes that will be required (toilet facilities and hand washing). Accordingly, the building design will incorporate a rainwater harvesting system. Wastewater arising will be stored in a sealed foul holding-tank and will be tankered off-site as required by a local licensed waste collector. Potable water will, as required, be delivered to site by an approved local provider. Water supply and waste water management proposals of this nature are common practice for developments of this type located in remote/rural areas with infrequent usage.

The TSO building will measure approximately 25m x 18m (overall footprint of c. 450m) and will have an overall height of approximately 8.55m (from FFL). This building shall also be constructed of blockwork and will be finished in sand and cement render,

slate roof covering and steel doors. The TSO building will contain a control room to allow operatives monitor and manage the operation of the electrical apparatus and will also include storage and welfare facilities. Similar to the IPP building, a rainwater harvesting system will be implemented and wastewater will be removed from site by a local licensed waste collector.

Layout and elevation drawings of both the IPP and TSO buildings are provided at **Annex 3.3 (Volume II)**. The precise internal layout of both buildings may be subject to further immaterial alterations to reflect any future revisions to Eirgrid specifications. As set out above, any immaterial deviations from the precise layout and elevations illustrated at **Annex 3.3** are fully provided for within this EIAR.

### 3.4.2 Electrical Apparatus

Electrical equipment; including, but not limited to busbars, line bays and a transformer bay; will be located outside the control buildings (within the palisade fence) and will increase the low voltage of the electricity generated by the adjacent Pinewoods Wind Farm to high-voltage 110kV before being transmitted to the national grid. Electrical equipment may also include underground cabling, as necessary, located within the substation compound.

The positioning of electrical equipment within the substation compound is provided on the accompanying planning application drawing and accords with current Eirgrid specifications. Immaterial deviations to the precise siting of this internal equipment may be necessary at the time of construction in line with any future revisions to Eirgrid specifications. To reiterate, any such deviations are fully provided for and assessed within this EIAR.

### 3.4.3 Overhead Line & Associated Strain Towers

The purpose of the proposed OHL and strain towers has been discussed at **Section 3.4.1** above. The strain towers will be a lattice-type tower and will be located immediately beneath the Laois-Kilkenny Grid Reinforcement Project from where the proposed OHL will transmit electricity through the proposed substation before returning it to the Laois-Kilkenny Grid Reinforcement Project via approximately 70m of 110kV overhead electricity line. The towers will have a permanent above-ground footprint of c. 70m<sup>2</sup>, with concrete foundations below ground, and will have a maximum height of up to 21m. However, it should again be noted that the precise specifications of the proposed OHL and strain tower may be immaterially altered to ensure compliance with future revisions with Eirgrid specifications.

### 3.4.4 Site Entrance & Access Tracks

Access to the proposed substation will be provided by 1 no. new site entrance from the L77951 local public road. The proposed site entrance will not be required to accommodate any abnormal loads but has been designed to ensure ease of access and egress for standard HGVs which will deliver construction materials and electrical apparatus to the site. The site entrance will be constructed in accordance with the requirements of the Local Authority, particularly regarding the provision of appropriate site visibility splays to ensure traffic safety.

Following the completion of construction, the site entrance will be appropriately fenced off and gated to prevent unauthorised access. The reinstatement of the site entrance will also incorporate the replanting of hedgerows with native species.

Hedgerows will be appropriately sited to allow for future growth while ensuring, at all times, that visibility splays are maintained during the operational phase.

A total of approximately 0.65km (including c. 0.2km located within the substation compound area) of on-site access tracks will be required for construction purposes and for site access during the operational phase. The access tracks shall be similar to normal agricultural tracks but with a slightly wider typical running width of approximately 5m.

Access tracks will be unsealed and constructed of crushed stone material to allow for permeability. Initial site investigations (trial pitting) have indicated the presence of suitable material which can be reused in the construction of the access tracks and substation compound. Should excess aggregate material be encountered, it is proposed to utilise this material in the construction of areas of hardstanding at the Pinewoods Wind Farm. However, additional aggregate material will also be imported to the proposed development site from local quarries (see **Chapter 13**) to ensure compliance with all necessary Eirgrid specifications.

