



Drumlins Park Wind Farm Substation & Grid Connection

Non-Technical Summary

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1.0 Introduction

Drumlins Park Limited (DPL) is applying for planning permission for the construction of a 110kV substation comprising a 2 no. control buildings and substation compound enclosing 110kV electric plant together with approximately 700 metres (m) of underground 110kV electricity line and two single circuit end masts which will connect to the existing Lisdrum-Shankill 110kV overhead electricity transmission line.

The proposed development will form part of a wind farm development (known as the 'Drumlins Park Wind Farm'); located in County Monaghan, which has previously been permitted by Monaghan County Council; and will allow for electricity generated by the wind farm to be exported to the national electricity grid. Given that the proposed development and Drumlins Park Wind Farm are inter-related; both projects are likely to be constructed simultaneously.

The proposed development is located in northwest County Monaghan approximately 4km southwest of the village of Newbliss, 8km southeast of Clones and 7km northwest of Cootehill. The proposed development will be located within the townlands of Drumanan and Cornawall, County Monaghan.

Planning legislation requires that that planning applications for such projects be accompanied by an Environmental Impact Assessment Report (EIAR). An EIAR is a statement of the effects, if any, which the proposed development, if carried out, would have on the environment. It provides information which a planning authority, in this case An Bord Pleanála, can use in undertaking a formal Environmental Impact Assessment (EIA) and in informing their decision making process. The EIAR can also be used by third parties to evaluate the proposed development and its likely effects.

Galetech Energy Services (GES) has been appointed by DPL to manage and co-ordinate the management and preparation of this EIAR. The content of the EIAR has been prepared by individual specialist and technical consultants who were appointed in order to undertake assessments and prepare chapters on specific environmental topics.

Volume I of the EIAR is arranged in 14 no. separate chapters which describe the proposed development and addresses each component of the environment likely to be affected and their likely interactions. **Volume II** includes technical information and annexes associated with the EIAR. **Volume III** comprises the EIAR prepared for the Drumlins Park Wind Farm.

The EIAR may be inspected, or purchased at the public offices of An Bord Pleanála or Monaghan County Council during public opening hours. The EIAR may also be inspected at the dedicated project website www.drumlinsparkwindfarmsubstationsid.ie and through the Department of Housing, Local Government and Heritage [EIA Portal](#).

A submission or observation in respect of the EIAR and the planning application may be made in writing only to An Bord Pleanála on payment of the €50 prescribed fee within the period of seven weeks and such submissions or observations will be considered by An Bord Pleanála in making the decision on the planning application.

2.0 Site Location

The proposed development site is located in northwest County Monaghan approximately 4km southwest of the village of Newbliss, 8km southeast of Clones and 7km northwest of Cootehill. The proposed development will be located within the townlands of Drumanan and Cornawall, County Monaghan. The location of the

proposed development, in a regional context, is illustrated in **Figure 1** below.

