Drumlins Park Wind Farm Substation & Grid Connection, Co. Monaghan

NATURA IMPACT STATEMENT

12th November 2020

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EXECUTIVE SUMMARY

This Natura Impact Statement (NIS) assesses the likely significant effects from the proposed Drumlins Park Wind Farm Substation & Grid Connection on the Upper Lough Erne Special Protection Area (SPA) and Special Area of Conservation (SAC), the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA. The proposed development will facilitate the export of renewable electricity generated at the permitted Drumlins Park Wind Farm (Monaghan County Council Planning Register Reference 19/486) to the national electricity grid. The proposed development site is located in northwest Co. Monaghan approximately 4km southwest of the village of Newbliss. The proposed development will comprise a 110KV electricity substation including all associated development works to accommodate its construction, operation, maintenance and export of electrical power generated by the permitted Drumlins Park Wind Farm to the national grid via the existing Lisdrum-Shankill overhead electricity transmission line.

The screening matrix identified the potential for impacts on the Upper Lough Erne SPA, the Upper Lough Erne SAC, the Lough Erne and Associated Loughs SAC and the Lough Erne Complex SPA. There is a downstream hydrological connection to the above sites via the River Bunnoe, which is c. 125m from the proposed development site. Additionally, the potential for cumulative impacts regarding the already permitted Drumlins Park Wind Farm development was noted assessed.

The proposed development is located at a considerable distance upstream of the designated sites, with c. 21.7rkm being the shortest distance, to the Lough Oughter and Associated Loughs SAC, and 26.7rkm to the Lough Oughter Complex SPA. The proposed development site is located c. 49rkm upstream of the Upper Lough Erne SAC and SPA. It was determined that water quality, invasive species and collision risk with overhead structures had only limited potential to arise, even in the absence of mitigation. Due to the diluting effects which would occur over the substantial distances between the proposed development site and the identified Natura 2000 sites, it is considered very unlikely that any low-magnitude localised impacts could affect any of the qualifying interests of the Natura 2000 sites. Similarly, due to large separation distances, no significant adverse impacts are likely to arise in relation to invasive species. Due to low levels of usage of the proposed development site, the nature of the proposed development and underground line, and the separation distances between the SPAs and the proposed development site, there would be no significant impacts arising that would impact bird species in the Natura 2000 network. As a precautionary measure, mitigation measures have been provided to ensure certainty regarding the avoidance of any adverse effects.

It has therefore been concluded that following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted effects arising from the proposed development and with the implementation of mitigation measures proposed, that the proposed development does not pose a risk of adversely affecting the integrity of any Natura 2000 site, either alone or in combination with other plans and projects.

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1. INTRODUCTION

This Natura Impact Statement (NIS) assesses the likely significant effects from the proposed Drumlins Park Wind Farm Substation & Grid Connection ('the proposed development') on the Upper Lough Erne Special Protection Area (SPA) and Special Area of Conservation (SAC), the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA. The proposed development will facilitate the export of renewable electricity generated at the permitted Drumlins Park Wind Farm (Monaghan County Council Planning Register Reference 19/486) to the national electricity grid. The proposed development site is located in northwest Co. Monaghan approximately 4km southwest of the village of Newbliss. The proposed development will comprise a 110KV electricity substation including all associated development works to accommodate its construction, operation, maintenance and export of electrical power generated by the permitted Drumlins Park Wind Farm to the national grid via the existing Lisdrum-Shankill overhead electricity transmission line.

The preparation of this NIS for Appropriate Assessment is required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are of European Importance and have been designated in accordance with the requirements of the EC Habitats Directive (1992) and EC Birds Directive (2009/147/EC); transposed into Irish legislation as the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). The Habitats Directive, in combination with the Birds Directive (2009), establishes a network of internationally important sites designated for their ecological status; identified as Special Areas of Conservation (SACs) designated under the Habitats Directive for the protection of flora, fauna and habitats and as Special Protection Areas (SPAs) designated under the Birds Directive to protect rare, vulnerable and migratory birds. These sites together form a Europe-wide 'Natura 2000' network of designated sites, referred to in this report as Natura 2000 sites.

This assessment follows the Habitats Directive 92/43/EEC, Article 6(3) and the guidance published by the National Parks and Wildlife Service (DoEHLG, 2010) '*Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*'. The current Natura Impact Statement (NIS) assesses the impact of the proposed residential development at construction and operation stages in relation to direct, indirect and cumulative effects on the Integrity of the Natura 2000 network.

1.1 Background

Ecofact Environmental Consultants Ltd. prepared a Screening for Appropriate Assessment and NIS in respect of the now permitted adjacent Drumlins Park Wind Farm development (Ecofact, 2019a; 2019b and 2019c). At that time, three grid connection options were assessed as the precise point of method of connecting to the national electricity grid could not be confirmed.

The Screening for Appropriate Assessment for the permitted wind farm and grid connection options identified the possibility of effects on the Upper Lough Erne SAC and SPA, the Lough Oughter and Associated Lakes SAC, the Lough Oughter Complex SPA and the Slieve Beagh SPA (Ecofact, 2019a). The NIS for the permitted wind farm concluded that no effects were likely to arise that could adversely affect the integrity of any Natura 2000 Sites. Mitigation measures were provided to ensure the protection of local water quality and biosecurity while bird diverters were also proposed for the overhead line grid connection options located within close proximity of waterbodies (Ecofact, 2019b).

The proposed development, which was previously assessed as Option G3, was considered to be the best solution of the proposed routes in terms of ecological impact. This option was found to have

minimal impact on the receiving environment, in terms of local ecology and the Natura 2000 network. Following the selection of the proposed development as the preferred means of connecting the Drumlins Park Wind Farm to the national electricity grid, a further assessment of the precise elements of the proposed development has been undertaken.

1.2 Consultation

The following statutory bodies provided information via publicly available sources for this report:

- National Parks and Wildlife Service (NPWS);
- Inland Fisheries Ireland (IFI);
- Environmental Protection Agency (EPA);
- National Biodiversity Data Centre (NBDC).

1.3 Legislative context

This assessment takes account of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive'* which was transposed into Irish law by the '*European Community (Natural Habitats) Regulations 1997*' (S.I. No. 94/1997). The most recent transposition of this legislation in Ireland is the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The Birds Directive (2009/147/EC) which is now included in the former Regulations seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups within Special Areas of Conservation (SACs), which are designated or proposed as candidate Special Areas of Conservation (cSACs). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community. Article 6, paragraphs 3 and 4 of the EC 'Habitats' Directive (1992) state that:

> *6(3) 'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'*
>
> *6(4) 'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and / or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.'*

In addition, the European Court of Justice in Case C-127/02 (the "Waddenzee Ruling") has made a relevant ruling in relation to Appropriate Assessment and this is reflected in the current assessment:

> *'Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects" and that the plan or project may only be authorised "where no reasonable scientific doubt remains as to the absence of such effects.'*

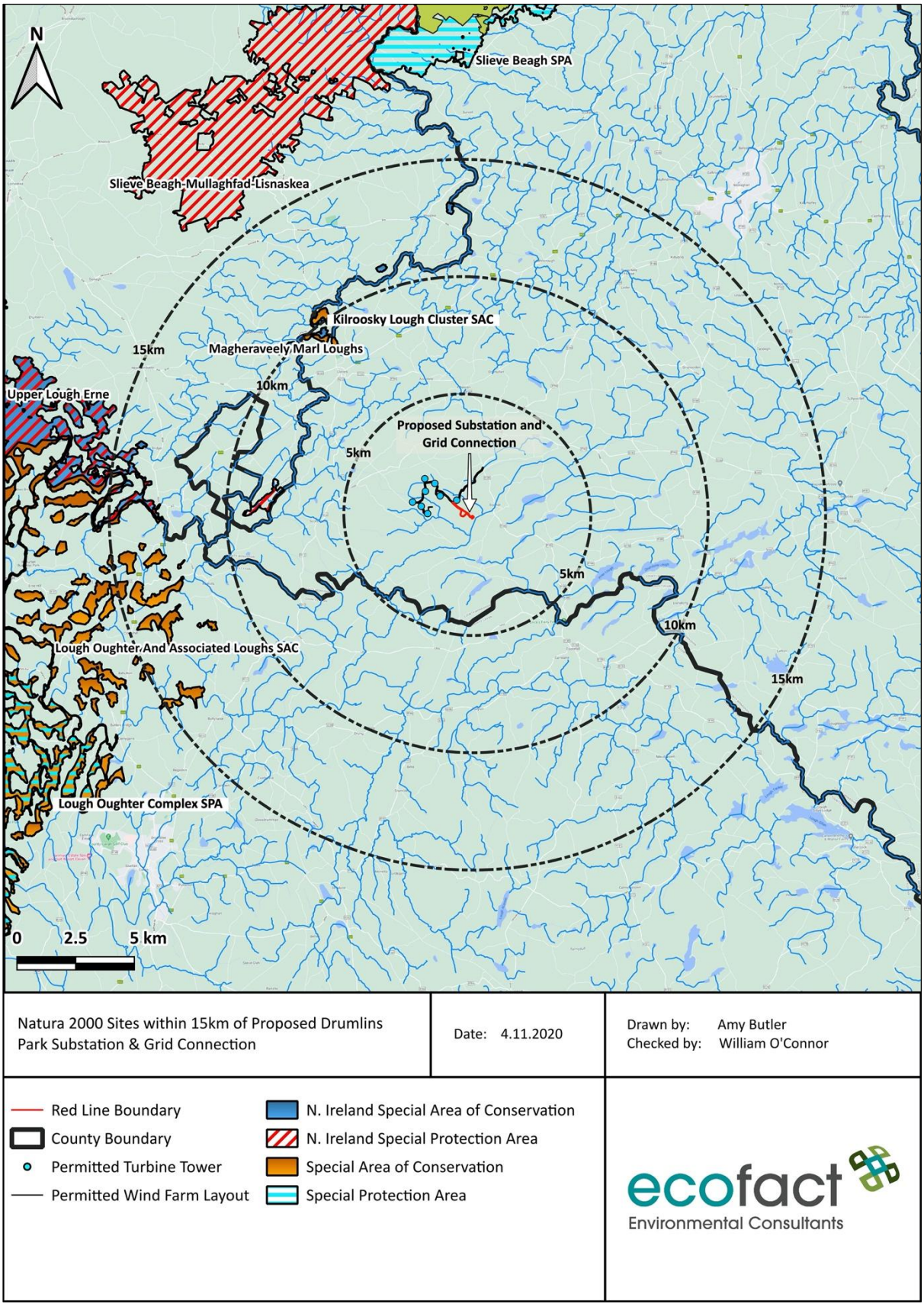

Figure 1 Natura 2000 Sites within 15km of Proposed Drumlins Park Wind Farm Substation & Grid Connection.

2. METHODOLOGY

2.1 Desktop Review

A desktop study was undertaken to identify the extent and scope of the potentially affected Natura 2000 sites within the current study area, in relation to the proposed development. The desktop study identified the conservation interests of the designated sites with respect to the qualifying interests (species and habitats) relevant to the designated sites within the area.

A review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of the EPA, NPWS and the IFI were also reviewed. Information sources reviewed included the NPWS site synopses, as well as protected species data held on the NPWS online database. The National Biodiversity Data Centre website was accessed for previous records of protected species in the area. A full bibliography of information sources reviewed is provided in the reference section.

2.2 Site Survey

The proposed development site was visited for walkover surveys during July and September 2020. The site was also visited periodically through the 2019/2020 wintering bird surveys and the 2020 breeding bird surveys. The proposed development site was checked for evidence of ecological features of high conservation concern such as those flora and fauna that occur in the closest Natura 2000 sites.

2.2.1 Bird Surveys of Adjacent Permitted Drumlins Park Wind Farm

Extensive bird surveys have been undertaken for the adjacent permitted Drumlins Park Wind Farm, which provide coverage of the proposed development site. Over a total of 66 days bird survey work was undertaken at the permitted wind farm site during the period January 2017 to August 2020. The surveys included detailed wintering and breeding bird surveys. The survey work included formal vantage point surveys at three vantage points and also general surveys with results-driven observations. While the survey focused on areas with appropriate views of the then proposed wind farm site at the vantage points, areas which contained habitats of potential importance to birds of conservation importance were also surveyed.