Additional excavated strips will be required, where necessary, alongside the access track to accommodate drainage.

Some cut/fill in the construction of the access track will be necessary to ensure that horizontal and vertical alignments are suitable to accommodate HGV loads and drainage infrastructure. Where excess material arises from the construction phase, it will be utilised in the construction of trackside berms.



**Figure 3.4: Typical Access Track**

### 3.4.5 Earthworks

The site investigations undertaken indicate that sub-surface material generally comprises gravelly silt at upper levels with bedrock (generally comprising shale) being encountered at depths ranging from 1.3m to 6.6m. While a dedicated borrow pit will not be developed, it is proposed that suitable material encountered during construction will be used in the formation of the access track and the substation compound footing. Given the composition of sub-surface material, no blasting of any rock will be required. It should be noted that the material present is not suitable for use as capping materials for the substation compound and this material will be imported to site (see **Chapter 13**).

Due to the sloping nature of the proposed development site, the substation design has incorporated a 'split level' design to substantially reduce the level of excavations which would have been necessary to provide for a single level

compound. However, and notwithstanding the split level design, approximately 62,000m<sup>3</sup> of topsoil, subsoil and rock material will be excavated to provide a platform for the proposed substation and to allow for construction of the proposed access track. A cut/fill approach will be implemented to re-use, insofar as possible, material generated through excavations as fill. It is estimated that approximately 21,750m<sup>3</sup> will be re-used as fill in the construction of the substation footing and access track; while c. 7,000m<sup>3</sup> of topsoil material will be used in the reinstatement and landscaping of the proposed development site following the completion of construction activities.

A Spoil Management Plan will be prepared prior to the commencement of construction at the site and will be agreed with the Planning Authority. The Spoil Management Plan will also cover the storage and restoration of all material excavated during the construction phase.

The use of topsoil and subsoil for reinstatement will be possible through the following methods:-

- Saving the top layer of the soil excavated for landscaping uses over any backfilled areas; and
- Placing the excavated soil along trackside berms and along the boundaries of the proposed substation.

It is estimated that c. 33,250m<sup>3</sup> of excess material (topsoil, subsoil and rock material) will arise which cannot be re-used or accommodated within the proposed development site. Where excess material comprises suitable aggregates (estimated to be c. 5,900m<sup>3</sup>), it is proposed to transport this material to the Pinewoods Wind Farm for use in the construction of access tracks and areas of hardstanding. The use of such material in the construction of the Pinewoods Wind Farm is a significant opportunity to utilise locally won material, of similar or identical geological composition, and to reduce the volume of construction traffic on the wider road network and associated vehicular emissions.

Where excess material comprises topsoil or subsoil, it is proposed, where appropriate to do so, to re-use this material for reinstatement and landscaping purposes within the Pinewoods Wind Farm site for the purposes of:-

- Resurfacing of hardstanding areas;
- Reinstatement of site entrances; and
- Trackside berms and landscaping.

Appropriate locations for the deposition of this material will be carefully selected in accordance with **Section 2.3.5** and **2.3.6** of the preliminary Construction Environmental Management Plan (CEMP) enclosed at **Annex 3.4 (Volume II)**; in consultation with the on-site Ecological Clerk of Works (ECoW) and Environmental Manager (EM); ensuring that, at all times, water quality/siltation measures are fully implemented in advance and that the receiving site is suitable from a ground stability perspective. Spoil will be transported to these locations where it will be placed in accordance with best-practice methods to ensure the long-term stability of the stored material.

In the event that spoil cannot be reused either within the proposed development site or within the permitted Pinewoods Wind Farm, this material will be disposed of in an environmentally sensitive manner by a licensed waste contractor in consultation with the Planning Authority.

The excavation of material to provide the requisite substation platform will result in the creation of cut faces on the northern and eastern boundaries on the substation footprint. Given the results of the site investigations undertaken to date and the presence of rock, it is possible that these will be retained as exposed rock faces and natural vegetation will, through time, colonise the faces. Due to the presence of rock, it is unlikely that retaining structures will be required, however, should same be deemed necessary by the Geotechnical Clerk of Works (GCoW); slope retention measures including gabion baskets, soil nailing or rock anchoring may be installed. For the purposes of this EIAR and as presented at **Annex 9.2**, it is assumed that a bare rock face will be retained throughout the operational phase.

