White Hill Wind Farm Electricity Substation & Electricity Line

Environmental Impact Assessment Report

Chapter 3: Description of the Project

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3.1 Introduction

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

The description considers the location of the project 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 project described in this chapter was arrived at following the consideration of various reasonable alternatives as described in **Chapter 2**.

Further descriptions of specific elements of the project 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 developments; the nature and quantity of materials and natural resources used; and the potential production of residues, waste, pollution, noise and nuisances.

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 potential emissions; waste and traffic, etc. The description of the project also addresses other off-site/secondary developments which occur as a direct result of the project, including, for example, the importation of materials and aggregates to facilitate construction of the project.

3.2 Project Duration

The project will be commissioned in a single construction phase and the construction period is likely to last for approximately 18-months from commencement of construction[1].

The project has been determined by An Bord Pleanála to be a Strategic Infrastructure Development (SID) (see **Section 1.2**; **Chapter 1**) as the electricity substation comprises electric plant for the transmission of high-voltage electricity and will, once operational, become a 'node' on the national electricity network. Notwithstanding that the primary purpose of the electricity substation is to facilitate the connection of the permitted White Hill Wind Farm (which has a permitted operational life of 35-years following its date of commissioning) to the electricity network; it is highly likely that the substation will continue to operate indefinitely following the decommissioning of the White Hill Wind Farm

The electrical control unit and underground electricity line, connecting the White Hill Wind Farm to the electricity substation, will be decommissioned upon the decommissioning of the White Hill Wind Farm.

3.3 Site Location & Context

The project will be located approximately 11km northeast of Kilkenny City, c. 15km southwest of Carlow town, c. 3km west of Muine Bheag (Bagenalstown) and c. 1km north of Paulstown (see **Figure 3.1**). The electricity substation will be located within the townland of Shankill, County Kilkenny. The underground electricity line will be located

[1] A ten-year planning permission is being sought by the Developer i.e. full commissioning may be up to 10-years following a grant of planning permission.

in the townlands of Shankill and Ballygorteen, County Kilkenny; and Moanmore, Lackan and Baunreagh, County Carlow. The electrical control unit will be located within the townland of Baunreagh, County Carlow. The underground electricity line will, from the electricity substation, be located within private lands and within the carriageways of locally-classed public roads.

The environs of the project site are characterised by small nucleated settlements; such as Paulstown and Castlewarren; and the larger settlements of Muine Bheag and Leighlinbridge, with one-off rural dwellings and agricultural holdings located along the majority of public roads in the area. The public road network is predominately characterised by a network of single-carriageway local roads; while the R712, R912, R448 and R705 are also present in the environs of the project site. The M9 motorway is the dominant road transport corridor in the vicinity of the project and is located c. 70m to the east of the electricity substation. The railway line between Dublin and Kilkenny is located c. 200m to the east of the electricity substation.

The project site is located at the southern extent of the Castlecomer Plateau. The Castlecomer Plateau is an elevated plateau located in south County Laois, northwest County Carlow and northeast County Kilkenny. The Castlecomer Plateau is characterised by undulating hills and steep escarpments at its fringes. Dissecting the lowlands on either side of the plateau are the Barrow and Nore rivers, 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 throughout the Castlecomer Plateau.

The project site, and surrounding topography, are typical of this region and comprise an undulating landscape with the ground elevation rising considerably from the substation along the route of the underground electricity line to the electrical control unit and the permitted White Hill Wind Farm site. Ground elevations at the electricity substation range between 68 metres (m) and 73m above ordnance datum (AOD). Ground elevations along the electricity cable route generally range between 68m and 310m. To the south and east of the project site, the terrain is gently undulating and generally trends towards the River Barrow located c. 3km to the east.

Current land use at the electricity substation site comprises agricultural pasture[2] with the wider environs of the site also predominately agricultural pasture. As the route of the electricity line proceeds north onto the slopes of the Castlecomer Plateau, there is an increased presence of marginal grassland and tracts of commercial forestry.

There are no natural watercourses within the site of the electricity substation; however, a stream (unnamed) is located at the northern boundary of the substation site, adjacent to the associated site entrance. The underground electricity line will traverse 5 no. watercourses; namely the Paulstown Stream, Moanmore Stream, an unnamed tributary of the Moanmore Stream, Shankill Stream and the abovementioned, unnamed, watercourse to the north of the electricity substation. The primary drainage feature within the wider landscape is the River Barrow which flows in a southerly direction approximately 3km to the east.

The site of the electricity substation is mapped as being underlain by Limestone Till; while Limestone Till, Alluvium Undifferentiated, Shales and Sandstones Till, and Bedrock at Surface are mapped as being present along the route of the underground

[2] See the Environmental Protection Agency (EPA) 'Corine 2018' mapping database

electricity line[3].