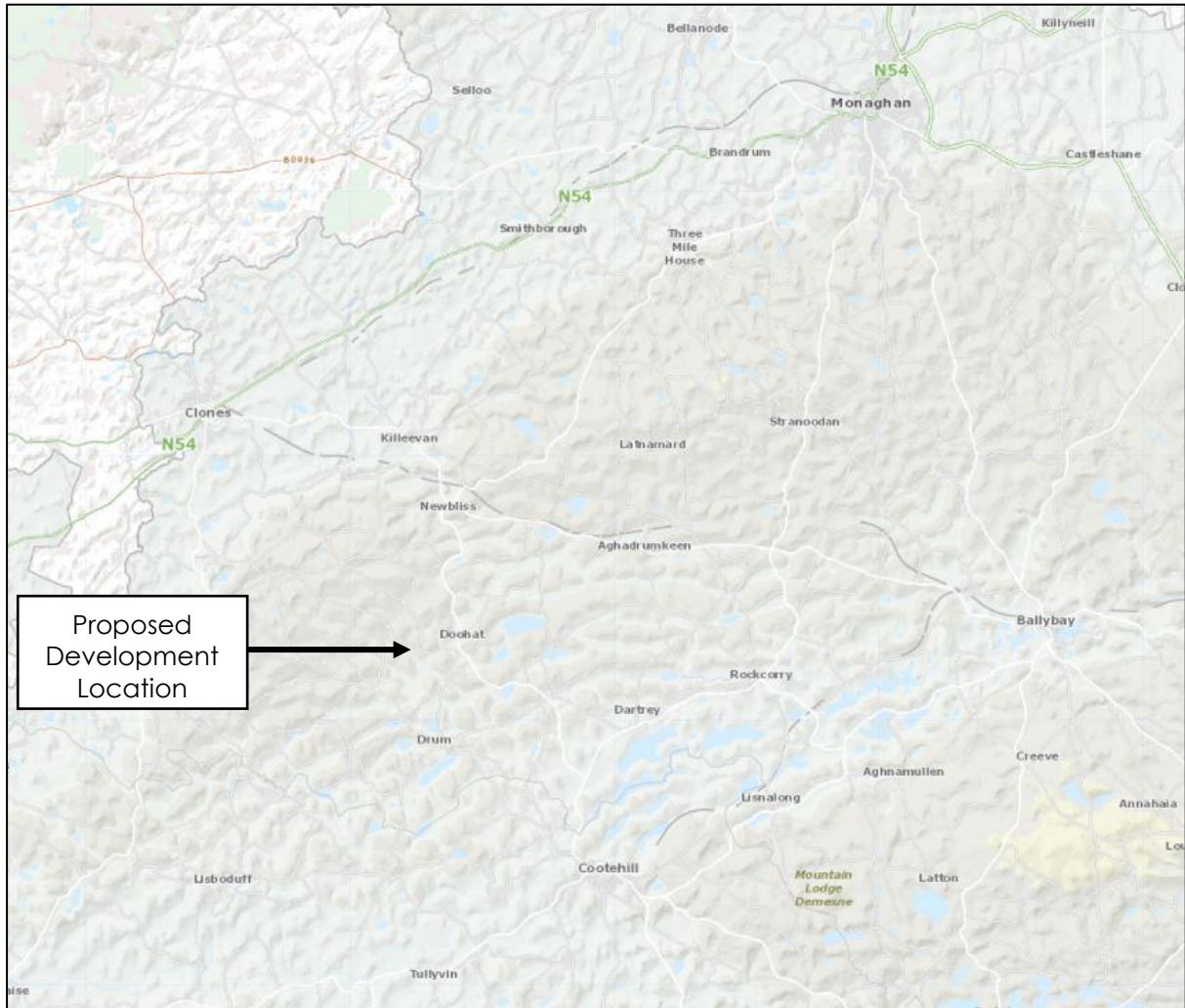


Figure 1: Proposed Development Location

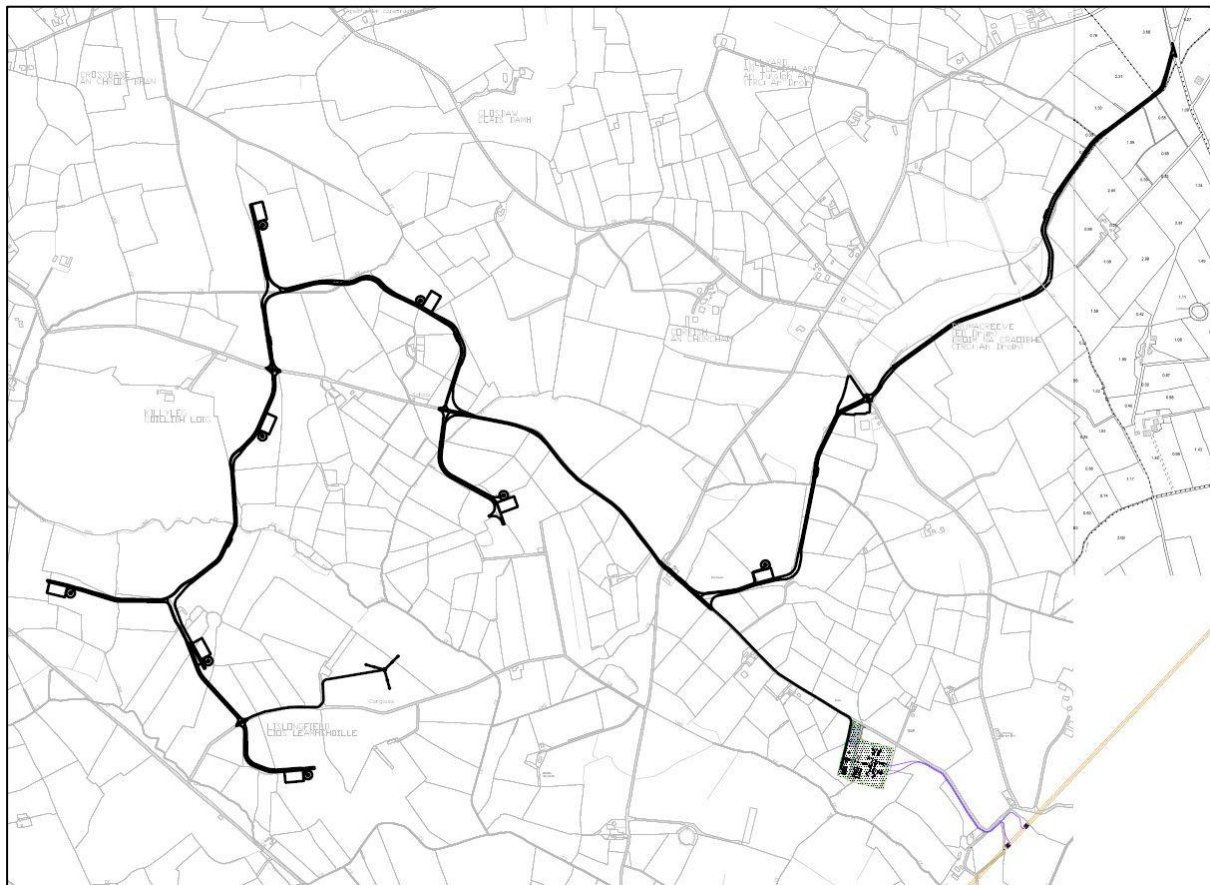


Figure 2: Overall Site Location

The local landscape comprises small-to-medium sized agricultural fields consisting predominately of improved and semi-improved grassland. Field boundaries consist of generally dense hedgerow with hawthorn, gorse and blackthorn the common species.

The proposed development site and surrounding environment are typical of a rolling drumlin landscape, with undulating terrain interspersed by small loughs and small watercourses but with no significant watercourses present. The topography of the proposed development site is gently undulating with elevations ranging between approximately 99m and 105m above ordnance datum (AOD) across the proposed substation site.

While undulating, the landscape generally slopes to the south/southeast towards the Bunnoe River, located approximately 125m southeast of the proposed end masts at its nearest point, and also the Dunaluck stream, located c. 700m south of the proposed electricity substation. The proposed development site is drained by man-made agricultural drains with the nearest natural watercourse being the Bunnoe River.

The proposed development site is accessed via a local-tertiary road, the LT62013, which generally experiences extremely low volumes of vehicular movements.



Figure 3: General View across the Proposed Development Site

3.0 Description of the Proposed Development

The proposed development assessed within this EIAR comprises 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 Drumlins Park Wind Farm to the national grid. This will include:-

- 1 no. 110kV 'loop in-loop out' air-insulated switchroom (AIS) substation including control buildings, transformers and all associated electrical equipment, security fencing and lighting;
- Approximately 300m of on-site access tracks with associated site entrances from local public road (LT62013);
- Approximately 700m of 110kV underground electricity lines and communication cabling and all associated infrastructure;
- c. 0.65km of on-site access track with associated site entrance from local public road; and
- Replacement of 1 no. existing pole-set with 2 no. lattice-type end masts, to a maximum height of up to 16m, to facilitate connection of the proposed 110kV underground electricity lines to the existing Lisdrum-Shankill 110kV overhead electricity transmission line; and
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure.

The proposed site layout is shown at **Figure 4**, below while a typical 110kV substation is illustrated at **Figure 5**.