#### 3.4.6 Micro-siting

The immaterial micro-siting of the proposed substation; including control buildings and electrical equipment, access tracks and other elements of the proposed development; following further post-consent site investigations and geotechnical analyses, also forms part of the proposed development.

It is proposed that infrastructure may be micro-sited within the planning application boundary subject to compliance with the mitigation measures included in this EIAR. These immaterial micro-siting deviations have been incorporated, and fully assessed, throughout this EIAR, and will have no material effect on the substantive conclusions of this EIAR.

### 3.5 Off-Site & Secondary Developments

#### 3.5.1 Aggregates Sources & Construction Materials Haul Route

Where construction materials and aggregates cannot be sourced on-site from construction excavations, they will be obtained from local quarries/suppliers. Only fully licensed quarries which have been subject to EIA and have appropriate planning permission for the volumes of material to be extracted will be used. These aggregates are slated for extraction in the normal course of the relevant quarry's business and therefore will have no additional likely significant environmental effects above and beyond those normally entailed in the operation of the quarry.

Detailed consideration has been given to a number of construction material sources and haul route options to the site as part of the EIAR process (see **Chapter 13**). Candidate quarries, which may be selected to supply materials following a competitive tendering process, are identified at **Annex 13.1 (Volume II)** and the likely haul routes to the proposed development site indicated. Further details of the construction materials haul route and traffic volumes are provided in **Chapter 13**.

While the final selection of a precise construction material haul route to the site will be dependent on the chosen material supplier(s), all suppliers will be instructed to utilise the extensive national and regional road networks in counties Laois, Kilkenny and Carlow (as relevant) and to avoid local roads insofar as possible. Regardless of the supplier ultimately selected, all construction deliveries will be required to access the site via a specific route from the R430. From the R430, deliveries will follow the L7800, private access tracks associated with the Pinewoods Wind Farm between the L7800 and the L78001, the L78001, private wind farm access tracks between the L78001 to the L77951, and the L77951 before accessing the proposed substation via a dedicated site entrance and access track.

In accordance with a scoping consultation response received from the Roads Design Office of Kilkenny County Council, the L1828 will not be used for the transportation of materials to the site and all suppliers will be prohibited from utilising this road.

### 3.6 Construction Phase

The construction phase is predicted to last for approximately 15-18 months from commencement of detailed site investigations through to the commissioning of the substation and ending with progressive site reinstatement and landscaping. Construction activities will be completed concurrently with the permitted Pinewoods Wind Farm.

The construction phase of the development will comprise a 6 no. day week with normal working hours from 08:00 to 20:00 Monday to Friday and 08:00 to 18:00 on Saturdays. It may be necessary to undertake occasional works outside of these hours to avail of favourable weather conditions or in the event of any emergency. Where construction activities are necessary outside of the normal working hours, local residents and the Planning Authority will receive prior notification.

No construction works are envisaged during the operational phase. Works during this phase will typically involve the routine maintenance and servicing of the electrical equipment and the site, as necessary

Further details of the construction phase and specific mitigation measures to be implemented are provided in each chapter of this EIAR as they relate to each environmental topic.

#### 3.6.1 Construction Method

The construction method will consist of the following general sequence:-

- Initial surface water protection measures, including the provision of silt fencing along the western boundary of the proposed development site and up-gradient of the Knockardagur stream. It should be noted that construction activities will not commence until siltation/water quality protection measures are installed to the satisfaction of the ECoW and EM;
- The construction of the site entrance, ensuring that requisite traffic visibility splays are provided;
- Progressive installation of surface water protection measures and construction of on-site access track and permanent drainage infrastructure;
- Site preparatory and groundworks associated with the substation compound footprint including control building and strain tower foundations;
- Construction of the control buildings;
- Construction of bases or plinths for electrical apparatus;
- Installation of internal and external electrical apparatus in control buildings and within compound area;
- Erection of strain towers;
- Erection of palisade fencing around substation;
- Commissioning and testing of electrical apparatus;
- Stringing of the 110kV OHL and connection to the Laois-Kilkenny Grid Reinforcement Project;
- Final commissioning of all electrical equipment and apparatus;
- Progressive site reinstatement, restoration and landscaping including the installation of stockproof fencing and erection of gates.