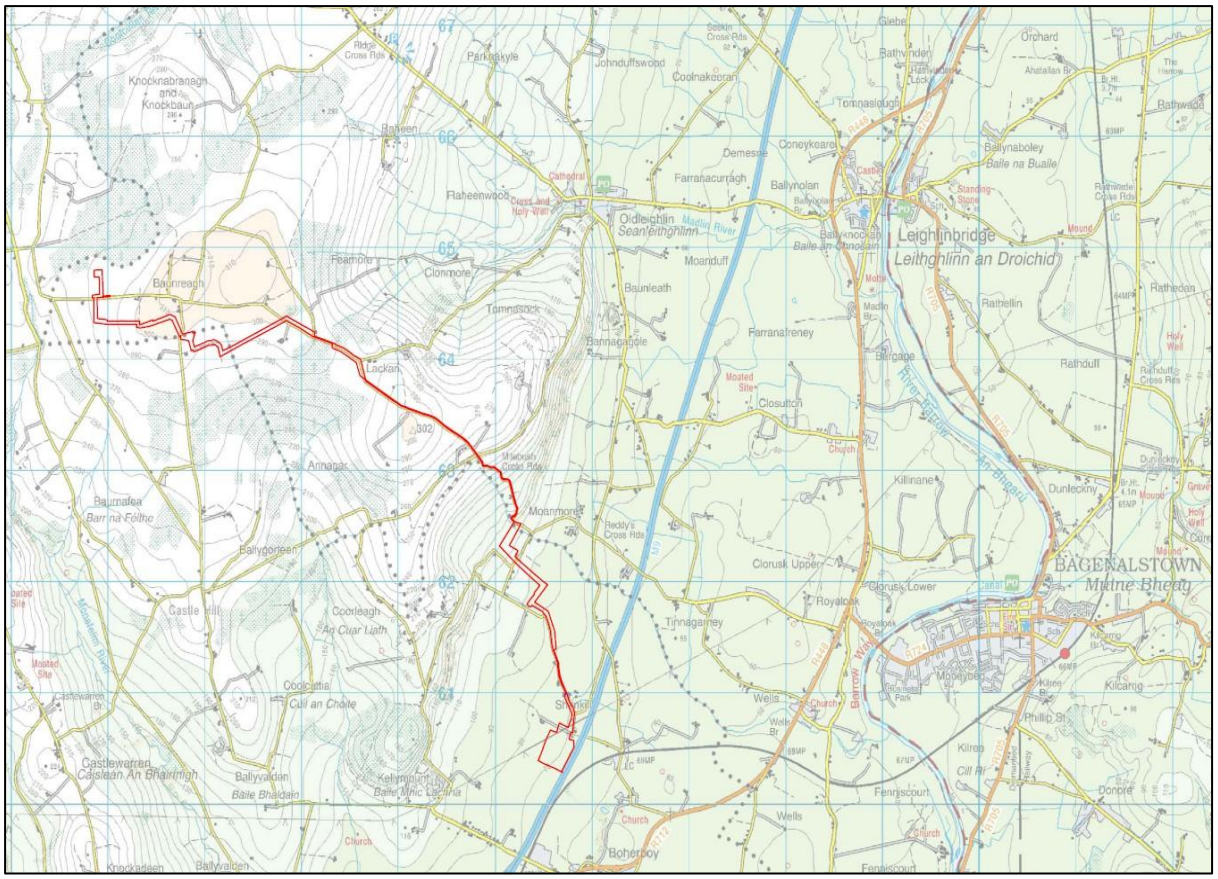

Figure 3.1: Project Site Location (see also Annex 3.1)

3.4 Description of the Project

The project assessed within this EIAR comprises a 110kV electricity substation; including all associated development works to accommodate its construction, operation, maintenance and the export of electricity to the national grid via the existing Kellis-Kilkenny overhead electricity transmission line; c. 8.8km of underground electricity cables; and an electrical control unit. This will include:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electricity substation, including 2 no. single-storey control buildings (with a total gross floor area of 622 square metres [m^2]); transformers, busbars, insulators, circuit breakers, and lightning poles, within a secure compound (with a total footprint of approximately 10,600m^2);
- 2 no. lattice-type interface masts, each of which will be 16m in height, and approximately 320m of underground electricity line between the electricity substation and the interface masts to facilitate connection of the electricity substation to the existing Kellis-Kilkenny 110kV overhead electricity transmission line;
- A new site entrance from the L66732 and approximately 1.1km of access track to facilitate access to the electricity substation and interface masts;
- The demolition of an existing agricultural shed (with a total gross floor area of 210m^2) to accommodate the access track leading to the electricity substation;

[3] See the EPA 'Subsoils' mapping database

- The widening of the carriageway of the L66732 by approximately 1.5m over a distance of approximately 130m;
- An electrical control unit with a total gross floor area of 42m^2 located at the permitted White Hill Wind Farm;
- A new site entrance from the L7117 and approximately 250m of access track to facilitate access to the electrical control unit;
- Approximately 8.8km of underground electricity line between the electricity substation and the electrical control unit to be installed within private lands and the carriageways of the L6673, L6738, L7117 and L71172 public roads; and,
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works; including a temporary construction compound and the provision of site drainage infrastructure and surface water protection measures.

3.4.1 Electricity Substation

3.4.1.1 Substation Compound

As set out at **Chapter 2**, a comprehensive assessment of available alternative substation design technologies has been undertaken and it has been determined that the project will comprise a 110kV 'loop-in/loop-out' air-insulated switchgear (AIS) electricity substation. The footprint of the substation (overall compound area) will measure approximately 10,600m^2 and will be surrounded by a palisade fence, with associated gates, of 2.6m in height for safety and security reasons. The electricity substation will contain 2 no. control buildings and all necessary electrical equipment and apparatus to facilitate the export of electricity from the permitted White Hill Wind Farm to the national grid. Ancillary infrastructure located within the footprint of the compound will include transformers, busbars, insulators, circuit breakers, and lightning poles.

The layout of the 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 Developer may be instructed by EirGrid to immaterially alter the precise siting and/or specification of the control buildings and/or electrical equipment within the substation compound. Any such immaterial alterations or deviations have been fully assessed and provided for within this EIAR.

The substation site is relatively flat and slopes gently to the south/southeast with ground elevations ranging from c. 68m AOD in the southeast of the site to c. 73m AOD in the northwest (interface masts). There will be a requirement to undertake minor modifications to ground levels in order to achieve the required levels for the control buildings, structures and electrical equipment. A 'cut and fill' exercise will be implemented whereby material at higher elevations (i.e. topsoil and subsoil) will be excavated and imported material (i.e. aggregates) used to make up levels at areas of lower elevation. This process, which accords with best practice construction methods, will avoid the excavation of significant volumes of soil or the importation of significant volumes of stone aggregates in order to provide a level compound.

The substation compound will be surfaced with c. 400mm of free-draining crushed stone such that rainwater can percolate to ground. Due to the findings of site investigations and the geological characteristics of the site, usable rock material for the construction of the access track is unlikely to be encountered during excavations and, therefore, it is likely that all aggregate material will be imported from local quarries (see **Chapter 12**). In the event that rock is encountered during excavations, it

is likely that the volume encountered will be minimal and any such material will be used in the landscaping and reinstatement of the site.

Approximately 140m of existing hedgerow will be removed to accommodate the footprint of the substation compound. The loss of hedgerow will be offset through the planting of hedgerows (native species) around the boundaries of the electricity substation and elsewhere within the project site. The planting of hedgerows, in addition to further landscaping measures described at **Section 3.4.6** and **Chapter 8**, will also serve to reduce the visibility of the electricity substation in the landscape.

A typical 110kV AIS substation is illustrated at **Figure 3.2**.

Figure 3.2: Example of a typical 110kV AIS Substation

3.4.1.2 Control Buildings

The electricity substation will contain 2 no. control buildings; one of which, the Customer MV Switchgear Room ('the IPP Building'), will be operated and maintained by the Developer while the Transmission System Operator (TSO) Control Building ('the EirGrid Building') will be operated by EirGrid.

The IPP Building will measure c. 8.5m x 20m (gross floor area of c. 172m^2) and will have an overall height of c. 5.5m to ridge height. 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 electrical equipment and apparatus.