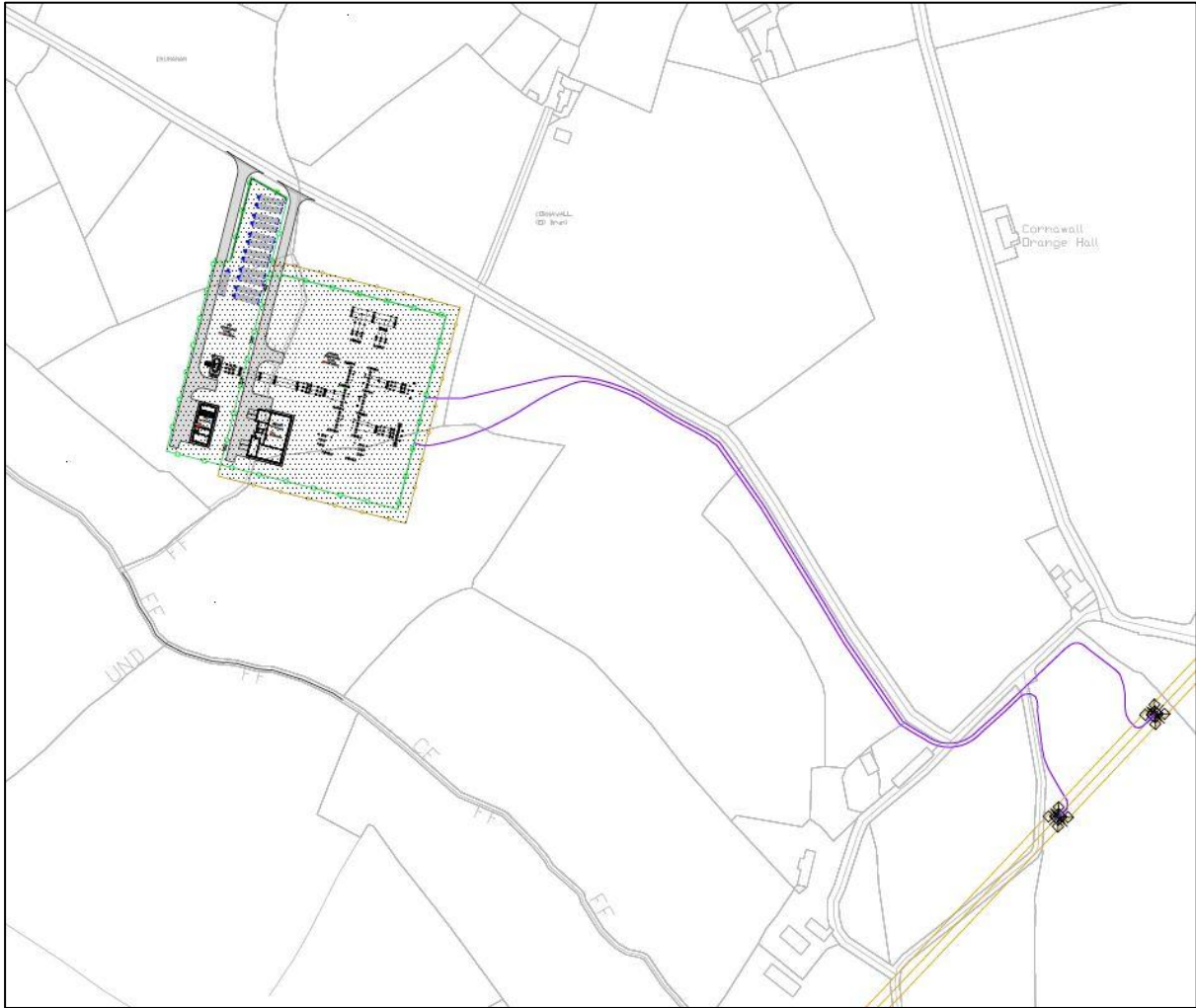


Figure 4: Proposed Development Layout



Figure 5: Typical 110kV AIS Substation

4.0 Assessment of Project Alternatives

A description of the reasonable alternatives to this project has been provided detailing the assessment, evaluation and analysis undertaken. A range of alternate development options have been assessed through an iterative and recursive project design and environmental assessment process, including alternative grid connections; alternative siting; and alternative design technologies. The objective of this process was to arrive at a proposed development, which has inherent design characteristics, which has the least likely adverse environmental effects.

The final proposed development evaluated in this EIAR has been selected as it strikes the best balance between the avoidance of any adverse environmental effects and achieving the objectives of the project.

5.0 Population & Human Health

5.1 Background

The chapter presents an assessment of the likelihood of effects on population and human health. Human beings are an important element of the environment and any likely effects on the status of population and human health must be comprehensively addressed.

5.2 Methodology

The methodology used to inform the assessment generally comprised research of existing documents and information sources to fully understand the population, social and economic characteristics of the local area. Information sources included information from the 2016 National Census, local economic and community plans and tourism information for counties Monaghan and Cavan.

Consultation was also undertaken with a range of bodies including Failte Ireland, Monaghan County Council, Cavan County Council, the Health and Safety Authority and Health Service Executive.

5.3 Existing Environment

The assessment of the existing environment found that counties Monaghan and Cavan comprise 1.3% and 1.6% respectively of the total Irish population figures. The Census data also showed that trades, professional services and manufacturing are the most common occupations while both counties had relatively high levels of unemployment during the 2016 Census; however, it is likely that unemployment figures have continued to decrease in recent years.

Recent data from Failte Ireland demonstrates that both Monaghan and Cavan have relatively vibrant tourism industries with substantial revenues being generated from tourism.

5.4 Description of Likely Effects

The assessment finds that the likelihood of effects during the construction phase are limited to effects on population sustainability, general amenity and well being, economic and employment effects, effects on tourism, and the possibility of accidents or natural disasters. The assessment concludes that the proposed development will result in both negative and positive effects on the above factors; however, the level of significance is at the lower end of the spectrum.

For example, amenity levels, in terms of local population, are likely to be subject to a minor adverse effect for the temporary duration of the construction phase; however, while these effects may be substantial at a personal level, they are not assessed to be significant in EIA terms, particularly given their short-term temporary duration.

Economic opportunities, through the provision of materials or services, local companies and the construction phase is likely to involve the employment of up to approximately 100 people over a period of 15-18 months. Additionally, plant and materials will be sourced locally. The socio-economic benefits resulting from the construction and operation of the proposed development are likely to make a substantial positive effect on the local economy of the local area, through direct employment and rural diversification.

The operational phase of the proposed development is not likely to result in any significant positive or negative effects in terms of population sustainability and residential amenity, general amenity and well being, economic and employment effects and effects on tourism. While minor localised effects are likely to arise, both positive and negative; these effects are not assessed as likely to be significant.

The proposed development, in combination with the permitted Drumlins Park Wind Farm, will bring community benefits including an annual (for up to 15 no. years) community fund of €270,000 to provide financial support to local community and social groups. In addition to the community fund, the project will contribute €1000 per annum towards the electrical/energy costs of all non-involved dwellings located within 1,800 metres (m) of a permitted wind turbine.

5.5 Mitigation Measures

The land on which the proposed development has been sited is privately owned and there will be no unauthorised public access to the site. This will ensure that there are no impacts on the local population which could affect human health.

During the operational phase, the proposed development will generally be unmanned. Operational monitoring activities will be carried out, remotely, on an ongoing basis. However, regular visits to the site will be undertaken for routine inspections and maintenance.