A preliminary Construction & Environmental Management Plan (CEMP) was prepared in respect of the entire Pinewoods Wind Farm as part of its planning application and is enclosed at **Annex 3.4 (Volume II)**. The methods and measures set out in the CEMP, regarding construction activities, will be implemented as relevant to the subject proposed development. A detailed CEMP, addressing the overall development (i.e. permitted wind farm and proposed development) will also be prepared in advance of all construction activities and will incorporate all mitigation measures proposed in this EIAR and will incorporate targeted Construction Method Statements (CMSs) prepared by the appointed Contractor in respect of each element of the proposed development. The preparation, application and documentation of this CEMP will enable all parties – including contractors, designers and competent authorities – to learn from the systematic implementation and assessment of best practice, particularly through the recording of summary information on performance outcomes.

The construction phase will be supervised by a range of environmental and engineering specialist personnel including, but not limited to, a Project Supervisor for the Construction Stage (PSCS), ECoW and Archaeological Clerk of Works (ACoW) and GCoW who will liaise closely with the appointed Contractor's on-site EM to monitor and to ensure that all applicable measures are implemented. The detailed CEMP, which will incorporate further technical information following the undertaking of post-consent detailed design, will be submitted to the Planning Authority for approval prior to any works commencing on the proposed development site. The CEMP shall also provide additional details of intended construction practices including:-

- A detailed Traffic Management Plan for the timing and routing of construction traffic to and from the construction site and associated directional signage, to include, in particular, proposals to facilitate and manage the delivery of loads and alternative arrangements to be put in place for pedestrians and vehicles during the course of site development works;
- Implementation stage details of the proposed construction methods (i.e. CMSs);
- Specific measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network;
- Details of appropriate measures for construction stage noise, dust and vibration, and any monitoring of such levels;
- Storage and containment of all construction related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. All such bunds shall be roofed to exclude rainwater;
- Appropriate provision for re-fuelling of vehicles;
- Off-site disposal of construction/demolition waste and construction-stage details regarding the management of spoil;
- Final drainage design specifications to ensure that surface water run-off is controlled such that no silt or other pollutants enter watercourses in full compliance with the measures outlined in this EIAR; and
- Further details of the intended hours of construction.

The CEMP will also take full cognisance of and incorporate the measures outlined within any specific environmental management plans proposed as part of this EIAR and will also incorporate any specific requirements set out in conditions of consent, subject to a grant of planning permission.

### 3.6.2 Site Entrance & Access Track

The site entrance and on-site access track will generally be constructed as follows:-

- Construction phase drainage and surface water protection measures will be installed;
- Existing hedgerow will be removed to accommodate the site entrance and provide sufficient visibility splays;
- Topsoil and subsoil will be removed, side cast and stored in separate mounds in appropriate areas adjacent to the site entrance and access track;
- All drains will be appropriately culverted to ensure that flowpaths are maintained and to avoid effects on the existing drainage regime;
- Crushed stone will be laid on a geo-textile mat (where required) and compacted in layers to an appropriate depth; and
- The access tracks will be largely retained during the operational phase to facilitate access for maintenance personnel; however, any section of track which is not required will be reinstated by removing aggregates, replacing with excavated spoil and reseeded.

### 3.6.3 Temporary Construction Compound

A dedicated temporary construction compound is not required for the proposed development. Construction materials, fuels and chemicals will be stored; and waste management facilities, site offices, parking facilities and welfare facilities provided; at the Pinewoods Wind Farm temporary construction compound; however, following the completion of groundworks associated with the substation, certain non-polluting construction materials and electrical apparatus may be stored at the proposed development site prior to use/installation.