The surveys had regard to the Scottish Natural Heritage Guidance *'Recommended bird survey methods to inform impact assessment of onshore wind farms'* (SNH, 2017). As well as completing full day vantage point surveys, due to the known presence of Whooper Swans at lakes in the local study area and *ad hoc* sightings of these birds in the vicinity of the then proposed wind farm site, local lakes were checked during general surveys. It is noted in the SNH guidance that target species, such as birds listed on Annex I of the EC Birds Directive or Schedule 1 of the Wildlife Act of Red-listed Birds of Conservation Concern, should be given appropriate consideration. This includes Whooper Swans which are listed on Annex I of the EC Birds Directive, and Golden Plover. General surveys while travelling between vantage points or local lakes were also undertaken and any species observed during these general surveys were recorded.

The surveys completed were as follows: -

- 2017 winter bird surveys conducted from January 2017 to March 2017 and involved 4 full days survey work (Ecofact 2019d);
- 2017 breeding bird surveys conducted from April to June 2017 and involved 4 full days survey work (Ecofact 2019e);
- 2017-18 winter bird surveys completed over 10 full days extending from November 2017 to March 2018 (Ecofact 2019f);
- The 2018 breeding bird surveys completed over 10 full days extending from March 2018 to July 2018 (Ecofact 2019g);
- 2018-2019 winter bird surveys conducted from October 2018 to March 2019 and involved 10 full days survey work (Ecofact 2019h);
- 2019 breeding bird surveys were undertaken from April 2019 to July 2019 and involved 10 full days survey work (Ecofact 2019i).
- 2019-20 wintering bird surveys were undertaken from November 2019 to March 2020 and involved a total of 10 full days survey work (Ecofact, 2020b)
- 2020 breeding bird surveys were undertaken from April 2020 to September 2020 and involved 8 full days survey work (Ecofact, 2020c).

2.3 Appropriate Assessment Methodology

The preparation of this NIS for Appropriate Assessment follows the requirements of Article 6(3) of the Habitats Directive 92/43/EEC and the guidance published by DoEHLG (2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'*. According to these guidelines, assessing the impacts of a project or plan on a Natura 2000 site is a four staged approach, as described below:

- ***Stage One: Screening / Test of Significance*** - The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;
- ***Stage Two: Appropriate Assessment*** - The consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
- ***Stage Three: Assessment of Alternative Solutions*** - The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and
- ***Stage Four: Assessment Where Adverse Impacts Remain*** - An assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

2.3.1 Natura Impact Assessment

A Natura Impact Statement (NIS) considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes

any mitigation measures necessary to avoid, reduce or offset negative effects. The current report is set out in the format of a NIS and comprises a scientific examination of the plan / project and the relevant Natura 2000 sites; to identify and characterize any possible implications for the site in view of the site's conservation objectives, structure and function, taking account of in combination effects. The requirements for Appropriate Assessment derive directly from Article 6(3) of the EU Habitats Directive (1992).

Direct and indirect impacts in isolation or in combination with other plans and projects on the identified Natura 2000 sites in view of the sites' conservation objectives have been examined. Case law of the European Court of Justice (ECJ) has established that Appropriate Assessment must be based on best scientific knowledge in the field. These are the qualifying interests i.e. Annex I habitats, Annex I bird species (EU Birds Directive, incorporated into the EU Habitats Directive) and Annex II species hosted by a site and for which that site has been selected. The conservation objectives for Natura sites (SACs and SPAs) are determined under Article 4 of the Habitats Directive and are intended to ensure that the relevant qualifying interests i.e. Annex I habitats, Annex I bird species and Annex II species present within the designated sites are maintained in a favourable condition.

This assessment provides a description of the project and the receiving environment. The conservation objectives of the Natura 2000 site potentially affected by the proposal are listed and potential impacts outlined with respect to the integrity of the Natura 2000 site. Mitigation measures have been proposed for the protection of the conservation interests and the avoidance of impacts to Natura 2000 Sites occurring within the study area.

3. DESCRIPTION OF THE PROJECT

The proposed development will comprise a 110kV electricity substation, including all associated development works to accommodate its construction, operation, maintenance and the export of electrical power generated by the permitted Drumlins Park Wind Farm to the national grid via the existing Lisdrum-Shankill overhead electricity transmission line. This will include:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electrical substation, including 2 no. single-storey control buildings (with a Gross Floor Area of 623 square metres); 1 no. transformer bay; 2 no. line bays; and all associated electrical equipment, services and lighting within an up to 2.95 metre high fenced compound (with a total footprint of 12,765 square metres);
- 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;
- Replacement of 1 no. existing wooden 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 upgrade works to the LT62013 and the provision of site drainage infrastructure and surface water protection measures.

The proposed development will facilitate the export of renewable electricity generated at the permitted Drumlins Park Wind Farm (Monaghan County Council Planning Register Reference 19/486) to the national electricity grid.

The proposed development will comprise a 110kV 'loop-in/loop-out' air-insulated switchroom (AIS). The footprint of the substation (overall compound area) will measure approximately 12,765m2 and will be surrounded by a palisade fence, with associated gates, of up to 2.95m in height for safety and security reasons. The proposed substation will contain 2 no. control buildings and all necessary electrical equipment and apparatus to facilitate the export of electricity to the national grid. Ancillary infrastructure located within the footprint of the compound will include electrical apparatus, light posts and lightning masts.

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

The IPP building will measure approximately 20.1m x 8.6m (total footprint of c. 173m^2) and will have an overall height of 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 equipment such as incoming and outgoing circuit breakers, earth fault, protection devices, metering equipment, computers and servers while also providing welfare facilities for wind farm staff and maintenance personnel. The building will not require a dedicated water source due to infrequent use and the low volumes that will be required (toilet facilities and hand washing). Accordingly, the building design will incorporate a rainwater harvesting system. Wastewater arising will be stored in a sealed foul holding-tank and will be tankered off-site as required by a local licensed waste collector. Potable water will, as required, be delivered to site by an approved local provider.

Water supply and waste water management proposals of this nature are common practice for developments of this type located in remote/rural areas with infrequent usage.

The TSO building will measure approximately 25m x 18m (overall footprint of c. 450m) and will have an overall height of approximately 6.9m (to ridge height). This building shall also be constructed of blockwork and will be finished in sand and cement render, slate roof covering and steel doors. The TSO building will contain a control room to allow operatives monitor and manage the operation of the electrical apparatus and will also include storage and welfare facilities. Similar to the IPP building, a rainwater harvesting system will be implemented and wastewater will be stored in a sealed foul holding-tank and removed from site by a local licensed waste collector.

Access to the proposed substation will be provided by 2 no. new site entrances from the LT62013 local-tertiary public road. The proposed site entrances will not be required to accommodate any abnormal sized loads but have 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 entrances will be constructed in accordance with the requirements of the Local Authority, particularly regarding the provision of appropriate site visibility splays to ensure traffic safety. Following the completion of construction, the site entrances will be appropriately fenced off and gated to prevent unauthorised access. The reinstatement of the site entrances 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. Existing site entrances will be utilised to access the route of the proposed underground electricity line and proposed end mast locations.

A total of approximately 300m (including c. 200m located within the substation compound area) of on-site access tracks will be required for construction purposes and for site access during the operational phase. Access tracks will be unsealed and constructed of crushed stone material to allow for permeability. Initial site investigations have not indicated the presence of suitable material which can be reused in the construction of the access tracks and substation compound and, therefore, it is likely that the majority of material will be imported to the proposed development site from local quarries.

The proposed electricity substation is located c. 380m (in a straight line) northeast of the existing Lisdrum-Shankill overhead electricity transmission line. In order to connect the respective developments, and provide the ‘loop in/loop out’ infrastructure, it is proposed to install c. 700m of underground 110kV electricity transmission line. The underground line (UGL) will be located within private lands with c. 685m located within agricultural lands and across an access track to a private dwelling (i.e. ‘open country’ works) and c. 15m located within private lands immediately adjoining the LT62013.

The end masts will be lattice-type towers and will be located immediately beneath the Lisdrum-Shankill overhead electricity transmission line. The masts will have a maximum height of up to 16m and a permanent above-ground footprint of c. 76m^2 (total; c. 38m^2 per mast) with concrete foundations below ground to a depth of 3m. However, it should again be noted that the precise specifications of the proposed end masts may be immaterially altered to ensure compliance with any future revised Eirgrid specifications.

One of the end masts is proposed to replace an existing wooden pole-set associated with the existing Lisdrum-Shankill overhead electricity transmission line. The proposed end mast will replace this existing pole-set. The wooden poles and electricity line suspension equipment will be

decommissioned and removed from site for re-use or recycling where possible or disposal at a licensed waste handling facility.

4. RECEIVING ENVIRONMENT

4.1 Introduction

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; and approximately centred at Irish Transverse Mercator (ITM) Grid Reference 655369, 819888.

There are also a number of smaller nucleated and crossroad settlements throughout the wider environs of the subject site together with numerous dispersed 'one-off' dwellings and farmsteads outside of any identified settlements. The proposed development site is located in a relatively remote location and benefits from good separation distances to residential dwellings, with just 5 no. inhabited dwellings within 500m of the proposed electricity substation; the nearest of which is c. 290m southeast. 3 no. of the abovementioned dwellings are also located within 100m of the proposed grid connection infrastructure (i.e. underground electricity cabling and end masts). The local landscape comprises a mosaic of 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 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 and also the Dunnaluck 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, located approximately 125m southeast of the proposed end masts at its nearest point. The proposed development site is accessed via a local-tertiary road, the LT62013, which generally experiences extremely low volumes of vehicular movements.

4.2 Baseline Ecology

4.2.1 Permitted Wind Farm Site

The habitats on the permitted wind farm site are of Local Importance only and are habitats that are widespread and common across Ireland. The majority of the site consists of Improved Agricultural Grassland which is species poor. Also present on the site are hedgerows, treelines, drainage ditches, wet grassland, mixed broadleaved woodland and scrub. The south-western, middle and south-eastern sections of the permitted wind farm site consist of wet grassland. All of the turbines are to be located on areas of Improved Agricultural Grassland. The access roads will cross through areas of Improved Agricultural grassland and wet grassland, in addition to cutting through existing hedgerows and treelines. No Annex 1 or protected habitats associated with any of the Natura 2000 sites within 15km

of the proposed development are affected. No Annex II species associated with any of the Natura 2000 sites within 15km have been recorded on the permitted wind farm site (Ecofact, 2019b).

4.2.2 Proposed Development Site

The baseline ecology of the proposed development site is similar to the permitted wind farm site in that it is located directly adjacent. The habitats on the proposed development site are also typically of Local Importance and are habitats that are widespread and common across Ireland and the Co. Monaghan countryside. The predominant habitats at the proposed development site comprise improved agricultural grassland, wet grassland, hedgerows and treelines. The mid-western extent of the site has the largest area of wet grassland, while the north-west and eastern sections are predominantly improved agricultural grassland. There are two main drainage ditches on the site, one of which travels from north to south and one from west to east. There is one local road within the study area which provides access to the proposed substation and end mast sites while the proposed underground electricity line is located within fields adjacent to the local road (Ecofact, 2020a). No Annex 1 or protected habitats associated with any of the Natura 2000 sites within 15km of the proposed development were found to be present. No Annex II species associated with any of the Natura 2000 sites within 15km have been recorded on the proposed development site (Ecofact, 2020a).

4.3 Hydrology

The closest watercourse to the proposed development site is the River Bunnoe (EPA Segment Code: 36_241), which is located c. 125m south-east of the proposed development. This river is located in the same field as the proposed end masts and the land slopes towards the river. At this point, the river is a 3rd order watercourse and flows in a south-westerly direction. It is joined then by the Dunnaluck Stream (EPA Segment Code: 36_654), which drains the Drumlins Park Wind Farm site. The River Bunnoe continues south-westerly before turning south and flows into the River Annalee (EPA Segment Code: 36_231) c. 12.7rkm[1] downstream of the proposed development site. From here, the River Annalee continues in a westerly direction for c. 10rkm before flowing into the boundary of the Lough Oughter and Associated Loughs SAC. A further 5rkm downstream, the River Annalee then flows into the boundary of the Lough Oughter SPA. A total of c. 30.4rkm downstream of the proposed development, the River Annalee flows into the River Erne (EPA Code: 36_898). From here, the river Erne flows in a northerly direction for c. 18.4rkm before reaching the boundary of both the Upper Lough Erne SAC and SPA. The River Erne continues north-west, flowing into the Upper Lough Erne and the Lower Lough Erne before flowing into Donegal Bay at Ballyshannon.

[1] Where the 'rkm' descriptor is used, this refers to the downstream distance via hydrological pathway. Where the 'km' descriptor is used, this refers to a direct overland distance.

