

12.0 BIODIVERSITY

12.1 INTRODUCTION

This chapter presents a Biodiversity Impact Assessment of the proposed development and should be read in conjunction with Chapter 3 (Description of the Development). Details of the assessment methodology and existing site conditions are presented, potential impacts are assessed, and mitigation measures are recommended, where required.

The objectives of the ecological evaluation included:

- To obtain baseline ecological data at the proposed development site;
- To determine the ecological value of the identified ecological receptors;
- To assess the potential impacts, including direct, indirect and secondary impacts which may result from the proposed works during construction, operation and decommissioning;
- To recommend mitigation measures to avoid and/or reduce impacts; and
- To identify any residual impacts post mitigation and restoration measures.

The potential impacts of the proposed development on European sites (sites designated as Special Areas of Conservation [SACs] or Special Protection Areas [SPAs] that form part of the Natura 2000 network) in the Zone of Influence (Zoi) have been evaluated. This appraisal is presented separately in the form of a Screening for Appropriate Assessment (which accompanies the Planning Application documentation).

12.1.1 STATEMENT OF AUTHORITY

This chapter has been prepared by Áine Sands and Laura Kennedy.

Áine (B.Sc.) is a qualified Project Ecologist with TOBIN Consulting Engineers and has over five years post-graduate experience in ecology and environmental consultancy. Áine has predominantly been involved in large public and private infrastructure projects where she has carried out numerous Screenings for Appropriate Assessments, Natura Impact Statements and Ecological Impact Assessments for the proposed developments. Áine has a strong understanding of National and European legislation associated with biodiversity and is cognisant of relevant rulings by the Court of Justice of the European Union (CJEU). Áine also has experience with undertaking ecological surveys for protected habitats and species.

Laura Kennedy (M.Sc.) is a Senior Ecologist and Project Manager with TOBIN Consulting Engineers. She is a qualified and experienced environmental consultant with ten years' post-graduate experience in environmental sciences and environmental consultancy in Canada and Ireland. Laura has prepared and delivered Planning and Environmental Consideration reports, Technical Data reports, Environmental Assessments, Permit Applications, Environmental Effects Monitoring reports and Appropriate Assessment reporting for renewable energy projects, pipeline projects, and mining projects in Canada and Ireland. Laura has a strong technical background as an aquatic ecologist and has extensive field experience in biological and chemical water quality assessment. She has also collected hydrology and meteorology data, conducted wildlife surveys (bird and nest surveys, amphibian surveys), and carried out fish habitat assessments, which have included electrofishing, minnow trapping and fish identification.



12.2 METHODOLOGY

12.2.1 LEGISLATION, POLICES AND GUIDANCE

The following legislation, plans and policies have been considered in this chapter, where relevant:

- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011), as amended. With particular reference to the Third Schedule of the European Communities Regulations 2011 (S.I. No. 477 of 2011) which deals with invasive species;
- The EIA Directive 2011/92/EU, as amended by Directive 2014/52/EU;
- European Union (EU) (Environmental Impact Assessment and Habitats) (No. 2) Regulations 2015 (S.I. No. 320/2015);
- Environmental Liabilities Directive (2004/35/EC);
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, herein referred to as the Habitats Directive;
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds, herein referred to as the Birds Directive;
- The EU Water Framework Directive (2000/60/EC);
- The Wildlife Acts 1976 to 2020 (as amended), herein referred to as the Wildlife Acts;
- The Flora (Protection) Order 2015 (S.I. No. 356 of 2015);
- Relevant fisheries legislation up to and including the Inland Fisheries Acts 1959-2017, as amended;
- Objectives relevant to ecology and biodiversity in South Dublin County Development Plan 2016-2022;
- Relevant policies in Actions for Biodiversity 2011-2016, Ireland's 2nd National Biodiversity Plan produced by the Department of Arts, Heritage and the Gaeltacht in 2011 (now the Department of Culture, Heritage and the Gaeltacht); and
- Ireland 3rd National Biodiversity Action Plan, 2017 – 2021 produced by the Department of Culture, Heritage and the Gaeltacht.

The potential for effects on nature conservation interests was assessed, taking into consideration the habitats and species that are likely to be affected by the proposed development. This approach included consideration (as appropriate) of the following guidance documents:

- Bird Species of Medium and High Conservation Concern Listed in the Publication Birds of Conservation Concern in Ireland (BoCCI) 2020 – 2026;
- Scottish Natural Heritage (SNH) (2000). Wind Farms and Birds: Calculating a Theoretical Collision Risk Assuming no Avoidance Action;
- SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs);
- Fossitt (2000). A Guide to Habitats in Ireland. The Heritage Council;
- Environmental Protection Agency (EPA) (2002). Guidelines on the Information to be Contained in Environmental Impact Statements;



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- EPA (2017). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Draft, August 2017;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester;
- National Roads Authority (NRA) (2005a). Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes;
- NRA (2005b). Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes;
- NRA (2006). Guidelines for the Treatment of Otters prior to the Construction of National Roads Schemes. National Roads Authority, Dublin;
- NRA (2008). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes;
- NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes. (Revision 2, National Roads Authority);
- Smith, G. F., O'Donoghue, P., O'Hora, K., & Delaney, E. (2011). Best Practice Guidance for Habitat Survey and Mapping. Ireland's Heritage Council: Kilkenny, Ireland; and
- NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Plant Species on National Roads.