The EirGrid Building will measure approximately 25m x 18m (gross floor area of c. 450m^2) and will have an overall height of approximately 8.5m to ridge height. The building shall be constructed of blockwork and will be finished in sand and cement render, slate roof covering and steel doors. The control 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.

During the project design process, the Developer engaged with the Shankill Group Water Scheme to determine the feasibility of obtaining a water supply for the EirGrid Building and the IPP Building. While water infrastructure is located adjacent to the electricity substation site, the Developer was advised that "*Shankill GWS would not be in a position to grant a water connection to your proposed developement* [sic] *at this time.*" Subject to a grant of planning permission, the Developer will liaise with the Group Water Scheme prior to the commencement of development to re-assess the feasibility of obtaining a water connection. However, if a connection cannot be provided at that time, a well will be bored to provide water to the respective buildings.

Wastewater arising from the EirGrid and IPP buildings will be stored in a sealed sub-surface foul holding-tank and will be removed from site as required by a local licensed waste collector. Waste water management proposals of this nature are common practice for developments of this type located in remote/rural areas with infrequent usage.

Layout and elevation drawings of the control buildings are provided at **Annex 3.3** (**Volume II**). The precise internal layout of the 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.

3.4.1.3 Electrical Apparatus

Electrical equipment; including, but not limited to, transformers, busbars, insulators, circuit breakers, and lightning poles; will be located outside the control buildings (within the palisade fence).

The positioning of electrical equipment within the substation compound is illustrated in the accompanying planning application drawings 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 accordance with any future revisions to EirGrid specifications. To reiterate, any such immaterial deviations are fully provided for and assessed within this EIAR.

3.4.1.4 Interface Masts & Underground Electricity Line

The interface masts will be lattice-type structures (see **Figure 3.3** below) and will be located immediately beneath the Kellis-Kilkenny overhead electricity transmission line. The masts will have a maximum height of 16m and a permanent above-ground footprint of c. 260m^2 (total; c. 130m^2 per mast) with concrete foundations below ground to a depth of c. 2m. However, it should again be noted that the precise specifications of the interface masts may be immaterially altered to ensure compliance with any future revised EirGrid specifications.

At the location of the interface masts, the existing overhead transmission line will be broken and the underground electricity line (c. 320m) will connect the existing overhead line to the electricity substation.

Once constructed, electricity being transmitted along the Kellis-Kilkenny electricity transmission line will be diverted along the underground line and through the substation, allowing electricity generated by the White Hill Wind Farm to be exported to the national grid, before returning to the Kellis-Kilkenny electricity transmission line; hence the 'loop-in loop-out' nature of the electricity substation.

Figure 3.3: Typical Interface Mast

3.4.1.5 Site Entrance & Access Track

Access to the electricity substation site will be provided via a new site entrance from the L66732 local road. The site entrance will be constructed, and visibility splays provided, in accordance with Section 13.22.1 of the *Kilkenny City & County Development Plan 2021-2027*. Having regard to the physical characteristics of the L66732 and the nature of the road being a cul-de-sac, it is assessed that the L66732 has a design speed of 60kph and, accordingly, visibility splays of 90m in each direction have been provided.

The site entrance will not be required to accommodate any abnormal size loads but will be constructed to ensure ease of access and egress for standard heavy-goods vehicles (HGVs) which will deliver construction materials and electrical apparatus to the site. Works at the site entrance will comprise the removal of c. 15m of existing roadside vegetation to create the site entrance. No hedgerow removal will be required for the provision of visibility splays due to the width of the existing roadside verge; however, roadside hedgerows will be trimmed to ensure full visibility for vehicles exiting the project site.

Following the establishment of the entrance, it will be appropriately fenced off and gated to prevent unauthorised access. Access gates will be set back 18m from the road edge to allow HGVs pull off the public road before accessing the site which will

prevent any disruption to local road users. The reinstatement of the site entrance will also incorporate the replanting of hedgerows, as appropriate.

To the north of the site entrance, it is proposed to increase the width of the paved carriageway of the L66732 to accommodate the delivery of construction materials to the electricity substation. The existing carriageway will be widened by c. 1.5m over a distance of c. 130m. Along this section, the existing roadside verge to the west of the carriageway will be removed, and any roadside drainage features piped and backfilled, to accommodate the increased carriageway width. No hedgerow or trees will be removed; however, trimming of roadside vegetation will be undertaken.

A total of c. 1.1km of on-site access track will be required for construction purposes and for site access during the operational phase. The access track shall be similar to normal agricultural tracks but with a slightly wider typical running width of approximately 4-5m. The access track will largely be unsealed and constructed of crushed stone material to allow for permeability (see **Figure 3.4**); however, c. 150m of access track within the electricity substation compound will be finished with concrete (in accordance with EirGrid specifications). Due to the findings of site investigations and the geological characteristics of the site, usable rock material for the construction of the access track is unlikely to be encountered during excavations and, therefore, it is likely that all aggregate material will be imported from local quarries. In the event that rock is encountered during excavations, it is likely that the volume encountered will be minimal and any such material will be used in the landscaping and reinstatement of the site.

Following the identification of an area of potential archaeological significance during a geophysical survey of the electricity substation site (see **Chapter 10**), it is proposed to construct c. 30m of floated access tracks in its vicinity to avoid any disturbance of ground at that particular location. The floated track will be constructed through the placement of aggregates on the surface without any excavation of topsoil or subsoil.

Additional excavated strips will be required, where necessary, alongside the access track to accommodate drainage infrastructure and the installation of the underground electricity line. 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 of the access track, it will be utilised in the construction of trackside berms, if required, or permanently stored at the spoil deposition areas.

Approximately 80m of hedgerow will be removed to accommodate the construction of the access track through the electricity substation site and will be replaced/replanted elsewhere within the site (see **Section 3.4.6** and **Chapter 8** for further details.

The access track intersects with a private residential/agricultural laneway and, as a consequence, it will be necessary to create 2 no. additional access points. The access points will be constructed and finished in a similar manner to that described for the site entrance above. While the access points do not adjoin a public road and there is no requirement to provide visibility splays, it is proposed to provide visibility splays of 30m in each direction to ensure the safety of all construction and operational phase traffic associated with the project and the users of the private laneway. Approximately 10m of existing hedgerow will be removed to accommodate the access point and will be replaced/replanted elsewhere within the project site; while further vegetation along the laneway will be trimmed back, as required, to ensure visibility is maintained at all times.

The construction of the access point to the north of the laneway will involve the bridging of a small unnamed stream. Bridging infrastructure will comprise a bottomless culvert (or similar) to avoid any instream works or any restrictions to the hydraulic capacity of the channel. A Section 50 licence application will be made to the Office for Public Works prior to the installation of the culvert/bridging structure; while Inland Fisheries Ireland will also be consulted.