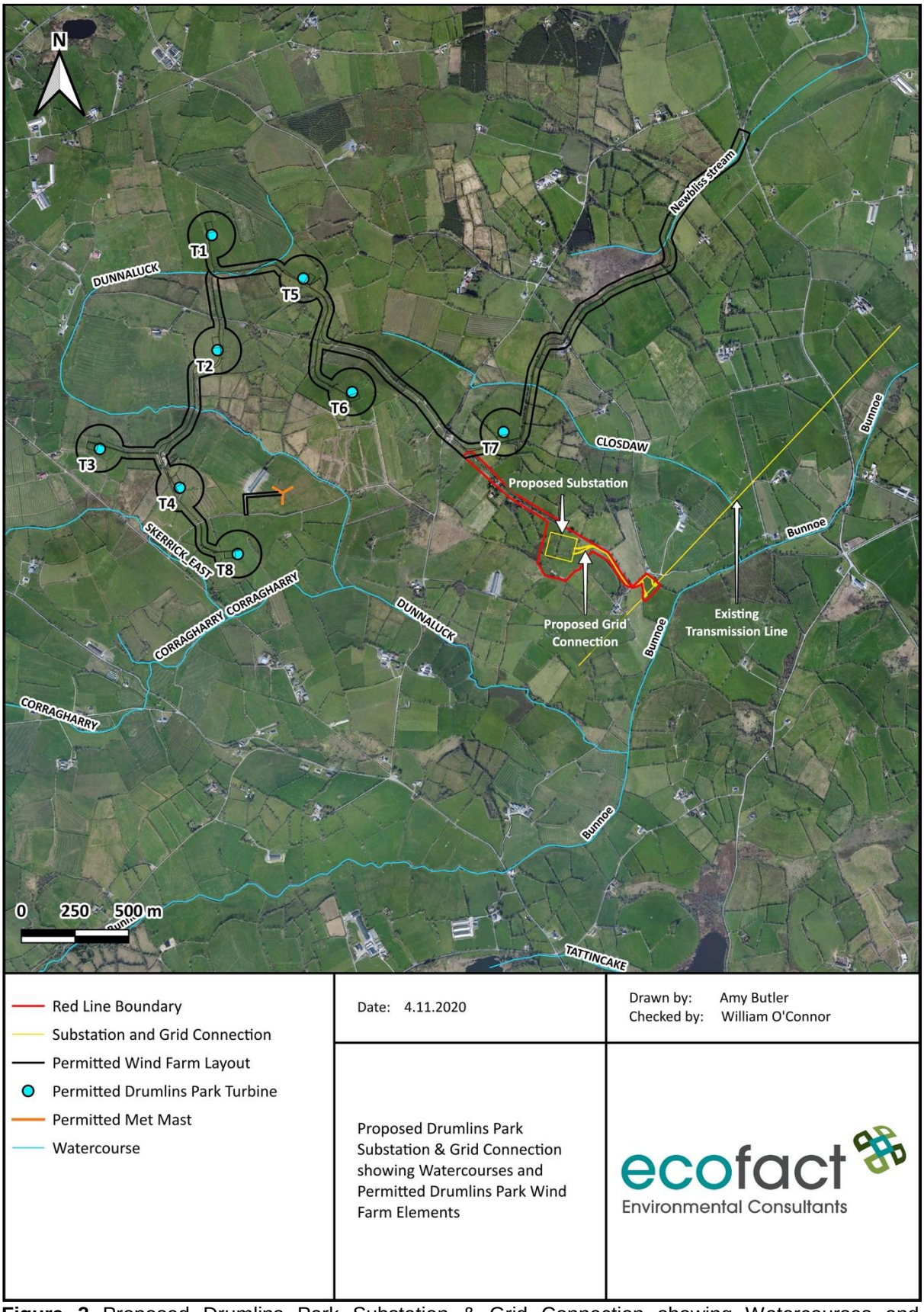

Figure 2 Proposed Drumlins Park Substation & Grid Connection showing Watercourses and Permitted Drumlins Park Wind Farm Elements.

4.5 Description of the Natura 2000 Sites Considered

The location of the proposed development in the context of the Natura 2000 network is illustrated at Figure 1. Special Areas of Conservation (SAC's) are sites of international importance because of the presence of habitats or species that are of European importance, listed on the EU Habitats Directive (1992). Special Protection Areas (SPA's) for birds are designated based on the presence of internationally significant populations of bird species, listed in Annex I of the EU Birds Directive (2009).

Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) considered in the current screening are listed in Table 1. The proposed development is not located within any SAC or SPA. The closest SPA is the Upper Lough Erne SPA, which is located c. 7.7km west of the proposed development at its closest point. The proposed development is also located upstream of the following Natura 2000 Sites: Lough Oughter and Associated Loughs SAC, Lough Oughter SPA and Upper Lough Erne SAC.

All other Natura 2000 sites have been screened out from further assessment through separation distance and/or an absence of landscape or ecological connectivity between proposed development site and the designated site.

Table 1 Summary details of the designated Natura 2000 sites within 15km of proposed Drumlins Park substation and grid connection, Co. Monaghan considered in the current screening.

Natura 2000 Site	Conservation Interests	Included in the current Natura Impact Statement (Yes/No)	Distance (km)
Upper Lough Erne SPA (UK9020071)	Whooper Swan *Cygnus cygnus* [A038]	Yes – screened in and assessed in this Natura Impact Statement.	7.7km West, c. 48.5rkm downstream via River Bunnoe
Kilroosky Lough Cluster SAC (001786)	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	No – screened out (see Appendix 1).	8.1km North-west
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	No – screened out (see Appendix 1).	
	Alkaline fens [7230]	No – screened out (see Appendix 1).	
	White-clawed Crayfish *Austropotamobius pallipes* [1092]	No – screened out (see Appendix 1).	
Magheraveely Marl Loughs SAC (UK0016621)	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	No – screened out (see Appendix 1).	8.9km North-west
	White-clawed Crayfish *Austropotamobius pallipes* [1092]	No – screened out (see Appendix 1).	
	Alkaline fens [7230]	No – screened out (see Appendix 1).	
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	No – screened out (see Appendix 1).	

Natura 2000 Site	Conservation Interests	Included in the current Natura Impact Statement (Yes/No)	Distance (km)
Lough Oughter and associated Loughs SAC (000007)	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	Yes – screened in and assessed in this Natura Impact Statement.	11.4km South-west, c. 21.7rkm downstream via River Bunnoe
	Bog Woodland [91D0]	No – screened out (see Appendix 1).	
	Otter *Lutra lutra* [1355]	Yes – screened in and assessed in this Natura Impact Statement.	
Upper Lough Erne SAC (UK0016614)	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	Yes – screened in and assessed in this Natura Impact Statement.	12.4km West, c. 48.5rkm downstream via River Bunnoe
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	No – screened out (see Appendix 1).	
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-padion, Alnion incanae, Salicion albae) [91E0]	No – screened out (see Appendix 1).	
	Otter *Lutra lutra* [1355]	Yes – downstream hydrological connection and therefore a pathway for effects	
	Bog woodland [91D0]	No – screened out (see Appendix 1).	
	Alkaline fens [7230]	No – screened out (see Appendix 1).	
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinia caerulea)* [6410]	No – screened out (see Appendix 1).	
Lough Oughter Complex SPA (004049)	Great Crested Grebe *Podiceps cristatus* [A005]	Yes – screened in and assessed in this Natura Impact Statement.	18.1km South-west, c. 26.7rkm via the River Bunnoe
	Whooper Swan *Cygnus cygnus* [A038]	Yes – screened in and assessed in this Natura Impact Statement.	
	Wigeon *Anas penelope* [A050]	Yes – screened in and assessed in this Natura Impact Statement.	
	Wetland and Waterbirds [A999]	Yes – screened in and assessed in this Natura Impact Statement.	

4.5.1 Upper Lough Erne SPA

Upper Lough Erne SPA is situated in Co. Fermanagh in the west of Northern Ireland. It is a very large and complex freshwater system. A series of flooded drumlins in the course of the River Erne give rise to a complex of islands, bays and many lakes bordered by damp pastures, fens, reedswamp and alder/willow and oak woodland. The site regularly supports internationally important numbers of wintering Whooper Swans. Upper Lough Erne provides a core protected area for Whooper Swans in the region of Northern Ireland, there being interchange between the swans using protected areas and those ranging more widely on surrounding farmland. The Screening for Appropriate Assessment identified the potential for impacts on Whooper Swan as a result of the construction and operation of the proposed development.

Table 2 Qualifying Interests and Conservation Objectives for the Upper Lough Erne SPA (Site Code: UK9020071).

Qualifying Interest	Conservation Objectives
Whooper Swan *Cygnus cygnus* [A038]	To maintain the favourable condition of this species in the SPA

4.5.1.1 Qualifying Species

4.5.1.1.1 Whooper Swan Cygnus cygnus [A038]

The Whooper Swan population of the Upper Lough Erne SPA is internationally important. The five-year peak mean for the period 1991/92 to 1995/96 was 352 which comprises 2% of the international Icelandic population. The five-year running mean of maximum annual WeBS counts for 1991/92 – 1995/96 was 495 swans. This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

4.5.2 Upper Lough Erne SAC

Upper Lough Erne SAC is situated in Co. Fermanagh. It is a very large and complex freshwater system. The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural Eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support natural oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Such diversity of good habitats and communities is reflected in the very large number of rare and notable plants and insects flourishing here: the woods being particularly important for breeding passerines and home for some notable mammals. The qualifying features of this SAC are: Natural Eutrophic Lakes, Old Sessile Oak Woods, Alluvial Forests, Otter. Bog Woodland, Alkaline Fen, Molinia meadows and Atlantic Salmon. The Screening for Appropriate Assessment identified the potential for impacts affecting Natural Eutrophic Lakes and Otter.

Table 3 Qualifying Interests and Conservation Objectives for the Upper Lough Erne SAC (Site Code: UK0016614).

Qualifying Interest	Conservation Objectives
Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	To maintain (or restore where appropriate) this habitat to favourable condition.
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	To maintain (or restore where appropriate) this habitat to favourable condition.
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-padion, Alnion incanae, Salicion albae) [91E0]	To maintain (or restore where appropriate) this habitat to favourable condition.
Otter *Lutra lutra* [1355]	To maintain (or restore where appropriate) this species to favourable condition.

4.5.2.1 Qualifying Habitats

4.5.2.1.1 Natural Eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation [3150]

Upper Lough Erne in Northern Ireland is a very large natural Eutrophic lake situated in a drumlin landscape and has a predominantly limestone catchment. The site is an example of a northern or western Eutrophic lake of glacial origin. The lake has a very long shoreline and numerous associated satellite lakes, many of which are included in the site. Aquatic vegetation of the *Magnopotamion* and *Hydrocharition* type is extensively developed. Both club-rush – common reed *Scirpo – Phragmitetum* and reed canary grass – shoreweed – spike rush *Phalaris - Littorella – Eleocharis* associations are well-developed on the shore. There are transitions to swamp and fen vegetation.

4.5.2.2 Qualifying Species

4.5.2.2.1 Otter Lutra lutra [1355]

The Upper Lough Erne is an extensive freshwater system that holds ideal Otter habitat. Otters are semi-aquatic mammals, requiring both good fishing grounds for food and suitable shelter on land for resting and breeding. The ranges of habitats present in the SAC such as the woodland and wetland islands provide such habitat for Otters.

4.5.3 Lough Oughter and Associated Loughs SAC

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. The area lies on Silurian and Ordovician strata with Carboniferous limestone immediately surrounding. This site is designated for the presence of Natural Eutrophic Lakes, Bog Woodland and Otter. The Screening for Appropriate Assessment identified the potential for impacts on Natural Eutrophic Lakes and Otters only.

Table 4 Qualifying Interests and Conservation Objectives for the Lough Oughter and Associated Loughs SAC (Site Code: 000007).

Qualifying Interest	Conservation Objectives
Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	To maintain (or restore where appropriate) this habitat to favourable condition.
Bog woodland [91D0]	To maintain (or restore where appropriate) this habitat to favourable condition.
Otter *Lutra lutra* [1355]	To maintain (or restore where appropriate) this species to favourable condition.