5.6 Overall Findings

The overall conclusion of the chapter is that any adverse effects of the proposed development on population and human health are unlikely to be significant. No specific mitigation measures, other than full adherence to all health and safety and public health guidance, have therefore been identified as being required.

6.0 Biodiversity

6.1 Background

The chapter provides an assessment of the likely significant effects on biodiversity, including flora and fauna, as a result of the construction and operation of the proposed Drumlins Park Wind Farm electricity substation and grid connection. This chapter forms part of an Environmental Impact Assessment (EIA) and is prepared in accordance with the requirements of the 2011 EIA Directive as amended by EIA Directive 2014/52/EU.

6.2 Methodology

Methodology for the chapter included a desktop study, involving accessing online databases to assess the importance of the study area, as well as field surveys. The field surveys previously undertaken at the adjacent Drumlins Park Wind Farm site, including bird and bat surveys, were also fully evaluated.

Field surveys involved walkover surveys of the site during July and September 2020 and included a classification of habitats and examination for signs of non-volant mammals and other species. Evidence of trails, droppings, digging, scratch marks, burrows, etc. were sought and documented where found. Bat surveys were completed during the period of July to September 2017.

6.3 Existing Environment

The dominant habitats on the proposed development site are typically of Local Importance and are habitats that are widespread across Ireland and Co. Monaghan: improved agricultural grassland, wet grassland, hedgerows and treelines. There are two drainage ditches on the site and the River Bunnoe is located c. 125m southeast of the proposed end masts. No Annex I or protected habitats, or Annex II species, associated with the Natura 2000 sites within 15km of the proposed development were found to be present.

No badger setts or evidence of badgers was found and Otter were noted as likely to use the River Bunnoe. Hare are present at the proposed development site. Evidence of pine marten, foxes and some fallow deer was recorded during surveys of the Drumlins Park Wind Farm site and, due to proximity, it is likely that these species would use the proposed development site.

Bat species recorded were predominantly common species with infrequent recordings of Brown long-eared bat and *Myotis* sp. in low numbers.

The bird surveys found that the site is not of any particular importance to birds of conservation concern; with common passerines, Wood pigeon and Rooks, the most commonly encountered.

Common frog may be present in the drainage ditches on the site.

6.4 Description of Likely Effects

During the construction phase, likely effects regarding habitat loss and fragmentation were identified for Treelines, Hedgerows, Wet grassland, Hare, Pine Marten, Fox, Fallow Deer, Bats and Birds. Disturbance impacts are also likely to arise through increased noise and human activity on site. Similarly, due to possible pollution, the River Bunnoe could be affected by reduced water quality. Invasive species could also be brought onto site via vectors such as machinery or personnel.

During the operational phase, water quality effects could arise as oils and chemicals would be required for maintenance activities. These oils/chemicals could run-off into the River Bunnoe and impact water quality.

Cumulative effects were identified in relation to water quality, disturbance, displacement and habitat loss/fragmentation, in-combination with other existing, permitted and proposed developments.

6.5 Mitigation Measures

Mitigation measures proposed for the construction phase include:-

- Extensive water quality protection measures including silt fencing, silt ponds, appropriate storage of hydrocarbons and biosecurity measures;
- Land clearance and soil stripping within the footprint of the works will be limited to the works area, with habitats outside of the required works or access requirements left intact. Disturbed areas within the footprint of the works will be allowed to regenerate naturally or will be reseeded with native species;
- Implementation of landscaping plan;
- Temporary fencing (paling with 25mm mesh) will be erected around the required site works to delineate the works area and to minimize the potential for disturbance impacts outside of the works area;
- A pre-construction walkover survey will be undertaken to ensure no active mammal dwellings have been created;
- Any mature trees required to be felled will be checked in advance for usage by bats by a suitably qualified bat ecologist;
- Site clearance works or felling of trees will be undertaken outside of the bird nesting season; and
- A pre-construction common frog breeding survey will be undertaken to assess frog spawning activity in the drains on the proposed development site.

Mitigation measures proposed for the operational phase include:-

- The appropriate management and storage of hydrocarbons including the installation of an oil interceptor within the stormwater drainage system;
- 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; and
- The lamp posts/lights within the proposed substation will be cowled to ensure that adjacent vegetation is not illuminated. The substation lighting will only be used when maintenance personnel are present.

6.6 Overall Findings

Overall, residual impacts post-mitigation are assessed as 'none', with the exception of residual impacts on bats and birds, assessed as 'Slight negative' due to cumulative effects with the adjacent Drumlins Park Wind Farm. Following the

implementation of all proposed mitigation measures, the proposed development can be constructed and operated without significant residual effects on biodiversity.

7.0 Land & Soils

7.1 Background

The chapter comprises an assessment of the effect of the proposed development on land and soil. The assessment provides a baseline assessment of the setting of the proposed development in terms of the geological environment, and discusses the likely direct, indirect, cumulative and transboundary effects arising from the construction, operation and decommissioning of the proposed development.

7.2 Methodology

The methodology involved in the assessment involved a desktop study of available information which was supplemented by a site walkover and analysis of site investigations, including trial pits, undertaken at the proposed development site.

7.3 Existing Environment

The proposed development site and surrounding environment are typical of a rolling drumlin landscape. The topography of the proposed development site, which is currently agricultural pasture, is gently sloping to the southwest with elevations ranging between approximately 99m and 105m above sea level across the proposed substation site.

The geology of the proposed development site generally comprises topsoil and subsoil located above shale bedrock. The depth to bedrock at the proposed substation location is deeper than 2.6m and bedrock was not encountered during the site investigations. The geological environment is considered to be similar to the surrounding landscape and there are no designated sites or geological heritage sites in the immediate vicinity of the proposed development site.

7.4 Description of Likely Effects

The excavation of topsoil and subsoil to accommodate the construction of the proposed development represents a permanent direct impact on the land, soil and geology of the site. As the soil types present at the proposed development site are considered to be of particular importance or sensitivity, this is considered to be an acceptable part of the development; however, the effects are considered to be likely, direct, slight/moderate and permanent.

Other effects; such as soil erosion and contamination of soils and compaction; are assessed to be likely, direct, slight and high/medium probability.

During the operational phase, effects are assessed to be limited to accidental spillages of fuel or oil.

The identified effects are not assessed as likely to be significant.

7.5 Mitigation Measures

A comprehensive suite of measures have been proposed to ensure the appropriate management of excavated material, the avoidance of erosion of exposed soil and the avoidance of soil contamination through leakages or spillages.

Where excess topsoil or subsoil material is generated which cannot be utilised for landscaping or reinstatement purposes, it is proposed to develop a dedicated on-site soil storage area immediately south of the proposed substation footprint where

excess excavated material will be stored permanently.