The construction of the access point to the south of the laneway will involve the demolition of an existing agricultural shed/structure with a total gross floor area of 210m^2. The structure will be dismantled in its entirety with all materials removed from site and disposed of at an approved waste management facility.

Figure 3.4: Typical Access Track

3.4.1.6 Temporary Construction Compound

During the construction phase, a temporary construction compound will be required at the site of the electricity substation. The compound will extend to an area of c. 1,350m^2 (0.135ha). The construction compound will comprise of the following:-

- Temporary cabins to be used for the contractor's site office, the monitoring of incoming vehicles and temporary welfare facilities for the construction staff, including temporary toilets and potable water;
- Parking for construction staff, construction vehicles and visitors;
- Secure storage for tools, plant and small parts;
- Waste management area where waste will be sorted and collected by a licensed service provider;
- Safe bunded storage of components and materials including fuels, lubricants and oils; and,
- Security fencing around the compound.

Topsoil will be removed from the required area and side-cast for temporary storage adjacent to the compound area. The compound base will be made up of well graded aggregates, compacted as necessary.

Temporary welfare units, including chemical toilets, to be provided for construction staff will be sealed units to ensure that no discharges escape into the local environment. These will be supplied and maintained by a licensed supplier. Potable water (for drinking, food preparation, and hand washing etc.) will be supplied on-site by water dispensers and this will also be sourced and maintained by a licensed supplier.

The construction compound will be marked out and fenced to prevent encroachment onto non-designated areas. Following the completion of all construction activities, the compound will be decommissioned with all structures removed and fully reinstated. Reinstatement will involve removing crushed stone and underlying geotextile, covering with topsoil and reseeding.

The temporary construction compound has been located and designed such that all cabins, storage containers, waste management facilities and bunded areas will be located a minimum distance of 50m from all watercourses/drainage ditches in order to minimise the risk of pollution and the discharge of deleterious matter. Stormwater which may arise from the roofs of cabins, containers or from sealed bunds will be passed through an oil interceptor prior to being discharged to the local environment.

Given the linear nature of the electricity line route, it is likely that a number of small material storage areas will be utilised along the route during the construction phase to minimise the transportation of construction materials (e.g. ducting, electricity line, etc.). Such temporary compounds are likely to be located within agricultural farmyards or business premises along the route. Subject to a grant of planning permission, the appointed contractor will be responsible for securing consent from relevant landowners for use of their properties as temporary material storage areas.

3.4.2 Underground Electricity Line

The electricity substation will be connected to the electrical control unit (see **Section 3.4.3** below) at the permitted White Hill Wind Farm via an underground electricity line of c. 8.8km in length. The underground electricity line will comprise c. 5,925m (c. 5.9km) located within private agricultural lands/forestry and c. 2,850m (c. 2.9km) with the carriageways of the L6673, L6738, L7117 and L71172 local roads.

The electricity line will be installed within ducting in an excavated trench of c. 1.2m deep and c. 2.2m wide (see typical trench construction at **Figure 3.5**) and pulled through the ducting in sections of c. 1,200m in length or depending on the length of cable required. Cable (electricity line) lengths will be connected at designated 'jointing plinths' to be installed along the route. It is estimated that 8 no. jointing plinths

will be required along the route of the underground electricity line; however, the exact number to be constructed will be confirmed as part of the post-consent detailed design process. Jointing plinths will comprise a concrete slab of c. 2m^2 which will be installed within the trench to provide a firm foundation for the joining of the electricity line. Traditional joint bay chambers will not be required. Jointing plinths will, insofar as possible, be located within private lands to minimise the extent of infrastructure within the public road network.

Figure 3.5: Typical Trench Construction for Electricity Lines within the Public Road

Following the installation of the ducting and jointing plinths; ground levels will then be made up using appropriate material (including sand and excavated material, if appropriate, and finished/reinstated to the requirements of the Planning Authority (public road) or landowner (private lands).

All public roads along which it is proposed to install the underground electricity line will be subject to a full-carriageway reinstatement (re-surfacing) of the section where the electricity line is installed thus ensuring that there are no long-term effects on the public road network. Where the electricity line crosses a public road, a 20m section (i.e. 10m either side of the centre point of the trench) will be subject to a full carriageway reinstatement.

Within private lands, the trench will be backfilled, finished with topsoil and reseeded or allowed to naturally revegetate. Where the electricity line passes through a hedgerow, c. 4-5m of hedgerow and/or trees will be removed to facilitate construction activities; however, all such hedgerow/trees will be replaced/replanted on a like-for-like basis. The electricity line will also pass through a number of existing

stonewalls and stone/earthen banks. Insofar as possible, the electricity line has been routed to avoid the requirement for the removal of stonewalls and will pass through existing access points in the stonewalls. In the event that a stonewall is disturbed during the construction of the electricity line, it shall be replaced and re-constructed to its original condition. Similarly, stone/earthen banks will be re-constructed to their original condition.

All trenching works will be undertaken to ensure that only short sections of trench are open at any one time. Excavated materials will be stored separately (topsoil, subsoil and aggregates [as encountered]) for use during the reinstatement of the trench or disposed of at an appropriate licensed facility as necessary. The sequence of works is typically as follows:-

- Identify existing underground services prior to excavation;
- Excavate the trench to the required dimensions;
- Place a blinding layer (sand) at the base of the trench;
- Place and joint the high-density polyethylene (HDPE) power ducts using ties at 3m intervals;
- Lay in and compact a layer of sand around and above ducts and place yellow warning tape above;
- Install HDPE communications cable ducts;
- Lay in and compact an additional layer of gravel/excavated material;
- Final backfill layer to include yellow warning tape; and,
- Appropriate reinstatement, as discussed above.

Prior to the commencement of construction, a detailed Method Statement will be prepared by the contractor, to be appointed by the Developer, outlining the precise methodology to be followed during the trenching phase. This Method Statement will be reviewed by the Environmental Manager (EM; to be appointed by the selected contractor) to ensure that the environmental protective measures to be implemented are suitable and to the required standard, including all mitigation measures included in this EIAR and all relevant conditions of planning consent.