4.5.3.1 Qualifying Habitats

4.5.3.1.1 Natural Eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation [3150]

The lakes and basins in the SAC are shallow, and the water is well mixed and nutrient rich (Eutrophic). Natural Eutrophic lakes have high nutrient levels that are higher than those of

Oligotrophic dystrophic or mesotrophic lakes, resulting in higher natural productivity, and are typically species rich. The species noted in the site synopsis for the Lough Oughter and associated loughs sac note the presence of Blunt-leaved pondweed *Potamogeton obtusifolius*, Shining Pondweed *Potamogeton lucens*, Broad-leaved Pondweed *Potamogeton natans*, Reddish pondweed *Potamogeton alpines* and Various-leaved Pondweed *Potamogeton gramineus* among others.

4.5.3.2 Qualifying Species

4.5.3.2.1 Otter Lutra lutra [1355]

The Lough Oughter and Associated Loughs SAC is an extensive freshwater system providing an array of habitats useful to Otters, which are semi-aquatic mammals. Otters require both good fishing grounds for food and suitable shelter on land for resting and breeding. Otters occur throughout the SAC.

4.5.4 Lough Oughter Complex SPA

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Co. Cavan between Belturbet, Killashandra and Cavan town. This area comprises a maze of waterways, islands, small lakes and peninsulas. Lough Oughter, the largest lake in the site, is relatively shallow (maximum depth of 10m) and considered to be a naturally Eutrophic system. This site is designated for the presence of Great Crested Grebe, Whooper Swan, Wigeon, and the Wetland and Waterbirds habitat that these birds utilise.

This site is also a Ramsar Conservation Site and a Wildfowl sanctuary. The Screening for Appropriate Assessment identified the potential for impacts on Wetland and Waterbirds, Great Crested Grebe, Whooper Swan and Wigeon.

Table 5 Qualifying Interests and Conservation Objectives for the Lough Oughter Complex SPA (Site Code: 004049).

Qualifying Interest	Conservation Objectives
Great Crested Grebe *Podiceps cristatus* [A005]	To maintain (or restore where appropriate) this species to favourable condition.
Whooper Swan *Cygnus cygnus* [A038]	To maintain (or restore where appropriate) this species to favourable condition.
Wigeon Anas penelope [A050]	To maintain (or restore where appropriate) this species to favourable condition.
Wetland and Waterbirds [A999]	To maintain (or restore where appropriate) this habitat to favourable condition.

4.5.4.1 Qualifying Habitats

4.5.4.1.1 Wetland and Waterbirds [A999]

The Wetland and Waterbirds habitat comprise all the wetland areas or freshwater areas that the bird species for which this site is designated use. This is because the E.U. Birds Directive pays particular attention to wetlands. The bird species designated, Great Crested Grebe, Whooper Swan and Wigeon, could not survive without this habitat.

4.5.4.2 Qualifying Species

4.5.4.2.1 Great Crested Grebe Podiceps cristatus [A005]

The Lough Oughter Complex SPA supports a nationally important wintering population of Great Crested Grebe. Great Crested Grebes are residents along all Irish Coasts but are less frequently seen inland. Numbers increase during winter due to immigrating birds. Great Crested Grebes breed on large, shallow Eutrophic loughs, and along canals and slow flowing rivers. The Lough Oughter Complex SPA is at the centre of the Irish Breeding Range of Great Crested Grebes and the site supports in excess of 10% of the estimated breeding total of this species (115 individuals in 1986-88). This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

4.5.4.2.2 Whooper Swan Cygnus cygnus [A038]

The Lough Oughter Complex SPA supports an internationally important population of Whooper Swans. Whooper Swans utilise the lakes as a roost. Whooper swans are winter visitors to Irish wetlands throughout Ireland from October to April. They winter on mostly lowland open farmland around inland wetlands and are regularly seen feeding on grasslands and stubble. Whooper swans are monitored by the Irish Wetland Bird Survey (I-WeBS) and a special swan census is carried out every five years. This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

4.5.4.2.3 Wigeon Anas penelope [A050]

The Lough Oughter Complex SPA supports a nationally important wintering population of Wigeon. Wigeon currently have a red conservation status in the Birds of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013). This species can be found in flocks of up to and over 1000 birds on large wetlands and waterbodies. However, as noted, the species is red-listed due to a long-term decline in the non-breeding population in Ireland.

5. ASSESSMENT

At NIS stage, mitigation to offset potential negative impacts can be provided. In addition, the impact of the project / plan affecting the integrity of a Natura 2000 site is considered with respect to the conservation objectives of the site. Integrity is defined as: 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified'. Therefore, the integrity of a site is principally related to the structure and function of the site with regard to its Annex I habitats and Annex II species listed as the qualifying interests. The conservation status of these qualifying interests comprises the primary conservation objectives for all designated Natura 2000 sites.

5.1 Upper Lough Erne SPA

The qualifying interests of the Upper Lough Erne SPA are presented in Table 6 below with the potential impacts of the proposed development on each and the type of mitigation measures required. The qualifying interests are discussed individually below in terms of the impacts that could arise from the proposed development.

Table 6 Potential impacts on the qualifying interest of the Upper Lough Erne SPA arising from the proposed development.

Qualifying Interest	Natura Code	Impacts
Whooper Swan *Cygnus cygnus*	A038	No direct impacts; Limited possibility for water quality, invasive species and collision impacts

5.1.1 Annex II Species

5.1.1.1 Whooper Swan

5.1.1.1.1 Construction Phase

There will be no direct impacts arising from the construction phase of the proposed development that could affect the Whooper Swan population of the Upper Lough Erne SPA as it is not located within the SPA.

The proposed development is located c. 125m north-west of the River Bunnoe, which is c. 48.4rkm upstream of the Upper Lough Erne SPA via the River Bunnoe, the River Annalee and the River Erne. It is considered very unlikely that any low-magnitude localised impacts that may arise from the construction of the proposed development could impact on water quality c. 48.4rkm downstream in the SPA due the diluting effect on deleterious matter which would occur over this substantial distance.

Non-native invasive species could also be introduced on site and dispersed throughout the study area. Invasive species could also be transported downstream via watercourses. However, it is considered that invasive species could not affect the Upper Lough Erne SPA due to geographical separation.

5.1.1.1.2 Operational Phase

There will be no direct impacts arising from the operational phase of the proposed development that could affect the Whooper Swan population of the Upper Lough Erne SPA as the proposed development is not located within the SPA.

The proposed development is located c. 7.7km from the SPA at its closest point. During the extensive bird surveys completed for the now permitted Drumlins Park wind farm adjacent to the proposed development site, Whooper Swans were never recorded flying in the study area at rotor sweep height or below. Whooper Swans were recorded flying over the permitted wind farm site only once and this was a small flock of 11 individuals during the wintering season of 2018/19 (Ecofact, 2019h). Throughout the previous bird surveys, it was confirmed that the proposed development area is not located within regular flight paths for Whooper Swans, nor is it used in any significant numbers. The proposed development site is also not located along any areas for resting or staging. The highest number of Whooper Swans recorded during the 2017/18 wintering period for the permitted wind farm adjacent was 22 swans (Ecofact, 2019f). During the 2016/17 wintering period the highest number of Whooper Swans recorded in the wider study area was 5 individuals, at Carlougharoe Lough (Ecofact, 2019e).

The proposed development provides for underground cabling to lattice-type end masts, which will then be connected to the existing transmission lines. Whooper Swans would not be at risk of colliding with masts as they are large stationary structures that are clearly visible. In general, birds do not collide with pylons / towers, but the risk lies with species that may nest on the top of pylons, therefore they may collide with wires adjacent to the pylons due to the location of their nest (Eirgrid, 2016). Whooper Swans rarely breed in Ireland during the summer months and are not a species that would nest on pylons or masts. Additionally, any of the observations of Whooper Swans in the area showed that they were flying much higher than the height of the proposed lattice towers that will be installed as part of the proposed development. No regular flight routes across the proposed development were identified in the previous surveys.

Chemicals and oils will be required during the operational phase which could lead to low-magnitude localised impacts on water quality in the River Bunnoe. However, as for construction phase impacts, it is considered unlikely that any water quality effects that may arise from the operational phase of the proposed development could impact on water quality c. 48.4rkm downstream in the SPA due the diluting effects which would occur over this substantial distance. There is no risk of adverse water quality effects which could adversely affect the integrity of the SPA.

5.2 Upper Lough Erne SAC

The qualifying interests of the Upper Lough Erne SAC are presented in Table 7 below with the potential impacts of the proposed development on each and the type of mitigation measures required. The qualifying interests are discussed individually below in terms of the potential impacts that could arise from the proposed development.

Table 7 Potential Impacts on the qualifying interest of the Upper Lough Erne SAC arising from the proposed development.

Qualifying Interest	Natura Code	Impacts
Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation	3150	No direct impacts; Limited possibility for water quality and invasive species impacts
Otter Lutra lutra	1355	No direct impacts; Limited possibility for water quality and invasive species impacts

5.2.1 Annex I Habitats

5.2.1.1 Natural Eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation

5.2.1.1.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect the Natural Eutrophic Lakes habitat in the Upper Lough Erne SAC.

Water quality impacts arising from the proposed development (such as spillages of hydrocarbons or the discharge of silt/sediment laden runoff to watercourses) are likely to be localised and any water quality impacts arising from the proposed development would not be capable of travelling the c. 48.4rkm to the SAC and the Natural Eutrophic Lakes habitat. Localised water quality impacts, which may arise as a result of excavations associated with the substation footprint, underground electricity line trenches and end mast foundations, are not likely to be significant given the drainage regime of the site and in the event that deleterious material entered the River Bunnoe (c. 125m from the proposed development), dilution effects would avoid effects on this habitat in the SAC.

Non-native invasive species could also be introduced on site and dispersed throughout the study area. Invasive species could also be transported downstream via watercourses. However, it is considered that invasive species could not affect the Upper Lough Erne SAC due to geographical separation.

5.2.1.1.2 Operational Phase

Due to separation distance, there will be no direct impacts arising from the operational phase of the proposed development that could affect the Natural Eutrophic Lakes habitat in the Upper Lough Erne SAC.

Operational phase indirect impacts could arise during the day-to-day operation and during maintenance activities at the proposed development due to the presence of oils, fuels and chemicals. If these substances enter a watercourse it could result in water quality pollution. On-site welfare facilities could also result in water quality pollution if they are not properly managed. Again however, the hydrological pathways are unlikely to transport such localised impacts downstream and impact the SAC. Due to the significant dilution effects, effects on this habitat in the SAC are unlikely to arise c. 48.4rkm downstream.

5.2.2 Annex II Species

5.2.2.1 Otter Lutra lutra

5.2.2.1.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect Otters in the Upper Lough Erne SAC.

Indirect water quality impacts, such as those described above arising from surface water run-off from excavations and accidental spillages of hydrocarbons, can affect fish in the watercourses downstream of the proposed development and therefore can limit the otter's food source. However, as above for the Natural Eutrophic Lakes habitat, water quality impacts will be localised and unlikely to affect Otter

populations in the SAC due to the large distance downstream. Due to the significant dilution effects, effects on this species in the SAC are unlikely to arise.

Similarly, due to the substantial separation distance between the proposed development site and the SAC, it is assessed that there is no risk of imported invasive species being transported from the proposed development site to the SAC via the hydrological pathway which, in turn, could adversely affect Otter populations.

5.2.2.1.2 Operational Phase

Due to separation distance, there will be no indirect impacts arising from the operational phase of the proposed development that could affect Otters in the Upper Lough Erne SAC.

As above for the Natural Eutrophic Lakes habitat, during the day-to-day operation and during maintenance activities at the proposed development due to the presence of oils, fuels and chemicals. If these substances enter a watercourse it could result in water quality pollution. On-site welfare facilities could also result in water quality pollution if they are not properly managed. Again however, the dilution effects of the hydrological pathway are unlikely to transport such localised impacts would not be able to travel so far downstream and impact the SAC. Due to the significant dilution effects, effects on this species in the SAC are unlikely to arise c. 48.4rkm downstream.

5.3 Lough Oughter and Associated Loughs SAC

The qualifying interests of the Lough Oughter and Associated Loughs SAC are presented in Table 8 below with the potential impacts of the proposed development on each and the type of mitigation measures required. The qualifying interests are discussed individually below in terms of the potential impacts that could arise from the proposed development.

Table 8 Potential Impacts on the qualifying interests of the Lough Oughter and Associated Loughs SAC arising from the proposed development.

Qualifying Interest	Natura Code	Impacts
Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation	3150	No direct impacts; Limited possibility for water quality and invasive species impacts
Otter Lutra lutra	1355	No direct impacts; Limited possibility for water quality and invasive species impacts

5.3.1 Annex I Habitats

5.3.1.1 Natural Eutrophic Lakes with Magnopotamion or Hydrocharition-type vegetation

5.3.1.1.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect Natural Eutrophic Lakes habitat in the Lough Oughter and Associated Loughs SAC.