In terms of soil erosion, the extent of soil exposed at any given time will be minimised and, in combination with appropriate surface water management measures to direct water away from exposed soil, the likelihood of erosion will be minimised.

Appropriate measures will be put in place to reduce the likelihood of spillages occurring while an emergency plan will be put in place should a pollution event occur.

7.6 Overall Findings

In conclusion, this assessment has determined that the proposed development will not result in any likely significant effects on land and soil. Where effects are likely to occur, such as soil contamination and erosion, the implementation of appropriate mitigation measures will ensure that the significance of effects is reduced to a negligible and imperceptible level. Where it is not possible to implement mitigation measures, such as in respect of the direct excavation of soil and subsoil, the level of effect is considered to be slight/moderate and will not be significant.

8.0 Water

8.1 Background

The chapter comprises an assessment of the effect of the proposed development on water. The assessment provides a baseline assessment of the setting of the proposed development in terms of the hydrological environment, and discusses the likely direct, indirect, cumulative and transboundary effects arising from the construction, operation and decommissioning of the proposed development.

8.2 Methodology

The methodology involved in the assessment involved a desktop study of available information which was supplemented by a site walkover, analysis of site investigations (trial pits), and the undertaking of baseline surface water quality sampling.

8.3 Existing Environment

The proposed development site and surrounding environment are typical of a rolling drumlin landscape. The topography of the proposed development site, which is currently agricultural pasture, is gently sloping to the southwest with elevations ranging between approximately 99m and 105m above sea level across the proposed substation site.

The proposed development site is drained by man-made agricultural drains with the nearest natural watercourse to the development site being the Bunnoe River, located approximately 125m southeast of the end mast locations (520m southeast of the proposed substation footprint).

At a regional level, the proposed development site is located in the Lough Erne surface water catchment within the North Western International River Basin District. On a more local scale, the proposed development site is located in the Annalee River surface water catchment. The site itself drains into the Annalee River via the Bunnoe River.

8.4 Description of Likely Effects

Due to the nature of the development, which will involve near surface construction activities and will not require deep excavations, impacts on groundwater are

assessed to be negligible. The primary risk to groundwater at the site would be from hydrocarbon spillage and leakages during refuelling. These are common potential impacts to all construction sites (such as road works and industrial sites).

Surface water is, therefore, assessed to be the main sensitive receptor. Surface water is assessed as likely to be impacted through excavated material (topsoil and subsoil), dirty water, oils/fuels or cement being discharged to watercourses. These effects are assessed to be indirect, temporary and likely with the significance of the effect ranging from slight to significant.

During the operational phase, effects are assessed as being limited to the accidental leakage or spillage of oils/fuels or wastewater from toilet facilities within the substation control buildings.

8.5 Mitigation Measures

Two methods will be employed to control drainage water within the proposed development site during construction. The first method involves 'keeping clean water clean' by directing clean water away from the construction area to ensure it does not become contaminated with silt/soil.

The second method involves collecting water from construction areas within the proposed development site that might carry silt to allow for it to be treated prior to being returned to the natural drainage network. During the construction phase all runoff will be treated to a high quality prior to being released.

An extensive suite of measures have been proposed, including the implementation of a Surface Water Management Plan, to guarantee that 'dirty water' is properly treated before being discharged.

During the operational phase, drainage control measures will ensure that surface runoff from the site will continue to be of good quality and no impacts on surface water quality are anticipated.

8.6 Overall Findings

In consideration of the relatively small footprint of the proposed development, the localised nature of the works and the proposed mitigation measures, there is no likelihood for the proposed development to contribute to or result in significant hydrological/water quality effects. Overall, no significant impacts on the water environment are anticipated during the construction or operational phases of the proposed development.

9 Air Quality & Climate

9.1 Background

The chapter comprises an assessment of the effect of the proposed development on air quality and climate. The assessment provides a baseline assessment of the setting of the proposed development in terms of air quality and climate, and discusses the likely effects that the construction, operation and decommissioning of the proposed development will have on them.

9.2 Methodology

The methodology involved in the assessment involves carrying out an evaluation of the likely effects of the development, in terms of the generation of dust and other emissions, in comparison with recognised suitable limits for such emissions. The assessment considers the generation of dust and vehicle emissions during the

construction phase while assessing the whether the development could result in impacts during its operational phase. As the project is associated with a wind farm, an evaluation is also made regarding the contribution to the generation of renewable electricity arising from the proposed development.

9.3 Existing Environment

The local environment, which contains only 5 no. dwellings located within 400m of the proposed development site, is considered to be of Low sensitivity due to the sparsely populated nature of the locality.

Baseline levels of key air quality indicators were found to be substantially below the acceptable levels across a range of criteria. The proposed development site, located in rural County Monaghan, is considered to have similar air quality characteristics as an Environmental Protection Agency (EPA) monitoring site at Kilkitt, Co. Monaghan.

9.4 Description of Likely Effects

Construction phase effects; including in terms of demolition works, excavations and groundworks and construction activities; have been assessed in terms of the effects of dust in the environment and effects on human health. Overall, it is concluded that the construction of the proposed development is not of a scale or will involve activities of a sufficient scale which would result in a significant effect on local air quality nor is it likely to generate significant quantities of dust.

During the operational phase, no dust emissions are likely to be generated by the development due to the general absence of activities at the development site. Vehicles which will be used during the maintenance of the site will not generate significant emissions and will be substantially outweighed by the export of renewable electricity generated at the Drumlins Park Wind Farm to the national electricity grid.

9.5 Mitigation Measures

A range of mitigation measures, generally relating to the construction phase, have been proposed to minimise any effects. These measures are contained in a Dust Minimisation Plan and include:-

- The maintenance of access tracks and public roads;
- Careful management of deliveries which may cause dust to rise;
- Regular inspections of the local road network; and
- Removal of mud or debris from wheels of vehicles before leaving the proposed development site.

9.6 Overall Findings

The assessment concludes that any adverse construction phase effects on air quality and climate will ranging from Low to Negligible and therefore no likely significant adverse effect on the environment. During the operational phase, the development will result in a long term positive effect on both air quality and climate.

Overall, air quality and climate effects are not assessed as likely to be significant.

10 Landscape

10.1 Background

This chapter has been prepared to assess the likelihood of significant impacts or effects which the construction and operation of the proposed development may have on the landscape.

Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the proposed development, which may alter its character, and how the landscape is experienced. Visual Impact Assessment (VIA) relates to assessing effects on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes to the landscape

10.2 Methodology

The methodology involved a desk study to establish an appropriate study area, review relevant legislation and guidance and to select appropriate locations from which to carry out a visual assessment of the proposed development. Fieldwork was then undertaken to record the characteristics of the landscape, to refine the selection of visual assessment locations and to capture imagery for the preparation of photo-realistic representations of the proposed development.