Horizontal Directional Drilling (HDD) will be undertaken at 5 no. locations along the underground electricity line; namely at the intersections of the electricity line and the Paulstown Stream, Moanmore Stream, unnamed tributary of the Moanmore Stream, Shankill Stream and unnamed stream along the access track leading to the electricity substation. The use of this methodology will avoid any in-stream works or any direct or indirect effect on the morphology of the stream. Launch and receptor pits will be excavated at either side of the streams; a minimum of 10m away from the streams; to accommodate the drilling rig. The bore will be at a minimum depth of 2.5m below the stream channels to ensure that there are no impacts on the respective channels. Following the installation of the ducts, the launch and receptor pits will be fully reinstated. Marker posts will be placed at either side of the streams to indicate the location and alignment of the electricity line.

Prior to the commencement of drilling operations, the appointed contractor will prepare a detailed Method Statement outlining the precise methodology to be implemented. This statement will be reviewed by the EM to ensure that the environmental protective measures to be implemented are suitable and to the required standard and may be reviewed, as necessary, by the Planning Authority.

The electricity line crosses a Gas Network Ireland high pressure gas pipeline along the L6673. Following consultation with Gas Network Ireland, it was confirmed to the Developer that a minimum separation between the gas line and the electricity line of

0.6m would be required. Due to the below-ground depths of the existing gas line (3.2m) and the proposed electricity line (1.1m to ducts), a separation of 2.1m is achievable and will be provided for.

The installation of the underground electricity line will be undertaken in strict accordance with the *Code of Practice for Working in the Vicinity of the Transmission Network* (Gas Networks Ireland, 2021); particularly with regard to the use of hand-held equipment within 1.5m (linear distance) of the pipeline. Prior to the commencement of trenching activities within 50m of the gas line, the appointed contractor will prepare a detailed Method Statement outlining the precise methodology to be implemented. This statement will be reviewed by Gas Networks Ireland to confirm the appropriateness of the proposed methodology and ensure that all necessary mitigation and incident prevention measures are adhered to. The Method Statement may also be reviewed, as necessary, by the Planning Authority.

3.4.3 Electrical Control Unit

It is proposed to install a pre-fabricated modular electrical control unit at the southern extent of the White Hill Wind Farm in order to facilitate the transfer electricity from the various electrical circuits to be installed at the White Hill Wind Farm to the underground electricity line. The electrical control unit will measure approximately 10.5m x 4m (total gross floor area of c. 42m^2) and will have an overall height of approximately 4.5m. The unit will be installed on concrete supports approximately 1.2m above the finished level of the compound (see below); and will be finished, externally, in an off-white or light grey colour and a black roof.

A layout and elevation drawing of the electrical control unit is provided at **Annex 3.4** (**Volume II**).

The control unit will be installed within an enclosed hardcore-surfaced compound which will measure approximately 315m^2 and will be surrounded by a palisade fence, with associated gates, of 2.6m in height for safety and security reasons. The compound site is relatively flat; however, there will be a requirement to undertake minor excavations to provide a level footing for the control unit. The compound will be surfaced with c. 400mm of free-draining crushed stone such that rainwater can percolate to ground.

The compound will be accessed via the creation of a new site entrance, from the L7117 local road, and the construction of c. 250m of access track. The site entrance will be constructed as described above at **Section 3.4.1.5**; with c. 10m of roadside hedgerow being removed and visibility splays (90m in each direction) will be provided in accordance with Section 16.10.7 of the *Carlow County Development Plan 2022-2028*. The provision of visibility splays will not require the removal of any roadside hedgerow due to the width of the existing roadside verge; however, hedgerows may be trimmed back to ensure full visibility is maintained.

The construction of the access track will again be undertaken as described at **Section 3.4.1.5** and will necessitate the removal of c. 10m of existing hedgerow; however, this removal (and that required for the site entrance as described above) will be offset through replanting elsewhere within the project site. The control unit will be largely screened from view; however, bolstering of an existing hedgerow immediately south of the compound will be undertaken to provide an increased level of screening from the L7117 local road.

3.4.4 Earthworks

Earthworks will arise from the excavation of topsoil, subsoil and rock (where present) at the locations of the electricity substation, access track and site entrance, interface masts, electrical control unit and along the route of the electricity line.

The site of the electricity substation is gently sloping towards the south-southeast and, as a result, extensive earthworks will not be required. As set out above, in order to provide a level substation compound area and to ensure appropriate levels are available for the construction of the electrical control building and electrical equipment foundations, it is proposed to implement a cut and fill approach whereby topsoil and subsoil will be excavated at higher elevations and imported material (aggregates) will be deposited at areas of lower elevation to create a level platform. This process will avoid excessively deep or expansive excavations and will, similarly, avoid the requirement to import significant volumes of stone aggregates to make up levels. Additionally, this process will ensure that the geological integrity of the site is maintained. Following the cut and fill process, the substation compound will be finished with compacted stone aggregates.

Due to the generally shallow nature of excavations, substantial volumes of spoil are not predicted to be generated. It is proposed that excavated material (topsoil, subsoil and rock [where present]) will, insofar as possible, be utilised in the post-construction reinstatement of the project (e.g. electricity substation site, interface mast foundations, access track, electricity line trench, and electrical control unit site).

As part of the design process, considerable attention has been given to the extent of excavations required to construct the project in order to minimise the generation of spoil and, subsequently, to the management of excavated material. **Table 3.1**, below, provides a breakdown of the spoil volumes predicted to be generated and proposals regarding the reuse or disposal of this material.

Project Element	Volume of Material to be Excavated (m^3)	Volume of Material to be utilised for reinstatement/ landscaping (m^3)	Volume of Material to be disposed of in deposition area (m^3)	Volume to be disposed of off-site (m^3)
Electricity Substation (incl. substation compound, access track, site entrance, interface masts)	7,965	200	7,755	10
Temporary Construction Compound	685	685	0	0
Underground Electricity Line	17,330	14,045	2,630	655
Electrical Control Unit (incl. compound, access track and site entrance)	950	100	850[4]	0

Table 3.1: Spoil Generation & Management

[4] It should be noted that due to the proximity of the electrical control unit to the permitted White Hill Wind Farm, excess spoil will be deposited at spoil deposition areas permitted under An Bord Pleanála Reference ABP-315365-22)

Where excess material is generated at the electricity substation site or along the route of the underground electricity line which cannot be utilised for reinstatement or landscaping purposes, it is proposed to develop 2 no. dedicated spoil deposition areas immediately northeast of the electricity substation where excess material will be stored permanently. It is estimated that c. 10,385m^3 of excess material (topsoil and subsoil) will be stored in the deposition areas. The locations of the deposition areas were selected due to the general absence of environmental constraints, available separation distances to watercourses, generally flat or gently sloping gradient and close proximity thus avoiding traffic movements on the public road network.