### 3.6.4 Construction Drainage Management & Disposal

The proposed development site is located in the catchment of the specified Freshwater Pearl Mussel populations as set out in First Schedule of the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (S.I No. 296/2009). Sedimentation poses the biggest threat to the Freshwater Pearl Mussel which is a qualifying interest of the downstream River Barrow and River Nore SAC (Site Code: 002162). All surface water runoff shall be strictly controlled such that no silt or other pollutants enter water courses and that no artificially elevated levels of downstream siltation or plumes of silt arise when substratum is disturbed in accordance with the Fourth Schedule of the Regulations.

Construction works will be carried out in accordance with the 'Land & Soil' and 'Water' assessments and mitigation measures included in this EIAR in order to prevent any likely significant effects on nearby watercourses by debris, silt and hydrocarbons (see **Chapters 6 & 7**). These measures have also been implemented in the Natura Impact Statement (NIS) which accompanies the planning application.

Sources for likely significant effects on the hydrological environment during construction include increased volumes of surface water runoff; the generation of silt laden surface water runoff from excavations and the temporary storage of stockpiled materials; likelihood of surface water and groundwater contamination due to the leakage of oils/fuel from site vehicles; spillage during refuelling operations; and leakage from chemical, waste and fuel storage areas.

Specific mitigation measures are presented in the relevant chapters of this EIAR in relation to each of these issues. The precise implementation and siting of these measures will be determined, subject to planning permission being granted, following the post-consent detailed design process and will be included within the CEMP to be agreed with the Planning Authority prior to the commencement of construction.

During the construction phase, temporary stockpiles of excavated materials will be stored appropriately in designated areas of the site, within the catchment of the surface water drainage measures, in order to guarantee that no silt/sediment laden waters or deleterious matter enters surrounding surface water features. All surface water runoff from stockpiles, excavations or from dewatering operations will be passed through an appropriate attenuation train, including silt fences (also known as silt curtains), silt traps (also known as silt/settlement/stilling ponds) and settlement lagoons<sup>1</sup>. Other surface water protection measures which may be implemented, as appropriate, include silt bags and siltbusters.

The installation these surface water runoff measures will avoid any discharge of silt or sediment laden waters directly to any surface water features prior to being fully treated. At the point of discharge, buffered outfalls (or level spreaders) will be installed to ensure that erosion or scouring does not occur. Further details of the proposed surface water protection measures are enclosed at **Chapter 7** and within the outline Surface Water Management Plan (SWMP) enclosed at **Annex 3.5 (Volume II)**.

The outline SWMP, which will be further developed prior to commencement of development to incorporate any further immaterial design alterations and/or in response to any applicable conditions of consent, referred to above has been prepared in accordance with the overall surface water management measures contained within the SWMP prepared for the permitted Pinewoods Wind Farm (see **Volume II, Annex 3.4, Appendix B**). The Pinewoods Wind Farm SWMP sets out the overarching surface water management framework which will be implemented across the entire development, including the proposed development. The measures set out in the outline SWMP for the proposed development mirror those of the wind farm SWMP (which were assessed to be appropriate by An Bord Pleanála in respect of that development at this general location) but have been adapted to address the specific characteristics of the proposed development site. The outline SWMP has been prepared to provide consistent water protection measures to ensure that no deleterious matter is discharged, from either the permitted wind farm site or proposed development site, to the hydrological environment.

### 3.6.5 Chemical Storage and Refuelling

Storage areas for oils, chemicals and fuels will comprise bunded areas of sufficient capacity within the Pinewoods Wind Farm temporary construction compound. Bunds will have a watertight roof structure and will be supplied by a licensed manufacturer to enable adequate safe storage for the quantities of material required. An adequate supply of spill kits will be readily available in order to clean up any minor spillages should they occur. A hydrocarbon interceptor will be installed within the surface water drainage system during the construction phase to trap any

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<sup>1</sup> Please note that the titles of surface water protection infrastructure are used interchangeably within this EIAR and accompanying documentation.

hydrocarbons that may be present. A 50m buffer will be observed around all surface water features and no fuel/chemicals shall be handled or stored within this zone.