10.3 Existing Environment

The landform of the study area is primarily comprised of rolling drumlin hills and ridges formed during periods of glaciation, the majority of which rise to similar elevations. The site itself gently drains in a southerly direction into a small agricultural drain that merges with the Bunnoe River. The Bunnoe River flows through the southern and eastern portions of the study area and is located just over c. 125m southeast of the proposed development at its nearest point (i.e. proposed end masts).

Vegetation within the study area is relatively uniform comprising of rolling agricultural farmland mainly consisting of good quality pasture. The modest sized fields are often bound by a mix of dense tree lined hedgerows and low-clipped hedgerows.

The proposed substation development is wholly situated within Landscape Character Type 'LCT 4 – Farmed Foothills' as described in the Monaghan County Development Plan 2019-2025. In terms of Landscape Character Areas, the proposed development is situated within 'LCA 7 – Ballybay Castleblaney Lakelands'.

10.4 Description of Likely Effects

Physical landscape impacts will occur during the construction phase at the proposed development site. This will result from ground disturbance at the proposed substation footprint, associated access track and site entrances, underground cable trenching and construction of the proposed end masts.

In addition to the physical disturbance of the landform and land cover within the proposed development site during construction, there will also be temporary effects on the landscape character of the site and its immediate surrounding landscape. This will occur due to the intensity of construction activities, which will involve the frequent movement of construction vehicles to and from the site and within the site. There will be site welfare facilities and vehicle parking as well as areas of the site dedicated to the storage of excavated earth and building materials. Cranes and partially completed structures will also be characteristic elements of the construction phase which will be more visible from a broader area than surface level construction activities.

During the operational phase, the main effect of the proposed development will be an increased sense of industrialisation and intensity of built development within this predominantly rural setting. It will also contribute to the diversity of land use, slightly diminishing the integrity of this quiet rural landscape setting.

A set of photomontages have also been prepared to represent the two nearby associated developments for potential cumulative effects; namely the permitted Drumlins Park Wind Farm and existing Lisdrum-Shankill overhead electricity transmission line. It is assessed that the proposed development will contribute to the intensity of built development and particularly electrical infrastructure in this area, but in a very localised way and only to a degree that is consistent with the surrounding landscape.

10.5 Mitigation Measures

As part of the design process, detailed consideration was given to the appropriate siting of the proposed development to ensure that it would be located in an area capable of absorbing it and where it would not be overly prominent within the surrounding landscape. The overall site design also sought to maximise the retention of existing hedgerows within and around the site to aid visual screening and to maintain the existing field pattern.

In addition, planting is proposed around the perimeter of the proposed development. However, it should be noted that while will have a limited effect in screening the proposed development; it will assist in absorbing the development into the surrounding landscape and maintaining field patterns through the provision of additional hedgerow. The reinstatement and landscaping of the site will mitigate any short term adverse effects on the local landscape. As part of the reinstatement and landscaping process, replanting of hedgerows will be completed at the site entrance. This planting will be located behind the visibility splay to allow for future growth and will ensure that extensive views of the proposed development are not afforded from the local road.

10.6 Overall Findings

Overall, it has been assessed that there is no likelihood of significant landscape effects arising as a result of the construction and operation of the proposed development either individually or in combination with other existing, permitted or proposed developments.

11 Cultural Heritage

11.1 Background

This chapter has been prepared to assess and define any likely significant impacts or effects which the construction and operation of the proposed development may have on the archaeological, architectural and cultural heritage resource. The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects.

11.2 Methodology

A 1km study area has been applied around the proposed development to assess for the presence of statutorily protected archaeological remains or structures recorded on the National Inventory of Architectural Heritage (NIAH). A 3km study area has been applied to assess for the presence of any World Heritage Sites, sites included in the Tentative List as consideration for nomination to the World Heritage List, National Monuments, sites with Preservation Orders or Temporary Orders, Protected Structures, Conservation Areas or Proposed Conservation Areas. An assessment has also been made of any historic gardens or designed landscapes that may exist within the proposed development site.

11.3 Existing Environment

There are no Recorded Monuments or any additional statutorily protected archaeological, architectural or cultural heritage features within the footprint of the proposed development. There are seven Recorded Monuments and three NIAH structures within 1km of the proposed development and five Protected Structures within 3km of the proposed development.

11.4 Description of Likely Effects

There will be no direct construction phase effect on the recorded archaeological, architectural or cultural heritage resource. It is assessed that there will be a likely permanent, direct and imperceptible construction phase effect on any previously unrecorded archaeological remains that may exist within the development area and which may be discovered during the construction phase. It is assessed that there will be no direct construction phase effect on the seven Recorded Monuments or three NIAH structures within 1km of the proposed development. It is assessed that there will be an imperceptible construction phase visual and noise effect on these seven Recorded Monuments and three NIAH structures. Following completion of the construction phase, these imperceptible effects will be reversed.

It is assessed that there will be a likely long-term, imperceptible to not significant operational phase visual effect on the seven Recorded Monuments and three NIAH structures within 1km of the proposed development and a likely long-term, imperceptible operational phase visual effect on the five Protected Structures within 3km of the proposed development. It is assessed that there will be no operational phase noise effect on the archaeological or architectural resource. It is assessed that the proposed development will not result in a likely significant operational phase effect on the archaeological or architectural resource.

There are no protected cultural heritage features within the footprint of the proposed development or proximate to it such that adverse effects could be experienced during the construction or operational phases. It is assessed that the proposed development will not result in any likely significant construction or operational phase direct or indirect effects on the cultural heritage resource.

11.5 Mitigation Measures

Archaeological monitoring of all excavations associated with the construction of the proposed development shall be carried out. Monitoring will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during monitoring.

11.6 Overall Findings

It is assessed that there will be no likely residual effects during the construction phase of the proposed development. It is assessed that there will be a likely residual, long-term, imperceptible to not significant operational phase visual effect on seven Recorded Monuments and three NIAH structures. It is assessed that there will be a likely residual, long-term, imperceptible operational phase visual effect on five Protected Structures.

It is assessed that the proposed development will not result in any likely significant cumulative effects with other existing, permitted or proposed developments.

Given that the EIA and Monaghan County Council concluded that the permitted

wind farm would not result in any likely significant effects on the historical built environment, the fact that there have been no changes to the existing environment or policy context, and that effects resulting from the proposed development are unlikely to be significant; it follows that cumulative effects between the Drumlins Park Wind Farm, the proposed development, and other existing, permitted and proposed developments are unlikely to occur. In the event that any effects do arise, they are highly unlikely to be significant.