Spoil will be transported to the deposition areas where it will be placed in layers in accordance with best-practice methods. The deposition areas will have a height of 3.5m. Appropriate drainage management measures will be implemented to ensure that the deposited spoil does not become waterlogged. Following the completion of construction, the spoil deposition areas will be covered with the vegetative topsoil layer removed from the footprint of the deposition areas or covered with topsoil and allowed to revegetate.

Works at the spoil deposition areas will be monitored, on a weekly basis during the construction phase and monthly for a 6-month period thereafter, by an appropriately qualified geotechnical engineer.

During the construction phase, material will be generated from the excavation of the underground electricity line trench. In total, it is estimated that c. 17,330m^3 will be excavated comprising topsoil, subsoil, rock and road pavement material. Approximately 14,045m^3 of this material will be reused in the backfilling and reinstatement of the electricity line trench, while 2,630m^3 will be stored at the spoil deposition areas. Due to the potential for soil contamination, all road pavement material (tar & chips, etc.) will be disposed of at an approved waste facility.

A Planning-Stage Spoil Management Plan (enclosed within the Planning-Stage Construction & Environmental Management Plan [CEMP] at **Annex 3.5**, **Volume II**) has been prepared to detail proposals regarding the appropriate management of material which may arise from the construction of the project. Prior to the commencement of development at the site, a detailed Spoil Management Plan will be prepared following the post-consent detailed design process and will address the reuse, reinstatement, storage and restoration of all material excavated during the construction phase including detailed methodologies regarding the establishment and management of the spoil deposition areas.

3.4.5 Drainage Management & Disposal

3.4.5.1 Construction Phase

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.

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

A series of embedded mitigation and best-practice measures have been incorporated within the project design. Firstly, clean water drains will be installed upslope of the works area to intercept incidental surface water runoff and direct it away from the works area to prevent it becoming contaminated. Clean water drains will include check dams to control flow rates and avoid erosion or scouring of the drain; before water is discharged by a buffered outfall or level spreader at greenfield rates. Water will be discharged from the clean water drains over grassland to provide filtration and to ensure that no silt or sediment is discharged to the drainage network.

All surface water runoff from works areas, excavations, stockpiles, or from dewatering activities at the electricity substation site will be intercepted by downslope dirty water drains. The dirty water drains will include check dams to limit flow rates to avoid any erosion or scouring of the drains. The drains will direct dirty water to stilling ponds (also known as silt/settlement/sediment ponds/traps)[5] where water will be stored for an appropriate period of time such that silt/sediment or suspended material falls to the floor of the pond. The treated (clean) water will then be discharged from the stilling ponds to a lagoon-type settlement pond which will store the water for a further period of time to ensure that all entrained sediment is removed. Finally, the clean water will be discharged from the lagoon-type settlement pond via a buffered outfall or level spreader, at greenfield rates, over grassland to provide a further layer of filtration and treatment.

Surface water control measures will be implemented as construction progresses through the substation site; however, prior to the commencement of earthworks, temporary silt/sediment control infrastructure (e.g. straw bales) will be placed in any agricultural drains around the site until the full range of construction phase measures are installed.

The inclusion of these surface water runoff measures within the project design will avoid any discharge of silt or sediment laden waters directly to any surface water feature or to ground prior to being fully treated. The precise design, sizing and siting of drainage infrastructure (including the size of stilling ponds, lagoon-type settlement ponds and discharge rates) will be confirmed as part of the post-consent detailed design process; however, it can be confirmed that the design will be reflective of predicted precipitation levels with an appropriate allowance for climate change.

Along the route of the underground electricity line, temporary surface water control measures will be installed within roadside drainage features, agricultural drains and streams as construction progresses along the route. Such features may include silt fences, silt traps or straw bales which will ensure that silt/sediment or suspended material is not discharged to downstream waters.

As described above, at the intersection of the route of the underground electricity line and natural watercourses (5 no.), it is proposed that the underground electricity line will be installed via HDD. All HDD works will be undertaken in strict accordance with best practice methodologies with surface water measures being installed; including the installation of double silt fencing, avoidance of any refuelling activities within 100m of the streams, bunding of the drilling fluid, pumping and recycling plants, spill kits being available in the event of an accidental spillage or leakage, and the provision of adequately sized skips for the temporary storage of drilling arisings and drilling flush. All such arisings and flush will be disposed of at a licensed waste management facility.

[5] Please note that the nomenclature of this surface water protection infrastructure may be used interchangeably within this EIAR and accompanying documentation.

Further details of the proposed surface water protection measures are also presented in the relevant chapters of this EIAR. The precise implementation and siting of these measures will be determined, subject to planning permission being granted, following the detailed post-consent design process and will be included within a detailed CEMP to be agreed with the Planning Authority prior to the commencement of construction.

A Planning-Stage Surface Water Management Plan (SWMP) has been prepared in respect of the project (enclosed within the Planning-Stage CEMP at **Annex 3.5**, **Volume II**). This SWMP will also be further developed prior to the commencement of development, following the post-consent detailed design process, and will incorporate the precise implementation and siting of surface water management infrastructure.

3.4.5.2 Operational Phase

Due to the permeable nature of the substation compound, electrical control unit compound and access tracks, the vast majority of rainfall will percolate to ground during the operational phase. Accordingly, the majority of surface water drainage infrastructure installed during the construction phase (dirty-water drawings, stilling ponds and lagoon-type settlement ponds) will be decommissioned following the completion of construction.

Stormwater drainage infrastructure will be installed around the EirGrid Building, IPP Building and electrical control unit to capture any runoff from roofed or paved areas; while permanent surface water drainage infrastructure will be installed at the perimeter of the electricity substation compound.

All stormwater and surface water from the electricity substation compound will be directed to a permanent attenuation pond which will allow for the storage of water until such time as all suspended sediment is removed and the water can be safely discharged. Water will be discharged to an existing agricultural drain at greenfield rates via a buffered outfall to prevent any erosion or scouring. Additionally, all stormwater and surface water from the substation compound will be passed through an oil/hydrocarbon interceptor to prevent the discharge of any hydrocarbons.

3.4.6 Landscaping

As has been described in the preceding sections, all hedgerows removed to accommodate the provision of site entrances, access tracks and the electricity substation will be replaced to ensure that there is no net loss of hedgerow habitats as a result of the construction of the project.

Any hedgerow lost due to the construction of site entrances (i.e at the electricity substation and electrical control unit) will be replaced alongside the installation of gates and fencing at the respective entrances. Hedgerows lost due to the construction and continued presence of access tracks and the electricity substation will be replaced, primarily, through replanting around the perimeter of the electricity substation and along access tracks.