Water quality impacts arising from the proposed development (such as spillages of hydrocarbons or the discharge of silt/sediment laden runoff to watercourses) are likely to be localised and any water

quality impacts arising from the proposed development would not be capable of travelling the c. 21.7rkm to the SAC and the Natural Eutrophic Lakes habitat. Localised water quality impacts, which may arise as a result of excavations associated with the substation footprint, underground electricity line trenches and end mast foundations, are not likely to be significant given the drainage regime of the site and in the event that deleterious material entered the River Bunnoe (c. 125m from the proposed development), dilution effects would avoid effects on the SAC.

Non-native invasive species could also be introduced on site and dispersed throughout the study area. Invasive species could also be transported downstream via watercourses. However, it is considered that invasive species could not affect the Lough Oughter and Associated Loughs SAC due to geographical separation.

5.3.1.1.2 Operational Phase

Due to separation distance, there will be no direct impacts arising from the operational phase of the proposed development that could affect the Natural Eutrophic Lakes habitat in the Lough Oughter and Associated Loughs SAC.

Operational phase indirect impacts could arise during the day-to-day operation and during maintenance activities at the proposed development due to the presence of oils, fuels and chemicals. If these substances enter a watercourse it could result in water quality pollution. On-site welfare facilities could also result in water quality pollution if they are not properly managed. Again however, the dilution effects of the hydrological pathway are unlikely to transport such localised impacts downstream and impact the SAC. Due to the significant dilution effects, effects on this species in the SAC are unlikely to arise c. 21.7rkm downstream.

5.3.2 Annex II Species

5.3.2.1 Otter Lutra lutra

5.3.2.1.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect Otters in the Lough Oughter and Associated Loughs SAC.

Indirect water quality impacts, such as those described above arising from surface water run-off from excavations and accidental spillages of hydrocarbons, can affect fish in the watercourses downstream of the proposed development and therefore can limit the otter's food source. However, as above for the Natural Eutrophic Lakes habitat, water quality impacts will be localised and unlikely to affect Otter populations in the SAC c. 21.7rkm downstream of the proposed development site. Due to the significant dilution effects, effects on this species in the SAC are unlikely to arise.

Similarly, due to the substantial separation distance between the proposed development site and the SAC, it is assessed that there is no risk of imported invasive species being transported from the proposed development site to the SAC via the hydrological pathway which, in turn, could adversely affect Otter populations. This is due to the large separation distance of 21.7rkm.

5.3.2.1.2 Operational Phase

Due to separation distance, there will be no indirect impacts arising from the operational phase of the proposed development that could affect Otters in the Lough Oughter and Associated Loughs SAC.

As above for the Natural Eutrophic Lakes habitat, during the day-to-day operation and during maintenance activities at the proposed development due to the presence of oils, fuels and chemicals. If these substances enter a watercourse it could result in water quality pollution. On-site welfare facilities could also result in water quality pollution if they are not properly managed. Again however, the dilution effects of the hydrological pathway are unlikely to transport such localised impacts would not be able to travel so far downstream and impact the SAC. Due to the significant dilution effects, effects on this species in the SAC are unlikely to arise c. 21.7rkm downstream.

5.4 Lough Oughter Complex SPA

The qualifying interests of the Lough Oughter Complex SPA are presented in Table 9 below with the potential impacts of the proposed development on each and the type of mitigation measures required. The qualifying interests are discussed individually below in terms of the potential impacts that could arise from the proposed development.

Table 9 Potential Impacts on the qualifying interest of the Lough Oughter Complex SPA arising from the proposed development.

Qualifying Interest	Natura Code	Impacts
Wetland and Waterbirds	A999	No direct impacts; Limited possibility for water quality and invasive species impacts
Great Crested Grebe *Podiceps cristatus*	A005	No direct impacts; Limited possibility for water quality, invasive species and collision impacts
Whooper Swan *Cygnus cygnus*	A038	No direct impacts; Limited possibility for water quality, invasive species and collision impacts
Wigeon Anas penelope	A050	No direct impacts; Limited possibility for water quality, invasive species and collision impacts

5.4.1 Annex I Habitats

5.4.1.1 Wetland and Waterbirds

5.4.1.1.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect Wetland and Waterbirds habitat in the Lough Oughter Complex SPA.

Water quality impacts can arise due to accidental releases of silt laden runoff or accidental spillages of cement and hydrocarbons that will be stored on site, as with any construction site. These impacts are considered very unlikely to affect the Wetland and Waterbirds habitat due to geographical separation between the proposed development and the SPA. The proposed development site is c. 26.7rkm upstream of the SPA. Localised water quality impacts, which may arise as a result of excavations associated with the substation footprint, underground electricity line trenches and end mast foundations, are not likely to be significant given the drainage regime of the site and in the event

that deleterious material entered the River Bunnoe (c. 125m from the proposed development), dilution effects would avoid effects on the SPA.

Non-native invasive species could also be introduced on site and dispersed throughout the study area. Invasive species could also be transported downstream via watercourses. However, it is considered that invasive species could not affect the Lough Oughter Complex SPA and the Wetland and Waterbirds habitat due to geographical separation.

5.4.1.1.2 Operational Phase

Due to separation distance, there will be no direct impacts arising from the operational phase of the proposed development that could affect Wetland and Waterbirds habitat in the Lough Oughter Complex SPA.

Operational phase indirect impacts could arise during the day-to-day operation and during maintenance activities at the proposed development due to the presence of oils, fuels and chemicals. If these substances enter a watercourse it could result in water quality pollution. On-site welfare facilities could also result in water quality pollution if they are not properly managed. Again however, the dilution effects of the hydrological pathway are unlikely to transport such localised impacts would not be able to travel so far (c. 26.7km) downstream and impact the SAC. Due to the significant dilution effects, effects on this habitat in the SPA are unlikely to arise.

5.4.2 Annex II Species

5.4.2.1 Great Crested Grebe

5.4.2.1.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect the Great Crested Grebe population in the Lough Oughter Complex SPA.

It is considered that the only impacts arising from the construction phase that could impact Great Crested Grebe concern water quality and invasive species impacts. These impacts would be the same as discussed above for the Wetland and Waterbirds habitat. Due to the significant dilution effects and separation distances, effects on this species in the SPA are unlikely to arise.

5.4.2.1.2 Operational Phase

Due to separation distance, there will be no direct impacts arising from the operational phase of the proposed development that could affect the Great Crested Grebe population in the Lough Oughter Complex SPA.

While Great Crested Grebes were recorded at some local lakes during the bird surveys at the adjacent permitted wind farm, no Great Crested Grebes were ever recorded flying over the proposed development site. There is no habitat for this species on or near the proposed development site. As Great Crested Grebes are resident all over Ireland in many lakes, it is considered unlikely that these populations are connected with the SPA some c. 26.7rkm downstream of the proposed development (18.1km straight line).

Great Crested Grebes have a low collision risk score for offshore wind farms (Humphreys *et al*., 2015; Cook *et al*., 2012). Grebes are susceptible to disturbance from wind turbines, although not susceptible to barriers to movement, collision or even habitat loss / damage (Langston & Pullan, 2003). The proposed development includes for underground cabling to lattice-type end masts, which will then be connected to the existing transmission lines. The lattice type end masts are large and clearly visible structures that would not pose a collision risk. In general, birds do not collide with pylons / towers, but the risk lies with species that may nest on the top of pylons, therefore they may collide with wires adjacent to the pylons due to the location of their nest (Eirgrid, 2016). Great Crested Grebes nest on lakes, wetlands and slow flowing rivers and would never nest on a pylon / mast. Therefore, the proposed development does not pose a risk to Great Crested Grebes populations of the SPA.

5.4.2.2 Whooper Swan

5.4.2.2.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect the Whooper Swan population in the Lough Oughter Complex SPA.

The risk of adverse effects on Whooper Swan as a result of the proposed development are assessed to be similar to those for the same species associated with the Upper Lough Erne SPA. Based on evidence gathered during bird surveys undertaken at the proposed development site, no regular flight routes or feeding zones were identified across the footprint of the proposed development and Whooper Swans were rarely recorded in the study area. It is assessed, therefore, that there is no risk of disturbance or displacement during the construction phase.

Impacts which have the potential to arise concern water quality and invasive species impacts. With regards water quality and invasive species, the risk of adverse effects is assessed to be similar to that assessed above in respect of Wetland and Waterbirds. Due to the significant dilution effects and separation distances, effects on this species in the SPA are unlikely to arise.

5.4.2.2.2 Operational Phase

Due to separation distance, there will be no direct impacts arising from the operational phase of the proposed development that could affect the Whooper Swan population in the Lough Oughter Complex SPA.

The proposed development is located c. 18.1km from the SPA at its closest point (straight line) and is c. 26.7rkm upstream and the bird surveys completed by Ecofact show that the proposed development area is not of importance to Whooper Swans.

The nature of the habitats on the proposed development site and surrounding areas consist of a drumlin landscape with undulating hills. Due to the lack of lakes in the vicinity of the proposed development, it is considered likely that if any Whooper Swans do fly over the site, they would be flying well above transmission line height and would not be at risk of collision with the proposed end masts. In general, birds do not collide with pylons / towers, but the risk lies with species that may nest on the top of pylons, therefore they may collide with wires adjacent to the pylons due to the location of

their nest (Eirgrid, 2016). Whooper Swans rarely breed in Ireland during the summer months and are not a species that would nest on pylons or masts.

Impacts which have the potential to arise during the operational phase concern water quality and invasive species impacts. With regards water quality and invasive species, the risk of adverse effects is assessed to be similar to that assessed above in respect of Wetland and Waterbirds. Due to the significant dilution effects and separation distances, effects on this species in the SPA are unlikely to arise.

5.4.2.3 Wigeon

5.4.2.3.1 Construction Phase

Due to separation distance, there will be no direct impacts arising from the construction phase of the proposed development that could affect the Wigeon population in the Lough Oughter Complex SPA.

Wigeon were not recorded during any of the surveys of the adjacent permitted Drumlins Park wind farm development and would not be considered likely to use the proposed development site. The proposed development site is located c. 18.1km (straight line) from the SPA and c. 26.7rkm upstream. It is envisaged that the only potential indirect impacts affecting Wigeon that may arise during the construction phase concern water quality and invasive species impacts. These will be the same as discussed above for the Wetland and Waterbirds habitat. Due to the significant dilution effects and separation distances, effects on this species in the SPA are unlikely to arise.

5.4.2.3.2 Operational Phase

Due to separation distance, there will be no direct impacts arising from the operational phase of the proposed development that could affect the Wigeon population in the Lough Oughter Complex SPA.

The proposed development provides for underground cabling to lattice-type end masts, which will then be connected to the existing transmission lines. The lattice type end masts are large and clearly visible structures that would not pose a collision risk. In general, birds do not collide with pylons / towers, but the risk lies with species that may nest on the top of pylons, therefore they may collide with wires adjacent to the pylons due to the location of their nest (Eirgrid, 2016). Wigeon typically nest on shallow freshwater marshes, adjacent to lakes, lagoons or lake islands and would not nest on top of pylons or masts. Therefore, the proposed development does not pose a risk to Wigeon populations of the SPA.

It is considered that the only impacts arising from the operational phase that could impact Wigeon concern water quality and invasive species impacts. With regards water quality and invasive species, the risk of adverse effects is assessed to be similar to that assessed above in respect of Wetland and Waterbirds. Due to the significant dilution effects and separation distances, effects on this species in the SPA are unlikely to arise.

6. IN-COMBINATION EFFECTS

The conservation objectives document for the Upper Lough Erne SPA lists recreational boating activity, commercial or recreational fishing, other recreational activities and wildfowling as resulting in disturbance impacts on Whooper Swans in the SPA. It also notes adjoining habitat management, habitat quality, invasive species, drainage schemes and shoreline protection schemes as threats and pressures resulting in impacts. Invasive species and power cables are also noted.

The conservation objectives document for the Upper Lough Erne SAC lists the threats and pressures currently having an impact on this designated site. Siltation is noted as an impact affecting the Natural Eutrophic Lakes habitat, more specifically related to soil erosion. Nutrient enrichment, changes in water levels, recreational pressure and invasive species are also noted as current pressures.