12 Noise & Vibration

12.1 Background

This chapter has been prepared to assess and define any likely significant noise and vibration impacts or effects which the construction and operation of the proposed development may have on nearby sensitive receptors. The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects.

12.2 Methodology

The methodology followed in preparing this chapter included a desk based review of appropriate guidance and criteria, undertaking of a baseline noise monitoring survey, prediction of construction and operational phase noise levels and discussion on the implementation of mitigation measures as required.

12.3 Existing Environment

Baseline noise monitoring was undertaken by installing an unattended sound level meter within the proposed development site. The noise survey found that the existing environment is typical of rural Ireland which noise being generated by wind noise in foliage, birdsong, local road traffic noise and other agricultural activities. No unusual noise sources were recorded.

No existing sources of vibration are presented within the proposed development site or its vicinity.

12.4 Description of Likely Effects

When assessing a proposed development of this nature, it is necessary to assess the short-term construction effects and long-term operational effects.

During the construction phase, noise will be generated by plant and machinery and by HGVs associated with the delivery of materials to the construction site. The proposed substation, at which the vast majority of construction activity will take place, is located a sufficient distance from dwellings that significant noise effects will not occur. Construction work associated with the proposed grid connection will be undertaken in close proximity to 2 no. dwellings and, for a short duration of 1-2 no. days; it is predicted that noise levels may exceed appropriate limits. However, given the extremely short duration of works at this location, the effects are not predicted to be significant.

During the operational phase, the proposed substation will not result in noticeable noise levels and, due to the separation distance to the nearest dwellings, significant effects will not occur. The proposed grid connection will not generate any noise during the operational phase.

During the construction phase, small levels of vibration may arise from the

movement of construction vehicles; however, vibration will not be experienced beyond the construction area and will not affect any dwellings.

12.5 Mitigation Measures

As the proposed development will not result in the generation of significant noise or vibration levels, specific mitigation measures are not required. However, the proposed development will be constructed in accordance with all best practice guidelines regarding the management of construction sites which will include measures related to the minimisation of noise and vibration.

12.6 Overall Findings

It is assessed that the proposed development, individually or in combination with other developments will not result in significant levels of noise or vibration during either the construction or operational phases.

13 Shadow Flicker

Due to the absence of tall structures or moving parts, there is no possibility for the proposed development to generate shadow flicker.

The permitted Drumlins Park Wind Farm has been re-evaluated to determine whether there have been any changes to the baseline environment which could conflict with the shadow flicker assessment undertaken previously. The receiving environment has not changed since the assessment of likely shadow flicker effects arising from the Drumlins Park Wind Farm was undertaken given that no additional dwellings have been permitted or constructed. Therefore, a full re-assessment of the likely shadow flicker effects of the permitted Drumlins Park Wind Farm is not necessary.

14 Material Assets

14.1 Transport & Access

14.1.1 Background

This chapter has been prepared to assess and define any likely significant impacts or effects which the construction and operation of the proposed development may have on transport and access. The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects.

14.1.2 Methodology

The methodology followed in the preparation of this chapter included a desktop review of relevant transportation policy and appropriate guidance; a site walkover of the proposed development site and a driven survey of the proposed haul route; and the subsequent evaluation of likely effects and identification of suitable mitigation measures.

14.1.3 Existing Environment

The road network in the vicinity of the proposed development site generally comprises regional and local roads. The R189, R183 and R188 regional roads, which are also likely to be used in the delivery of construction materials, each have an 80km/h speed limit and are approximately 6m wide. The roads are generally in good condition with road markings; however, have no pedestrian walkways or road lighting in rural areas.

The proposed development site will be accessed through a combination of public roads and private access tracks associated with the permitted Drumlins Park Wind Farm. All construction vehicles will be instructed to utilise the national and regional road network and to avoid local roads insofar as possible. As a result, all construction traffic will access the proposed development site from the R189, utilising access tracks (for c. 2km) and site entrances associated with the permitted wind farm to their junction with the LT62013. At this junction, construction traffic will turn in a south easterly direction and will follow the LT62013 to the proposed site entrances

14.1.4 Description of Likely Effects

The construction period of the proposed development is estimated to have a duration of approximately 15-18 months, with the majority of traffic movements being associated with the construction of the substation compound and the delivery of electrical equipment. During this period, trips will be associated with the arrival and departure of construction staff; the delivery of aggregates, ready-mix concrete and electrical equipment; and the removal of waste.

The construction phase of the proposed development will comprise a six-day week with normal working hours from 07:00 to 19.00 Monday to Friday and 07:00 to 13.00 on Saturdays.

To accommodate construction traffic along the LT62013, it is proposed that the existing carriageway will be increased from its current width of c. 2.5m to c. 4m. These works will include the hardcoreing of existing grass verges and trimming back of roadside vegetation and hedgerows; however, is not proposed to remove any hedgerows. A number of overhanging tree branches will also be removed.

It is estimated that during civil construction, approximately 1,772 no. loads will be delivered to site. Assuming a 15 month civil works construction phase, this equates to approximately 118 no. loads per month or an average of 6 no. loads per day excluding Sundays and public holidays. The majority of civil construction material, such as aggregates, concrete and building materials will be delivered to site using standard rigid trucks, HGVs and ready-mix trucks.

Following the completion of construction works, it is estimated that approximately 25 no. loads will be needed to remove all temporary equipment, plant and machinery and materials used on site.

Operational phase monitoring activities will be carried out, remotely, on an ongoing basis. However, regular visits to the site will be undertaken for routine inspections and maintenance. Under normal circumstances, the operation of the proposed development will require 1-2 no. visits to the site per week by maintenance personnel.

14.1.5 Mitigation Measures

A range of mitigation measures have been proposed to ensure that traffic is appropriately managed, and that the effects on the road network and on access for local residents are minimised. These measures include the implementation of a comprehensive Traffic Management Plan including the traffic diversions as necessary, strict working hours, careful scheduling of traffic movements and wheel washing to ensure debris is not transferred to the local road network. The local road network will also be monitored to ensure that no structural damage is caused and, where necessary, remedial works will be undertaken.

14.1.6 Overall Findings

It is assessed that there will be no likely residual effects during the construction phase or operational phase of the proposed development. The implementation of the above measures will ensure that local access is maintained, insofar as possible, and that there are no long term effects on the road network.