In addition to the replacement of hedgerows, and in order to assist in the assimilation of the electricity substation and electrical control unit into the existing landscape fabric, further landscaping proposals have been incorporated into the design of the project and comprise the following:-

- Bolstering/reinforcing of existing hedgerows in the environs of the electricity substation and electrical control unit; and,

- Planting of wildflower or wild grass mixes at infrastructure margins and residual areas of the substation site.

In addition to the visual screening effect of the proposals; the landscaping measures have been incorporated into the design of the project to ensure that there is no net loss of biodiversity as a result of the project and, insofar as possible, give rise to a biodiversity net gain.

Hedgerow and tree species to be planted are discussed further at **Chapters 5** and **9** but it can be confirmed that the species mix will be native Irish species and will be selected to complement those currently found within the local landscape. The proposed planting locations have been carefully selected to ensure sufficient separation distances to electrical equipment.

3.4.7 Aggregates Sources, Haul Routes & Quantities

As described at **Chapter 2**, aggregates; including stone and concrete; will be imported from local suppliers as a sufficient volume of rock is not likely to be encountered on-site.

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 impacts above and beyond those normally entailed in the operation of the quarry.

Quarries, which may be selected to supply materials and following a competitive tendering process, are identified at **Annex 2.4** and the likely haul routes to the project site indicated. As part of a Traffic Management Plan, which will be agreed with the Planning Authority prior to the commencement of development, suppliers will be instructed to utilise the national and regional road networks to access the site, and to avoid local roads, insofar as possible. Further details of the construction materials haul route and vehicle volumes are provided at **Chapter 12**.

On the basis of the design process undertaken to date, the estimated volumes of construction materials/aggregates (rock, stone, concrete and sand) required in the construction of the project are detailed at **Table 3.2** below.

Infrastructure ID	Rock/Stone sourced from On-Site Excavations (m^3)	Rock/Stone sourced from Local Supplier (m^3)	Concrete sourced from Local Supplier (m^3)	Sand sourced from Local Supplier (m^3)	Road Pavement/ Tar & Chips sourced from Local Supplier (m^3)
Electricity Substation (incl. substation compound, access track, site entrance, interface masts)	0	9,135	220	20	50
Temporary Construction Compound	0	410	20	0	0
Underground Electricity Line	0	3,060	435	2,630	1,020
Electrical Control Unit (incl. compound, access track and site entrance)	0	665	15	10	0

Table 3.2: Estimated Construction Material (Aggregates) Volumes

3.5 Construction Phase

The construction phase is likely to last for approximately 15-18 months from the commencement of further site investigations through the installation of the underground electricity line, construction of the electricity substation and concluding with the commissioning of the electrical apparatus, site reinstatement and landscaping.

The construction phase of the project will comprise a 6-day week with normal working hours from 07:00 to 19:00, Monday to Friday and 07:00 to 13:00 on Saturdays. No works will be undertaken on Sundays or on public holidays. It may, however, be necessary to undertake works outside of these normal hours in exceptional circumstances 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, inspection and servicing of the electrical equipment and the electricity substation site.

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.

3.5.1 Construction Method

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

- Establishment of necessary traffic management measures at the substation site entrance, with site entrance to be fully established (including provision of visibility splays) in advance of other works commencing on site;
- Installation of preliminary surface water control measures;
- Carriageway widening works along the L66732;
- Progressive construction of the access track and installation of drainage system and surface water control measures;
- Establishment of temporary construction compound;
- Site preparatory works and groundworks associated with the substation compound including EirGrid Building and IPP Building;
- Establishment and continued management of spoil deposition areas;
- Construction of the EirGrid Building and IPP Building;
- Construction of bases or plinths for electrical apparatus;
- Erection of palisade fencing around substation compound;
- Installation of internal and external electrical apparatus in EirGrid Building and IPP Building and within compound;
- Installation of underground electricity line between electricity substation and electrical control unit including the advance installation of any surface water protection measures and the completion of HDD works;
- Installation of temporary wooden pole-sets to carry and maintain strain of the 110kV Kellis-Kilkenny electricity transmission line during installation of interface masts;
- Preparatory groundworks associated with the interface mast foundations;
- Installation of interface masts;

- Installation of underground electricity line between substation and interface masts;
- Establishment of necessary traffic management measures at the electrical control unit site entrance, with site entrance to be fully established (including provision of visibility splays) in advance of other works commencing on site;
- Site preparatory and groundworks associated with the control unit compound including installation of surface water control measures and construction of access track;
- Erection of palisade fencing around compound;
- Installation of electrical control unit;
- Commissioning and testing of electrical apparatus within electricity substation and electrical control unit;
- Connection of underground electricity line to the electricity substation and 110kV Kellis-Kilkenny electricity transmission line;
- Decommissioning of temporary wooden pole-sets;
- Connection of underground electricity line to the electrical control unit;
- Final commissioning of electrical apparatus and underground electricity line; and,
- Progressive site reinstatement, restoration, landscaping and planting proposals including the installation of stockproof fencing and the erection of gates.

A detailed CEMP; which will further develop the Planning-Stage CEMP enclosed at **Annex 3.5**; will be prepared in advance of all construction activities and will incorporate all mitigation measures included in this EIAR.

The construction phase will be supervised by a range of environmental and engineering specialist personnel; including a Project Supervisor for the Construction Stage (PSCS), Ecological Clerk of Works (ECoW), Archaeological Clerk of Works (ACoW), and Geotechnical Clerk of Works (GCoW), among others; who will liaise closely with the appointed contractor's on-site Environmental Manager (EM) to monitor construction activities and to ensure that all mitigation measures included in this EIAR, and all conditions of consent subject to a grant of planning permission, are implemented.

The detailed CEMP, which will incorporate further technical information following the undertaking of post-consent detailed design work, will be submitted to the Planning Authority for approval prior to any works commencing on the project site. The CEMP shall also provide additional details of embedded best construction practices including:-

- Specific design details of the temporary construction compound, including specific identification of areas for the storage of construction waste, site offices and staff facilities;
- 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, including detailed measures regarding the management of spoil;
- Implementation stage details to prevent the spillage or deposit of clay, rubble or other debris on the public road network;
- Implementation stage details for the prevention of 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 refuelling of vehicles;
- Off-site disposal of construction waste:
- 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.