The Natura 2000 form for the Lough Oughter and Associated Loughs SAC lists Invasive species, diffuse pollution to surface waters due to agricultural and forestry activities, diffuse pollution to surface waters via storm overflows and urban run-off, flooding and rising precipitations and the removal of hedges and copses or scrub as impacts having a high effect on the site.

The Natura 2000 form for the Lough Oughter Complex SPA lists animal breeding and fertilisation as impacts having a high effect on this SPA. Nautical sports, hunting, leisure fishing, silviculture and forestry are noted as having medium impacts on this SPA.

The proposed development concerns a substation and grid connection that will facilitate the export of electrical power generated by the permitted Drumlins Park Wind Farm to the national grid via the existing Lisdrum-Shankill overhead electricity transmission line. Therefore, all potential impacts on the Upper Lough Erne SPA and SAC, the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA must be considered in relation to in-combination effects with the already permitted wind farm development and other existing, permitted and proposed developments.

6.1 Construction Phase

As the proposed development is predicted to be constructed concurrently with the permitted Drumlins Park Wind Farm, the greatest likelihood of cumulative effects arising occurs during the construction phase.

Regarding the Annex I Habitats potentially affected by the proposed development, i.e. the Natural Eutrophic Lakes habitat and the Wetland and Waterbirds habitat, potential impacts were identified in relation to cumulative construction phase water quality and invasive species effects. The permitted wind farm development was subject to Appropriate Assessment and a Natura Impact Statement was completed (Ecofact, 2019b). This NIS detailed that while significant water quality impacts were unlikely to arise due to distance, water quality mitigation was provided. Water quality mitigation is also provided (below) in the current report for the proposed development. This water quality mitigation is considered to be best practice and will ensure that no impacts arise relating to water quality on site, even for local ecology. Given, therefore, that the permitted wind farm is not predicted to give rise to effects and, with the implementation of the water quality protection mitigation for the proposed development, there would be no risk of cumulative water quality impacts.

There are other planned developments in the wider study area, which were reviewed using the National Planning Application Database (NPAD). Most of these developments are small residential

developments such as extensions to existing dwellings and agricultural developments. While none of these developments are in the immediate vicinity of the proposed development, given the hydrological regime of the local landscape with several small watercourses discharging to the River Bunnoe, it is considered that cumulative effects could arise.

The only interaction these developments may have is in relation to impacts on water quality. However, given the implementation of mitigation measures below which will avoid the release of deleterious matter to watercourses; it is considered that cumulative effects with these developments, and indeed background pressures on water quality from agriculture, the proposed development is not likely to add significantly to cumulative impacts on water quality.

No non-native invasive species were recorded within the proposed development site or within a study area of 100m from the site. The proposed development will also adhere to proposed mitigation (below) for biosecurity which will successfully avoid any risk regarding invasive species. The proposed development will not result in cumulative effects on any of the designated sites regarding invasive species.

6.2 Operational Phase

In relation to impacts on bird species in the SPAs, and in particular Whooper Swans, previous surveys at the permitted Drumlin Park Wind Farm have shown that Whooper Swans rarely fly over the proposed development site, and if so in small numbers, and there are no regular flight routes in the area. If Whooper swans do fly over the area, they fly high over the drumlin landscape. Great crested Grebe and Wigeon were never recorded flying over the proposed development site over the course of the bird surveys. The NIS for the permitted wind farm development noted that there were no mitigation measures required for collision risk for the wind farm as no significant impacts were envisaged.

The proposed development has a small footprint and comprises an underground line, which would not add cumulatively to any risks of collision. The lattice type end masts are large, stationary and clearly visible structures that Whooper swans would be able to see and avoid, if they were present. Whooper Swans rarely breed in Ireland during the summer months and would not nest on pylons / masts, which in general, is where the risk lies with masts (Eirgrid, 2016). Therefore, given the low height of the proposed development, the absence of suitable habitat within the proposed development site for Whooper Swan; it is assessed that there is no risk of cumulative effects with the permitted Drumlins Park Wind Farm in relation to collisions.

There are existing wind farms south and south-east of the proposed development, such as the Mountain Lodge/Bindoo/Carrickallen complex, Old Mill Wind Farm near Lough Egish, Co. Monaghan and the Mullananalt Wind Farm near Ballybay. There are also some permitted wind farms north of the proposed development site, such as the Coolberrin and Mountain Waters Wind Farms near Carrickroe, Co. Monaghan.

The Mountain Lodge/Bindoo/Edrans/Carrickallen complex is located c. 8km south of the proposed development site. This wind farm is located in proximity to a number of lakes known as Dromore Lakes, which are a known iWeBS site. There are a large number of waterbirds that use these lakes, including the Whooper Swan. Historical iWeBS data shows the largest number of swans recorded here as 137 birds in 2012/13 wintering period, with the mean over the years being 63 birds. This is still below the 1% national numbers. However, due to separation distance (8km straight line) and the

absence of Whooper Swan recorded at the proposed development site; there is no risk of cumulative effects arising in relation to disturbance or displacement.

It is considered therefore that the proposed development would not add cumulatively to pressures on the Whooper Swan population of the SPAs. The proposed development comprises underground cabling and lattice type end masts, which are large and clearly visible, and do not pose a collision risk to birds. The NIS for the adjacent permitted wind farm site also concluded that there would be no significant impacts on Whooper Swans as a result of the development, based on surveys completed over a number of years at the site and, therefore, cumulative effects will not arise.

The proposed development could also give rise to cumulative water quality impacts during the operational phase. As mentioned previously, operational phase water quality impacts may arise during maintenance activities due to the presence of oils, fuels and chemicals, as well as on-site welfare facilities. There is a pathway for water quality pollution if these substances enter a watercourse. This could therefore act in-combination with existing pressures such as agricultural activities or wind farm developments in the area. As the proposed development is located substantially upstream of all Natura 2000 sites, and mitigation measures are provided to protect water quality, for the operational phase of the proposed development and the adjacent permitted wind farm, the proposed development is not likely to add significantly to cumulative impacts on water quality.

7. MITIGATION

The preceding section has determined that no likely significant impacts have been identified as a result of the proposed development which could result in adverse effects on the Natura 2000 network. Notwithstanding this, and in accordance with the precautionary principle, a range of measures is provided below to ensure the protection of local ecology and which will further add to the protection of Natura 2000 sites.

7.1 Water Quality

7.1.1 Construction Phase

As has been set out above, there is a downstream hydrological connection with both SPAs and SACs. While the Upper Lough Erne SPA and Lough Oughter Complex SPA are designated because of the presence of bird species, the quality of the aquatic habitat is central to their presence at these locations. While significant adverse effects are not likely to occur due to large separation distances. The potential for adverse water quality effects to arise is evaluated to be at its greatest during the construction phase due to the nature of construction activities.

In the first instance, water quality will be protected through best practice construction phase management process. For example, excavation works will not be undertaken during times of prolonged or intense rainfall or if such weather events are forecast and no development works will be commenced at a specific location until such time as the drainage management system is in place, to the satisfaction of the Environmental Manager, for the relevant works. Secondly, the implementation and management of the drainage network will be subject to strict control measures set out in the Construction Environmental Management Plan (CEMP) and Surface Water Management Plan (SWMP). Outline plans, which will be developed further prior to the commencement of development to include precise details of water quality protection measures, have been prepared and have had regard to the '*Guidelines for the crossing of watercourses during the construction of national road schemes*' (NRA, 2008b) and '*Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*' (IFI, 2016). The (detailed) SWMP will set out measures to avoid siltation, erosion, surface water run-off and accidental pollution events which all have the potential to adversely affect water quality within the site during the construction phase. The implementation of these measures will ensure that no surface water runoff is discharged to any watercourse without being fully treated in advance.

Where access tracks pass close to drainage ditches, silt fencing will be used to protect the drainage ditches. The maintenance and monitoring of such silt fences will be subject to an on-site quality management system which will be outlined in the detailed CEMP.

Erosion and sediment control will be put in place to protect agricultural drains before commencement of any site clearance and earthworks. Exposed soil will be kept to a minimum throughout construction to further reduce risk of sediment release during rainfall events. Silt fences and bunds where necessary will be kept in place until exposed soil can be revegetated naturally in the growing season. Erosion and sediment controls will be monitored and maintained on a continuous basis throughout the construction phase.

Measures to be employed during the construction phase to prevent the transport of deleterious substances to the River Bunnoe and potentially to downstream Natura 2000 sites are as follows:

- Prior to the commencement of construction activities, silt fencing will be placed along the southern boundary of the proposed substation site which is up-gradient of the main drain to the south of the proposed substation and spoil deposition area. Silt fencing will also be installed around the proposed end mast works area;
- Interceptor and collector drains will be installed up-gradient and down-gradient respectively of the earthworks areas
- Surface water will pass through interception infrastructure, such as silt traps, to ensure suspended solids will not reach any watercourses;
- Silt traps/settlement ponds and temporary interceptors and traps will be put in place on site prior to any site clearance/earthworks and will be used until such time as permanent facilities are constructed;
- The silt fences will be embedded into the local soils to ensure all site water is captured and directed to the surface water drainage system;
- All fuels, lubricants and hydraulic fluids will be kept in secure bunded areas, within the permitted Drumlins Park Wind Farm construction compound (also used for the proposed development), away from watercourses. The bunded area will accommodate 110% of the total capacity of the containers within it;
- Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure will be put in place and spill kits provided with all staff properly briefed and trained;
- Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner;
- Fuelling and lubrication will not be conducted within 50m of any surface water feature;
- Spoil heaps from the excavations required will be covered with geotextile and surrounded by silt fences
- Secure concrete washout areas will be designated on site
- Wheel washing facilities will be provided at the site entrance draining to silt traps.

Two existing agricultural drains on site will be realigned to facilitate the construction of the proposed substation. The outfall channel of the existing drains and proposed realigned drains will be temporarily blocked before the realignment works begin. During the realignment of these drains, a sealed silt fence will be placed on the downstream end of the ditch to prevent any excess siltation entering the receiving watercourse. The realignment of these drains will also be carried out following and during a period of dry weather to avoid the entrainment of silt or sediment in surface water runoff. Following construction, Disturbed Sediment Entrainment Mats - SEDIMATS (see http://www.hy-tex.co.uk/ht_bio_sed.html) will be installed on the base of the new realigned drains for a period post construction. These will be installed according to the manufacturer's instructions at suitable locations along the realigned drain.

7.1.2 Operational Phase

The following surface water protection measures will be implemented to avoid effects from hydrocarbon/chemical spillage:-

- All storage containers will be labelled appropriately, including hazardous markings;
- All holding tanks will be constructed of material appropriate for fuel/chemical storage and will be bunded to at least 110% of the maximum tank volume or 25% of the total capacity of all the tanks within the bund, whichever is greatest;

- Bunds will be to standard specified in CIRIA Report 163 ‘Construction of bunds for oil storage tanks’ and CIRIA Report C535 ‘Above-ground proprietary prefabricated oil storage tank systems’;
- Barrels and bunded containers will be stored upright and internally where appropriate and always on drip trays or sump pallets;
- Appropriate spill kits will be available at all storage locations;
- All fuel/chemical storage facilities will be subject to weekly inspection; and,
- Leaking or empty drums will be removed from the site immediately and disposed of via a registered waste disposal contractor.

Stormwater, arising from car parking areas and the transformer within the completed development, will be discharged to ground via an oil interceptor. Stormwater discharge will be limited to greenfield runoff rates, following attenuation through comprehensive sediment control infrastructure ensuring that no deleterious material is discharged, and no adverse water quality effects are experienced. The mimicking of greenfield runoff rates is a key part of the surface water management system and will ensure that the hydrological regime is not altered by the proposed development. The operational phase of the proposed development will have a negligible effect on local watercourses.

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

7.2 Invasive Species

Biosecurity measures will follow, as relevant, the manual *'The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*' by NRA (2010). While no non-native invasive species were recorded during the walkover surveys, the implementation of best practice measures will avoid the importation of invasive species to the site.

8. INTEGRITY OF EUROPEAN SITES

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. Favourable conservation status is defined for Annex I habitats and Annex II species in the Habitat Directive (1992):

Article 1 (e)

> Conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2. The conservative status of a natural habitat will be taken as 'favourable' when: its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.

Article 1 (i)

> Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2; The conservation status will be taken as 'favourable' when: population dynamics data on the species concerned indicate that it is maintaining itself on a

long-term basis as a viable component of its natural habitats, and the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The provisions of Article 6 of the 'Habitats' Directive 92/43/EC (2000) defines 'integrity' as the: 'coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or population of species for which the site is or will be classified'.