14.2 Aviation

14.2.1 Background

The proposed development is not, due to the absence of tall structures, a type of development which is likely to affect aviation. However, given that the proposed development forms part of the overall Drumlins Park Wind Farm, which will consist of 8 no. wind turbines, it has been considered appropriate to re-evaluate the likelihood of aviation effects as a result of the project as a whole.

14.2.2 Methodology

Consultation was undertaken with the Irish Aviation Authority (IAA) and Department of Defence to establish if any effects on aviation were likely. The Irish Aviation Authority responded, stating that it had no observations to make on the proposed development while no response was received from the Department of Defence. In addition, a publication by the Air Corps regarding wind turbines and tall structures was also examined.

14.2.3 Existing Environment

There are no major airports in the vicinity of the proposed development and the site is therefore assessed as being unconstrained. The proposed development is located c. 100km northwest of Dublin Airport and c. 85km south west of Belfast International Airport.

According to the IAA, there are no aerodromes or airstrips in the immediate vicinity of the proposed development or indeed within counties Monaghan or Cavan. The nearest aerodrome in the Republic of Ireland is at Athboy in County Meath at an approximate distance of 60km while the Abbeyshrule Aerodrome in Longford is located c. 68km distant. In Northern Ireland, St. Angelo Airport (Enniskillen) is located c. 42km northwest of the proposed development site. St. Angelo Airport does not accommodate commercial flights and is largely used for private flights or pilot training.

The proposed development site is not located within any low flying areas, restricted areas, danger areas or low level routes identified within the *Air Corps Wind Farm/Tall Structures Position Paper*.

14.2.4 Description of Likely Effects

The assessment concludes that the proposed development is unlikely to result in any significant effect on aviation.

14.2.5 Mitigation Measures

No mitigation measures, specific to the proposed development are required.

14.2.6 Overall Findings

This assessment concludes that the proposed development is unlikely to result in any significant effect on aviation. The proposed development does not comprise particularly tall structures which could pose a risk to military or civilian aviation operations.

14.3 Telecommunications

14.3.1 Background

This section considers the likely effects of the proposed development upon a range of communications infrastructure, including telecommunication networks, broadcast radio and television and fixed infrastructure such as telecommunication masts. In theory, given the nature of the proposed development and the absence of tall structures, interference or adverse effects are unlikely.

14.3.2 Methodology

The methodology followed to assess the likelihood of significant effects on telecommunication networks consisted of desk based research and consultation with various telecommunication companies and relevant authorities.

14.3.3 Existing Environment

The consultations and desk research demonstrated that the proposed development site is not a significant location for telecommunication links. The locations of existing telecommunication masts in the local area can be found at the Commission for Communications Regulations (<http://siteviewer.comreg.ie/#explore>).

14.3.4 Description of Likely Effects

While there are telecommunication masts located within the local area, including mobile phone masts, the detailed consultation process has not identified the likelihood of any interference with existing telecommunication links.

14.3.5 Mitigation Measures

The proposed development is not likely to result in any effects on telecommunications and, therefore, no mitigation measures are necessary. A range of technological measures were proposed as part of the Drumlins Park Wind Farm and the implementation of these will avoid any interference with telecommunication signals.

14.3.6 Overall Findings

It can be concluded that, on the basis of a desktop assessment and extensive consultation with stakeholders, the proposed development will not result in likely significant effects on the telecommunications network.

14.4 Resources & Utility Infrastructure

14.4.1 Background

This section provides details of the likelihood of significant effects or interactions with existing renewable and non-renewable resources and existing utility infrastructure; including existing or permitted wind farms, quarries, mining operations and utility infrastructure (electricity lines and phone lines).

14.4.2 Methodology

The methodology followed in this assessment involved a desk based study to identify resources and utility infrastructure which could be affected by the proposed development followed by an evaluation, based on experience, as to whether these resources were likely to be affected.

14.4.3 Existing Environment

Within County Monaghan (and the nearby areas of County Cavan), there are a

number of existing operational and permitted wind farm developments while there are also a large number of single wind turbines present in County Fermanagh. Existing quarries are scattered throughout Monaghan and Cavan and some will be used to source construction materials. There are also ongoing mining operations in Clontibret and Carrickmacross, Co. Monaghan.

There is also the presence of utility infrastructure, with overhead electricity lines connecting to the majority of dwellings, medium and high voltage electricity lines traversing the landscape and telecommunication lines located adjacent to the majority of local roads.

14.4.4 Description of Likely Effects

The construction phase of the proposed development is not likely to have any significant effects on existing resources or utility infrastructure. The construction phase will not restrict the export of energy generated from other sources nor will it impact upon existing utility services. While there is a possibility interaction with utility services (e.g. accidental collision with overhead wires during the construction phase), this can be mitigated through good construction practices.

The construction phase will result in the extraction of non-renewable resources in the form of stone and gravel for the construction of access tracks and concrete for building foundations and electrical equipment plinths. However, stone and gravel will only be sourced from quarries with have full planning permission.

The operational phase of the proposed development will not result in any effect on existing utility infrastructure or renewable or non non-renewable resources. The connection of the proposed development to the national grid will strengthen the electricity network infrastructure in the wider region.

14.4.5 Mitigation Measures

No specific mitigation measures are proposed or required during the construction or operational phases.

14.4.6 Overall Findings

This assessment concludes that the proposed development is unlikely to result in negative effects on renewable and non-renewable resources or on utilities infrastructure. The operation of the proposed development will bring about a benefit in terms exporting electricity generated from a renewable source to the national grid and a strengthening of national electricity grid infrastructure in County Monaghan.

15 Interactions of the Foregoing

All environmental factors are interrelated to some degree. The assessment of these interactions is an important requirement of the environmental impact assessment process. Having assessed the interaction of likely effects during the construction and operational phases, the likely interactions are not assessed as likely to result in any effects that could magnify effects through the interaction or accumulation of effects.

16 Summary of Effects

This Non-Technical Summary has outlined, in summary format, the findings of the EIAR for the proposed development. Full details are set out in the EIAR and its accompanying technical appendices.

The EIAR has assessed that any likely adverse effects of the proposed development, and their interactions, can be managed and mitigated and that there are lasting social and environmental benefits as a result of the proposed development. Whilst the proposed development will have some minor residual effects on the local environment, these will be addressed through mitigation measures, good management and proposed construction techniques and are not assessed as likely to be significant.

The proposed development, in combination with the permitted Drumlins Park Wind Farm, will make a positive contribution to sustainable energy generation in Ireland and will also help diversify and sustain the rural economy through construction, as well as operation and maintenance activities. Overall, the combined effects which have been assessed within this EIAR demonstrate that the proposed development will not result in a likely significant adverse effect on the environment.