3.5.2 Site Entrances

As discussed at **Section 3.4.2** above, access to the substation site will be provided via a new site entrance from the L66732 local public road. The site entrance will not be required to accommodate any abnormal size 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 Planning Authority and appropriate visibility splays of 90m in each direction have been provided. Due to the requirement to provide visibility splays, it will be necessary to trim back roadside hedgerows; however, there will be no requirement for the removal of any hedgerow.

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.

To the north of the site entrance, the width of the paved carriageway of the L66732 will be increased to accommodate the delivery of construction materials to the electricity substation. The existing carriageway will be widened by c. 1.5m over a distance of c. 130m. Along this section, existing roadside verge will be removed, and any roadside drainage features piped and backfilled, to accommodate the increased carriageway width. No hedgerow or trees will be removed; however, trimming of roadside vegetation will be undertaken.

The electrical control unit will be accessed via the creation of a new site entrance, from the L7117 local road. The site entrance will be constructed generally as described above with c. 10m of roadside hedgerow being removed and visibility splays of 90m in each direction being provided. The provision of visibility splays will not require the removal of any roadside hedgerow due to the width of the existing roadside verge; however, hedgerows may be trimmed back to ensure full visibility is maintained.

3.5.3 Site Access Tracks

The access tracks will generally be constructed as follows:-

- Topsoil and subsoil will be excavated, side-cast and stored in separate mounds in appropriate areas adjacent to the access track;

- Crushed stone will be laid on a geo-textile mat (where required) and compacted in layers to an appropriate depth. The access track will not be finished with tar and chips or concrete (other than a short section within the electricity substation compound which shall be finished with concrete) and the surface will be permeable to allow incidental rainfall to percolate to ground thus avoiding significant volumes of surface water run-off being generated and avoiding changes to the natural drainage regime;
- Drainage infrastructure and the underground electricity line will be installed adjacent to the access tracks; and,
- The edges of the access tracks will be finished and reinstated with excavated material and reseeded or allowed to vegetate naturally.

3.5.4 Chemical Storage and Refuelling

As described at **Section 3.4.1.6**, storage areas for chemicals and fuels will comprise bunded areas of sufficient capacity within the temporary construction compound. An oil interceptor will be installed within the surface water drainage system during the construction phase to intercept any accidental hydrocarbon spillages/discharges that may be present.

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. A 50m buffer will be observed around all natural surface water features and no refuelling will be permitted within this zone.

3.5.5 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 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, subsoil, concrete, rock, tiles, oils/fuels, metals, electricity cable off-cuts, 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) and any suitable demolition materials shall be re-used on-site;
- Uncontaminated excavated material (topsoil, subsoil, etc.) will be re-used on-site in preference to importation of clean inert fill;
- If suitable rock is encountered, it will be utilised for site landscaping and reinstatement;
- All waste leaving the site will be transported by licensed contractors and taken to suitably licensed facilities and will be recycled or reused where possible; and,
- All waste leaving the site will be recorded in accordance with legal requirements and copies of relevant documentation maintained.

A Waste Management Plan has been prepared for the project and is included within the Planning-Stage CEMP at **Annex 3.5**.

3.5.6 Construction Employment

It is estimated that up to 40 no. people will be employed during the approximately 15-18 month construction phase. The actual number will depend on the activities being undertaken at any given time and will vary throughout the course of the construction programme. Employment will be the responsibility of the construction contractor appointed by the Developer, but it is likely that the workforce will include labour from the local area (see **Chapter 4**).

3.5.7 Construction Traffic

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

- Articulated trucks (HGVs) to bring initial plant and machinery to site and later to bring electrical equipment and other construction materials;
- Tipper trucks and excavation plant involved in site development and excavation works;
- Miscellaneous vehicles and handling equipment, including vehicles associated with construction workforce.

Effects from construction traffic could include temporarily increased local traffic levels and traffic noise; while disruption is likely to occur during the installation of the underground electricity cables. Construction traffic on the local road network and construction works along the electricity cable route will be managed in accordance with a Traffic Management Plan and the requirements of Kilkenny County Council and Carlow County Council.

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

- Signage on approach roads and at the site entrances giving access information;
- Temporary traffic restrictions kept to minimum duration and extent;
- Diversions put in place to facilitate continued use of roads where restrictions have to be put in place (e.g. along the electricity line route). Local access for residents and landowners will be maintained at all times;
- Appropriate arrangements will be implemented for emergency services, school bus routes and other public transport services;
- One way systems will be implemented for construction traffic, where possible, to prevent construction vehicles meeting;
- Speed limits will be strictly enforced;
- A designated person will be appointed to manage access arrangements and act as a point of contact to the public; and,
- All reinstatement works to be carried out in full consultation with Kilkenny County Council and Carlow County Council.

3.6 Operational Phase

During the operational phase, other than routine maintenance and monitoring, there will be no other activities associated with the project. On average, the site will be visited on 1-2 no. occasions per 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 are unlikely to be required.

Waste will be generated during the operational phase including, for example, packaging from spare parts or equipment. All waste will be removed from site and reused, recycled or disposed of in accordance with all relevant waste management regulations and guidelines.

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.

3.7 Decommissioning Phase

While the primary function of the project is to facilitate the connection of the White Hill Wind Farm to the national electricity grid; the electricity substation will, once operational, be operated and maintained by EirGrid as part of the national electricity network. Therefore, it is highly likely that the substation will be operated indefinitely including following the decommissioning of the White Hill Wind Farm (i.e. 35-years following its date of commissioning).

The electrical control unit and underground electricity line, connecting the White Hill Wind Farm to the electricity substation, will be decommissioned upon the decommissioning of the White Hill Wind Farm.

The modular electrical control unit will be removed from site to an approved facility for a strip out and removal of electrical equipment and other materials that can be reconditioned and reused or sold as scrap. The modular unit itself shall then be reused, recycled or disposed of at an approved waste management facility. The palisade fence and gates shall be removed and recycled or reused and the hardcore compound shall be grubbed up to a depth of 0.5m below ground level, covered with soil and reseeded. If it is decided not to retain the access track for agricultural/other purposes, then it shall be removed using a similar methodology.

The electricity line will be disconnected from the electricity substation and electrical control unit and removed from the ducting. At the locations of the joint bases, small excavations will be undertaken to expose the ducting and the electricity line removed in sections between the respective joint bases. In order to minimise ground disturbance, the ducting shall be left in situ. Following the removal of the sections of electricity line, the excavated area shall be backfilled and reinstated to its original condition.

The majority of electricity lines/cables used in renewables energy projects contain a core of either copper or aluminium, both of which can be readily recycled. All electricity lines/cables will be removed to an appropriate licensed facility for recycling; while the ducting will remain in situ to avoid the requirement for further excavations.