8.1 Upper Lough Erne SPA

The current NIS has assessed that there are no impacts arising from the proposed development which would have the potential to affect the conservation status or integrity of the Annex I species for which the Upper Lough Erne SPA is designated. No regular flight paths across the proposed development site have been identified for Whooper Swans and no mitigation measures are required to offset any impacts.

8.2 Upper Lough Erne SAC

The proposed development was identified as having the potential to impact the Upper Lough Erne SAC, and the Natural Eutrophic Lakes habitat and Otters. The Screening for Appropriate Assessment identified the potential for water quality impacts due to the hydrological connection with the SAC. The potential for invasive species impacts was also identified.

This NIS has assessed the above potential impacts and has provided mitigation measures to avoid any adverse impacts on the SAC. There are no impacts arising from the proposed development which would have the potential to affect the conservation status of the Annex I habitats or Annex II species for which the Upper Lough Erne SAC is designated. Due to geographical separation, no impacts on water quality or invasive species are considered likely to arise and the implementation of water quality protection measures will ensure that the integrity of the Upper Lough Erne SAC is not adversely affected.

8.3 Lough Oughter and Associated Loughs SAC

The proposed development was identified as having the potential to impact the Lough Oughter and Associated Loughs SAC and the Natural Eutrophic Lakes habitat and Otters. The Screening for Appropriate Assessment identified the potential for water quality impacts due to the hydrological connection with the SAC. The potential for invasive species impacts was also identified.

This NIS has assessed the above potential impacts and has provided mitigation measures to ensure that all effects are avoided. There are no impacts arising from the proposed development which would have the potential to affect the Conservation status of the Annex I habitats or Annex II species for which the Lough Oughter and Associated Loughs SAC is designated. Due to geographical separation, no impacts on water quality or invasive species are considered likely to arise and the implementation of water quality protection measures will ensure that the integrity of the Lough Oughter and Associated Loughs SAC is not adversely affected. No residual impacts are envisaged.

8.4 Lough Oughter Complex SPA

The proposed development was identified as having the potential to impact the Lough Oughter Complex SPA, the wetland and waterbirds habitat it's designated for and the following bird species that it supports: Great Crested Grebes, Whooper Swans and Wigeon. The Screening for Appropriate Assessment identified the potential for water quality, invasive species and collision risk impacts.

This NIS has assessed the above potential impacts and has provided mitigation measures to provide certainty that all significant impacts are avoided. There are no impacts arising from the proposed development which would have the potential to affect the Conservation status of the Annex I habitats or Annex I species for which the Lough Oughter Complex SPA is designated. Due to geographical separation, no adverse impacts on water quality or invasive species are considered likely to arise that could affect the Wetland and Waterbirds habitat in the SPA. The imposition of water quality protection measures provide certainty that all significant effects are avoided. Additionally, no significant impacts are envisaged that could impact the conservation status of bird species in this SPA. As a result, it is concluded that there is no risk of effects which could affect the integrity of the Lough Oughter Complex SPA.

Table 10 Potential Impacts, Mitigation Measures and Residual Impacts for each of the affected Q.I.s.

Natura 2000 Site	Qualifying Interest	Potential Impact	Mitigation Measure	Residual Impact
Upper Lough Erne SPA	Whooper Swan *Cygnus cygnus*	No direct impacts; Limited possibility for water quality, invasive species and collision impacts	None required	No residual impacts
Upper Lough Erne SAC	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation	No direct impacts; Limited possibility for water quality and invasive species impacts	As set out above	No residual impacts
	Otter *Lutra lutra*	No direct impacts; Limited possibility for	As set out above.	No residual impacts

Natura 2000 Site	Qualifying Interest	Potential Impact	Mitigation Measure	Residual Impact
		water quality and invasive species impacts		
Lough Oughter and Associated Loughs SAC	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation	No direct impacts; Limited possibility for water quality and invasive species impacts	As set out above.	No residual impacts
	Otter *Lutra lutra*	No direct impacts; Limited possibility for water quality and invasive species impacts	As set out above.	No residual impacts
Lough Oughter Complex SPA	Wetland and Waterbirds	No direct impacts; Limited possibility for water quality and invasive species impacts	As set out above.	No residual impacts
	Great Crested Grebe *Podiceps cristatus*	No direct impacts; Limited possibility for water quality, invasive species and collision impacts	None required	No residual impacts
	Whooper Swan *Cygnus cygnus*	No direct impacts; Limited possibility for water quality, invasive species and collision impacts	None required	No residual impacts
	Wigeon *Anas penelope*	No direct impacts; Limited possibility for water quality, invasive species and collision impacts	None required	No residual impacts

9. CONCLUSION STATEMENT

The proposed development is not located within the boundary of or close to any Natura 2000 site. On this basis, it can be concluded that there are no direct impacts which would have the potential to adversely affect the conservation status of any Natura 2000 site.

The Screening for Appropriate Assessment identified the potential for impacts on the Upper Lough Erne SAC and SPA, the Lough Oughter and Associated Lakes SAC and the Lough Oughter Complex SPA due to the potential for indirect and cumulative effects to arise and, as a result, a Stage 2 Appropriate Assessment is required.

This assessment has examined the qualifying interests for which the above sites have been designated, the connectivity between the proposed development site and the Natura 2000 network and the likelihood for impacts to arise. It was determined that water quality, invasive species and collision risk with overhead structures had only limited potential to arise in the absence of mitigation; however, mitigation measures have been provided to ensure certainty regarding the avoidance of any adverse effects. These mitigation measures include the provision and implementation of standard construction phase surface water management measures to avoid the deterioration of water quality. Due to the geographical separation between the proposed development and the Natura 2000 sites assessed, it is unlikely that localised adverse impacts arising from the construction phase would be likely to affect the integrity or conservation interests of the Natura 2000; however, the provision of mitigation measures will ensure that adverse effects will be avoided.

The provisions of Article 6 of the 'Habitats' Directive 92/43/EC (2000) defines 'integrity' as the 'coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and / or population of species for which the site is or will be classified'. Although there is no likelihood of significant or integrity level impacts, mitigation measures are proposed as a precautionary measure to ensure the avoidance of adverse effects on the Upper Lough Erne SAC, Upper Lough Erne SPA, the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA.

Therefore, and on the basis of available scientific evidence, it is concluded that the proposed development will have no direct, indirect or cumulative impacts on the conservation status or integrity of any European (Natura 2000) site.

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PLATES

Plate 1 Road on the proposed development site showing the existing transmission line, which runs from Lisdrum to Shankill.

Plate 2 Crossroads near the south-eastern end of the site. The underground line will cross along this existing road.

Plate 3 Habitats at proposed development site are comprised of agricultural habitats that are typical among the Co. Monaghan countryside.

Plate 4 Improved Agricultural Grassland Field near the proposed substation location and where the underground line will be placed.

APPENDIX 1 SCREENING FOR APPROPRIATE ASSESSMENT MATRIX

Brief Description of the Project or Plan	The proposed development relates to the construction of a 110KV electricity substation including all associated development works to accommodate its construction, operation, maintenance and export of electrical power generated by the permitted Drumlins Park Wind Farm to the national grid via the existing Lisdrum-Shankill overhead electricity transmission line. The grid connection comprises an underground cable which will connect via lattice type end masts to the existing line. The proposed development site is located in northwest Co. Monaghan approximately 4km southwest of the village of Newbliss.
Brief Description of the Natura 2000 Sites within 15km	**Kilroosky Lough Cluster SAC (Site Code: 001786)** This site is located c. 2km north-west of Clones in Co. Monaghan. This site consists of separate areas which contain several calcium-rich, clean water (oligo-mesotrophic) lakes and their marginal fen vegetation. This site is designated for the presence of Hard Water Lakes, Cladium fens, Alkaline Fens and White-clawed Crayfish. *Included in the current screening:* No – there is no downstream hydrological connection with this SAC. Additionally, the proposed development site is located 8.1km south-east of this SAC. There are no potential pathways for effects on any of the qualifying interests of this designated site. **Magheraveely Marl Loughs SAC (Site Code: UK0016621)** This site is located across the border and adjacent to the Kilroosy Lough Cluster SAC. This SAC is comprised of six lakes low-lying in the catchment of the River Finn. This site is designated for the presence of Hard Water Lakes, Cladium fens, Alkaline Fens and White-clawed Crayfish. *Included in the current screening:* No - there is no downstream hydrological connection with this SAC. Additionally, the proposed development site is located 8.9km south-east of this SAC. There are no potential pathways for effects on any of the qualifying interests of this designated site. **Upper Lough Erne SPA (Site Code: UK9020071)** This site is located in Northern Ireland and includes the Upper Lough Erne lake, its island and adjacent semi-natural habitats such as woodland, species-rich grassland and natural transitional vegetation. Wintering Whooper Swan generally utilise improved or semi-improved grassland close to water bodies used for roosting. Foraging in flooded field and of emergent vegetation in shallower lakes is common. Whooper Swan is the only qualifying interest of this SPA. *Included in the current screening:* **Yes** – this SPA is located c. 7.1km to the proposed development at its closest point and a hydrological connection is present **Upper Lough Erne SAC (Site Code: UK0016614)** This site is located in Northern Ireland and includes the Upper Lough Erne lake, its island and adjacent semi-natural habitats such as woodland, species-rich grassland and natural transitional vegetation. Wintering Whooper Swan generally utilise improved or semi-improved grassland close to water bodies used for roosting. Foraging in flooded field and of emergent vegetation in shallower lakes is common. This site is designated for Natural Eutrophic Lakes, Old sessile Oak Woods, Alluvial forests, Bog Woodland, Otter, Molinia Meadows and Alkaline Fens. *Included in the current screening:* **Yes** – there is a downstream hydrological connection with this designated site and therefore there is a potential pathway for impacts on the Natural Eutrophic Lakes habitat and Otters in the SAC. **Lough Oughter and Associated Loughs SAC (Site Code: 000007)** Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. This site is designated for the presence of Natural Eutrophic Lakes, Bog Woodland and Otter. *Included in the current screening:* **Yes** – there is a downstream hydrological connection with this designated site and therefore there is a potential pathway for impacts on the

	Natural Eutrophic Lakes habitat and Otters. **Lough Oughter Complex SPA (Site Code: 004049)** Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central cavan between Upper Lough Erne, Killeshandra and Cavan town. Lough Oughter is of importance for a range of wintering waterfowl. This is designated for the presence of Great Crested grebe, Whooper Swan, Wigeon and the Wetland and Waterbirds habitat that these birds utilise. *Included in the current screening:* **Yes** – there is a downstream hydrological connection with the designated site and therefore there is a potential pathway for impacts on the Wetland and Waterbirds habitat.
Potential Impacts that May Arise	There is no potential for direct impacts on any of the designated sites because the proposed development site is located away from the Natura 2000 network. The proposed development site is located c. 125m from the River Bunnoe, which is upstream of the Upper Lough Erne SAC and SPA, the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA. Therefore, there is the potential pathway for impacts on these designated sites, the Natural Eutrophic Lakes habitats, Otters and the Wetland and Waterbirds Habitats. In addition to this, the proposed development is for a substation and grid connection which will facilitate the permitted Drumlins Park Wind Farm in its connection with the existing transmission lines. For this reason, there is the potential pathway for cumulative impacts on birds. In particular, the Whooper Swan, which was infrequently recorded in low numbers in the study area during previous surveys of the permitted wind farm site. The potential pathway for indirect water quality, invasive species and cumulative impacts on the qualifying interests of these designated sites have been identified.
Conclusion	The potential for impacts on the Upper Lough Erne SAC and SPA, the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA have been identified. There is the potential for indirect water quality and invasive species impacts to arise, as well as cumulative impacts, on the qualifying interests of the affected Natura 2000 sites. As there is a risk of effects on these Natura 2000 sites, a Natura Impact Statement is required. Therefore, this pre-assessment Screening Matrix has determined that a Natura Impact Statement is required for the proposed development.

APPENDIX 2 BIRD SURVEY REPORTS

Ecofact (2019d) *Drumlins Park Wind Farm Winter Bird Survey January to March 2017*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact (2019e) *Drumlins Park Wind Farm Breeding Bird Surveys 2017*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact (2019f) *Drumlins Park Wind Farm and Grid Connection Winter Bird Surveys 2017/18.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact (2019g) *Drumlins Park Wind Farm and Grid Connection Breeding Bird Surveys 2018*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact (2019h) *Drumlins Park Wind Farm and Grid Connection Winter Bird Surveys 2018/19.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact (2019i) *Drumlins Park Wind Farm Breeding Bird Surveys 2019.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact (2020b). *Drumlins Park Wind Farm and Grid Connection Winter Bird Surveys 2019/20.* A Report to Galetech Energy Services. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

Ecofact, (2020c). *Drumlins Park Wind Farm and Grid Connection Breeding Bird Surveys 2020.* A Report to Galetech Energy Services. Ecofact Environmental Consultants Ltd., Tait Business Centre, Dominic St., Limerick.