From the construction compound, fuel will be transported to the works area by a 4x4 in a double skinned bowser with drip trays under a strict protocol and carried out by suitably trained personnel. The bowser/4x4 will be fully stocked with spill kits and absorbent material, with delivery personnel being fully trained to deal with any accidental spills. The bowser will be bunded appropriately for its carrying capacity.

### 3.6.6 Construction Waste Management

Waste will be generated during the construction phase and the main items of anticipated construction waste are as follows:-

- Hardcore, stone, gravel, concrete, plaster, topsoil, subsoil, timber, concrete blocks and miscellaneous building materials;
- Waste from chemical portaloo toilets;
- Plastics; and
- Oils and chemicals.

Waste disposal measures proposed include:-

- On-site segregation of all waste materials into appropriate categories including, for example, topsoil, bedrock, concrete, bricks, tiles, oils /diesels, metals, dry recyclables e.g. cardboard, plastic, timber;
- All waste materials will be stored in skips or other suitable and sealed receptacles in a designated area of the construction compound;
- Wherever possible, left over materials (e.g. timber off-cuts) shall be re-used on-site;
- Uncontaminated excavated material (rock, topsoil, subsoil, etc.) will be re-used on-site in preference to importation of clean inert fill;
- Based on site investigations, rock is likely to be encountered during excavations and will be utilised during construction;
- All waste leaving the site will be transported by approved and licensed contractors and taken to suitably licensed facilities and will be recycled, recovered or reused, where possible; and
- All waste leaving the site will be recorded in accordance with legal requirements and copies of relevant documentation maintained.

### 3.6.7 Construction Employment

It is estimated that approximately 100 no. people will be employed during the 15-18 month construction phase. The actual number of personnel present at a given time will depend on the activities being undertaken and will vary throughout the course of the construction programme. Employment will be the responsibility of the construction contractor but it is likely that the workforce will include labour from the local area.

### 3.6.8 Construction Traffic

Vehicular traffic required for the construction phase is likely to include:-

- Articulated trucks (HGVs) to bring initial equipment onto site and later to bring electrical equipment and apparatus;
- Tipper trucks and excavation plant involved in site development and groundworks; and

- Miscellaneous vehicles and handling equipment, including vehicles associated with construction workforce.

Likely effects from construction traffic could include temporarily increased local traffic levels and traffic noise. Construction traffic on the local road network will be managed in accordance with a Traffic Management Plan and the requirements of the Local Authority. This may include the installation of temporary road signage and traffic lights, as appropriate. Noise arising from construction traffic will be localised, temporary and of a short term duration.

Traffic mitigation measures will be implemented during the construction phase, as follows:-

- Signage at the proposed site entrance giving access information;
- Temporary traffic restrictions kept to minimum duration and extent;
- Diversions put in place to facilitate continued use of roads, in the unlikely event that restrictions are required;
- Strictly enforced speed limits; and
- Provision of a designated person to manage access arrangements and act as a point of contact to the public.

### 3.7 Operational Phase

During the operational phase, other than routine maintenance and monitoring, there will be no other activities associated with the proposed development. On average, the site will be visited once/twice a week by a light commercial vehicle for maintenance purposes. In exceptional circumstances there may be a requirement to replace an electrical component which may require more substantive works on site; however, large scale construction works would not be required.

Waste will be generated during the operational phase including, for example, cooling oils, lubricating oils and packaging from spare parts or equipment. All waste will be removed from site and reused, recycled or disposed of in accordance with best-practice and all regulations in a licensed facility.

Further details on the operational phase and specific mitigation measures are provided in each chapter of this EIAR as they relate to each environmental topic.

### 3.8 Decommissioning Phase

While the primary function of the proposed electricity substation is to facilitate the connection of the Pinewoods Wind Farm to the national electricity grid; the proposed substation will, once operational, be largely operated and maintained by Eirgrid as a node on the national electricity network. As a result, it is highly likely that the proposed substation will continue to operate following the decommissioning of the Pinewoods Wind Farm (i.e. after its 25-year operational period) and, therefore, decommissioning of the electricity substation is not proposed.

We wish to reiterate our request that An Bord Pleanála does not impose a condition of consent on the proposed development specifying a time limited operational duration.