APPENDIX 3 NPWS SITE SYNOPSIS

Site Name: Upper Lough Erne SPA
Site Code: UK9020071

Upper Lough Erne Lough is situated in Co. Fermanagh in the west of Northern Ireland. It is a very large and complex freshwater system. A series of flooded drumlins in the course of the River Erne give rise to a complex of islands, bays and many lakes bordered by damp pastures, fens, reedswamp and alder/willow carr and oak woodland.

The Special Protection Area site boundary is entirely coincident with the composite boundary of the following Areas of Special Scientific Interest:

- Corraslough Point
- Finn Floods
- Killymackan Lough
- Upper Lough Erne - Crom
- Upper Lough Erne -Trannish
- Dernish Island
- Inishroosk
- Upper Lough Erne - Belleisle
- Upper Lough Erne - Galloon

The site qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting internationally important numbers of wintering Whooper Swan *Cygnus cygnus* (the five year peak mean for the period 1991/92 to 1995/96 was 352 which comprises 2 % of the international Icelandic population). Upper Lough Erne provides a core protected area for Whooper Swans in the region of Northern Ireland, there being interchange between the swans using protected areas and those ranging more widely on surrounding farmland.

Upper Lough Erne contributes to the maintenance of the geographic range of the Annex 1 Greenland White-fronted Goose *Anser albifrons flavirostris* population of Northern Ireland through supporting regionally important numbers.

Upper Lough Erne also supports an important assemblage of breeding birds which includes Common Tern *Sterna hirundo* and has in the past supported breeding Corncrake *Crex crex*. Both are Annex 1 species. Other migratory birds breeding on the site include Great Crested Grebe *Podiceps cristatus* (100 pairs - 3 % of Irish population) and important concentrations of three species of waders which are declining elsewhere, Curlew *Numenius arquata*, Snipe *Gallinago gallinago*, and Redshank *Tringa totanus*.

Nationally important wintering wildfowl species, many of which are migratory, include Great Crested Grebe *Podiceps cristatus*, Cormorant *Phalacrocorax carbo*, Mute Swan *Cygnus olor*, Tufted Duck *Aythya fuligula*, Wigeon *Anas penelope*, Teal *Anas crecca*, Goldeneye *Bucephala clangula*, Coot *Fulica atra*, Mallard *Anas platyrhynchos*, Snipe *Gallinago gallinago*, Curlew *Numenius arquata* and Redshank *Tringa totanus*.

Site Name: Upper Lough Erne SAC
Site Code: UK0016614

The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Such diversity of good habitats and communities is reflected in the very large number of rare and notable plants and insects flourishing here: the woods being particularly important for breeding passerines and home for some notable mammals.

The site regularly supports large numbers of over-wintering and breeding birds important in an all-Ireland context in addition to internationally important numbers of wintering Whooper Swan Cygnus cygnus, which has been recognised by its SPA designation.

Site Name: Lough Oughter and Associated Loughs SAC
Site Code: 000007

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. The area lies on Silurian and Ordovician strata with Carboniferous limestone immediately surrounding.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [3150] Natural Eutrophic Lakes
- [91D0] Bog Woodland*
- [1355] Otter (Lutra lutra)

As well as the habitats and species listed above, the site also contains areas of dry woodland, marsh, reedbed and wet pasture.

Drainage within the area is inefficient and the water levels are prone to natural fluctuation as a result. The regularly flooded areas still accommodate a variety of specialist plant species such as Amphibious Bistort (*Polygonum amphibium*) and Marsh Foxtail (*Alopecurus geniculatus*), as well as rarer species such as Needle Spikerush (*Eleocharis acicularis*) and Lesser Marshwort (*Apium inundatum*).

The lakes and basins are shallow, and the water well mixed and nutrient rich (eutrophic). The aquatic flora is varied with several pondweed species such as Bluntleaved Pondweed (*Potamogeton obtusifolius*), Shining Pondweed (*Potamogeton lucens*), Broad-leaved Pondweed (*Potamogeton natans*), Reddish Pondweed (*Potamogeton alpinus*) and Various-leaved Pondweed (*Potamogeton gramineus*). Typical in the zone of aquatic plants are Yellow Water-lily (*Nuphar lutea*), Canadian Pondweed (*Elodea canadensis*), Mare's-tail (*Hippuris vulgaris*), Water Milfoil (*Myriophyllum spicatum*), Brooklime (*Veronica beccabunga*), Water-dropwort species (*Oenanthe* spp.) and Waterstarwort (*Callitriche* sp.). The aquatic community includes species of limited distribution in Ireland such as the Duckweed species Lemna gibba and Spirodela polyrhiza.

Around much of the shoreline there are well developed swamp and marsh communities, typically with a zone of Common Club-rush (*Scirpus lacustris*) in front of a zone of Common Reed (*Phragmites australis*) which is in turn backed by a more species-rich zone of sedges, grasses and herbs, particularly Bottle Sedge (*Carex rostrata*), Common Sedge (*Carex nigra*), Creeping Bent (*Agrostis stolonifera*), Meadowsweet (*Filipendula ulmaria*), Water Plantain (*Alisma plantago-aquatica*), Rough Horsetail (*Equisetum hyemale*), Water Horsetail (*Equisetum fluviatile*) and Wild Angelica (*Angelica sylvestris*). Less widespread species also occur on the wet lake margins; species such as Marsh Helleborine (*Epipactis palustris*), Water Dock (*Rumex hydrolapathum*), Greater Water-parsnip (*Sium latifolium*), Cowbane (*Cicuta virosa*), Tufted-sedge (*Carex elata*), Water Soldier (*Stratiotes aloides*), Arrowhead (*Sagittaria sagittifolia*), Flowering Rush (*Butomus umbellatus*) and Greater Spearwort (*Ranunculus lingua*) may be locally prominent.

There are many variations on this typical zonation of sheltered shores with species such as Bulrush (*Typha* sp.), Branched Bur-reed (*Sparganium erectum*) and Reed Canary-grass (*Phalaris*

arundinacea) gaining local prominence. More exposed shores lack the extensive swamp zones; here smaller species such as Common Spike-rush (*Eleocharis palustris*) can be found.

Level, wet pastures tend to be dominated by Creeping Bent and rushes (*Juncus* spp.) with a scattering of marshland and wet grassland plants such as Marsh-marigold (*Caltha palustris*), Water Forget-me-not (*Myosotis scorpioides*) and Yellow Iris (*Iris pseudacorus*). Soft Rush (*Juncus effusus*) is most abundant with frequent Hard Rush (*Juncus inflexus*) and Sharp-flowered Rush (*Juncus acutiflorus*), and less widespread Conglomerate Rush (*Juncus conglomeratus*) also occurring.

Where a general lack of grazing pressure or a particular slope has allowed it, deciduous woodland has re-established itself behind the reedbeds. Two species of Willow (*Salix caprea* and *S. cinerea*) are common constituents, along with Alder (*Alnus glutinosa*), Downy Birch (*Betula pubescens*), Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*). Along submerged margins Alder and Willow are most commonly found with a flooded understorey typically containing Reed Canarygrass, Meadow Sweet, Yellow Iris and in places Tufted-sedge and Greater Tussocksedge (*Carex paniculata*). Downy Birch occurs along lake edges and also forms stands of wet woodland on cutover bog with varying degrees of wet and dry peat. Purple Moor-grass (*Molinia caerulea*), Marsh Cinquefoil (*Potentilla palustris*) and bog mosses (*Sphagnum* spp.) occur in areas with pools and dry areas. Where there is dry peat, Bracken (*Pteridium aquilinum*), Bramble (*Rubus fruticosus* agg.) and gorse (*Ulex* sp.) occur under the birch canopy. Birch dominated wood is also found in association with Heather (*Calluna vulgaris*) bog.

In areas of wet bog with good Sphagnum cover, bog woodland has developed. Downy Birch characterises this habitat; other typical species include Purple Moorgrass and Bottle Sedge.

Dry broadleaved woodland is characterised by Ash (*Fraxinus excelsior*), Hazel, Holly (*Ilex aquifolium*) and Oak (*Quercus* spp.), while shrubs include Blackthorn (*Prunus spinosa*), Spindle (*Euonymus europaeus)* and Guelder-rose (*Viburnum opulus*). The Red Data Book species Bird Cherry (*Prunus padus*) has also been recorded from the site.

The clayey soils have a characteristic flora, including Wood Avens (*Geum urbanum*), Wood-sorrel (*Oxalis acetosella*), Primrose (*Primula vulgaris*), Herb-Robert (*Geranium robertianum*) and Wood-sedge (*Carex sylvatica*).

The site supports a substantial population of water birds including internationally important numbers of Whooper Swan (average peak 231) and nationally important numbers of Tufted Duck (average peak 247) and Cormorant (average peak 130), as well as important numbers of species such as Greenland White-fronted Goose, Great Crested Grebe, Wigeon, Teal and Pochard. Lapwing, Snipe and Golden Plover also utilise the wet grassland areas. Wildfowl Sanctuaries exist at Inchin Lough, Derrygid Lough, Farnham Lough, Derrybrick Lough, Derrinishbeg Lough and Annagh Lough. Part of the site is designated a Special Protection Area (SPA) under the E.U. Birds Directive.

Otter, a species listed on Annex II of the E.U. Habitats Directive, occurs at the site. Irish Hare has also been recorded. Both of these species are listed in the Irish Red Data Book and are legally protected under the Wildlife Act, 1976.

The main threats to the quality of the site are water polluting activities (such as runoff from fertiliser and slurry application, and sewage discharge) which have raised the nutrient status of some lakes to hypertrophic. Housing and boating developments are on the increase, both adjacent to and within the site. There is also significant fishing and shooting pressure on and around the lakes. Increased

afforestation has resulted in some loss of wetland habitat and also loss of feeding ground for wintering birds such as Greenland White-fronted Goose.

The Lough Oughter area contains important examples of two habitats listed on Annex I of the E.U. Habitats Directive and supports a population of the Annex II species, Otter. The site as a whole is the best inland example of a flooded drumlin landscape in Ireland and has many rich and varied biological communities. Nowhere else in the country does such an intimate mixture of land and water occur over a comparable area, and many of the species of wetland plants, some considered quite commonplace in Lough Oughter and its associated loughs, are infrequent elsewhere.

Site Name: Lough Oughter Complex SPA
Site Code: 004049

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Co. Cavan between Belturbet, Killashandra and Cavan town. This area comprises a maze of waterways, islands, small lakes and peninsulas. Lough Oughter, the largest lake in the site, is relatively shallow (maximum depth of 10 m) and considered to be a naturally eutrophic system. Its main inflowing rivers are the River Erne and the Annalee River, whilst the main outflow is the River Erne, which connects the lake to Upper Lough Erne and Lower Lough Erne to the north.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Whooper Swan, and Wigeon. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Lough Oughter Complex is of importance for a range of wintering waterfowl. Of particular note is an internationally important population of Whooper Swan (318) that is based in the area and which uses the lakes as a roost - all figures are five year mean peaks for the period 1995/96 to 1999/2000. A population of Greenland White-fronted Goose (75) of regional importance also roosts on the lakes and feeds mainly on agriculturally improved grassland nearby. The site supports nationally important wintering populations of two species, Great Crested Grebe (89) and Wigeon (903). Other species which occur regularly include Mute Swan (139), Teal (220), Mallard (336), Pochard (58), Tufted Duck (105), Goldeneye (117), Lapwing (381), Curlew (33), Little Grebe (8), Cormorant (81) and Black-headed Gull (311). A small colony of Common Tern occurs (10 pairs recorded at Farnham Lough in 1995).

Lough Oughter is at the centre of the Irish breeding range of Great Crested Grebe and the site supports in excess of 10% of the estimated national breeding total of this species (115 individuals in 1986-88).

The Lough Oughter Complex SPA is of ornithological importance for its wintering waterbird populations. Of particular note is the internationally important population of Whooper Swan that is based in the area. The site also supports nationally important populations of a further two wintering species. Two of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan and Greenland White-fronted Goose. Lough Oughter is a Ramsar Convention site and a Wildfowl Sanctuary.