12.2.2 STUDY AREA

As discussed in Chapter 3 of this EIAR (Description of the Development), the proposed development includes the construction of a 125MW dual fuel gas fired power plant located in Profile Park Industrial Estate in Grange Castle, Dublin 22.

The study area for the Biodiversity Assessment comprised the site of the proposed power plant and associated network infrastructure including the electric grid and gas connections, plus the wider surrounding hinterland. The wider surrounding environment comprises a mixture of industrial developments and agricultural grasslands. The Baldonnell Stream (EPA_Code: 09B09) runs along the north-eastern boundary of the site, before discharging into the Grifeen River (EPA_Code: 09G01) approximately 2km downstream.

The study area comprises all lands located within the zone of influence (Zol) of the proposed development. The Zol is described hereunder.

12.2.3 ZONE OF INFLUENCE

The current guidance on ecological assessments (CIEEM, 2018)³⁰ states that:

“The ‘zone of influence’ for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries” and that “The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change.”



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The Zol was therefore defined through a desk-based assessment with regard to the sensitivity of habitats and species likely to be present / previously recorded in the locality of the proposed development site, areas with connectivity (physical, hydrological or ecological) to the proposed development site boundary and potential impacts which may arise. How the Zol was established is summarised hereunder:

- On the basis of the desk-based assessment, the main habitats located within the proposed development site and surrounding lands were found to likely comprise a mixture of wet and neutral grassland and commercial developments. Given the location of the proposed development site, and having regard to the habitats likely to be present (determined through the desktop assessment) the following protected species are likely to be present within the environs of the proposed development site; badger (*Meles meles*), otter (*Lutra lutra*), bat (*Chiroptera spp.*) and common farmland bird species.
- The outer extent of the survey area for protected mammal species was therefore defined with regard to the NRA Guidelines; ‘*Guidelines for the Treatment of Badgers during the Construction of National Road Schemes*’ (NRA, 2005b)¹⁷ and ‘*Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes*’ (NRA, 2006)¹⁸ which both state that noise impacts from construction works can impact breeding badger setts / otter holts within 150m of construction works. Other protected mammal species likely to be present in the locality will have a smaller Zol, as impacts are predominantly associated with habitat damage and will therefore be captured within the 150m survey buffer. The survey area for bats relates to their commuting / foraging routes and location of roost sites; the potential for which is determined through field assessment. An assessment of potential roost sites within the footprint of the works was undertaken (Section 12.2.6).
- The extent of the survey area for protected bird species was established through potential impacts to birds from the proposed development. The main impacts to birds include; habitat loss, fragmentation of habitat and disturbance. The survey area for birds was therefore defined as the proposed development site boundary to account for habitat loss and several hundred meters from the site boundary to account for displacement and/or disturbance. There are currently no specific Irish guidelines relating to a suitable buffer area to be surveyed for proposed developments; however, guidance produced by SNH is regularly referred to. The SNH (2017) guidance¹⁹ for general breeding bird surveys around onshore windfarms suggests a buffer of 500m. However, considering the small-scale nature of the proposed development, in comparison to a windfarm, a 150m was considered appropriate.
- The Zol of potential impacts on surface water quality in the receiving freshwater environment will be confined to the Baldonnell Stream and the immediate downstream environment.

¹⁷ NRA (2005b). Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes

¹⁸ NRA (2006). Guidelines for the Treatment of Otters prior to the Construction of National Roads Schemes. National Roads Authority, Dublin

¹⁹ Scottish Natural heritage (2017) Recommended bird survey methods to inform impacts assessment of onshore windfarms. Version 2.



12.2.4 CONSULTATIONS

The EIAR scoping correspondence was submitted to relevant statutory and non-statutory bodies in February 2020 (by email) for review and comment. The list of consultees and record of consultation is provided in Table 2-1 in Section 2.4 of this EIAR.

Written correspondence was submitted to the National Parks and Wildlife Services (NPWS) on the 15th February 2021. Acknowledgement of receipt of the correspondence was received advising that responses are typically provided within a six week timeframe. However, at the time of writing this report no response had been received.

12.2.5 DESK STUDY

An ecological desktop study of the proposed development was undertaken to inform the assessment. Principal sources of information utilised for the desktop assessment included:

- Existing relevant mapping and databases e.g. species and habitat distribution (sourced from the EPA, the National Biodiversity Data Centre [NBDC] and the NPWS);
- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual Reports, Species Action Plans and Conservation Management Plans;
- A review of all NPWS site synopses for designated sites within the Zol of the proposed development. These designated site locations are shown on Figure 12.1;
- Conservation Status Assessment Reports (CSARs), Backing Documents and Maps prepared in accordance with Article 17 of the Habitats Directive;
- A review of published data and documents from Bat Conservation Ireland, BirdWatch Ireland, Botanical Society of Britain and Inland Fisheries Ireland; and
- A review of relevant ecological reports/assessments previously completed within the study area.

12.2.6 FIELD SURVEYS

Ecological field surveys were undertaken by skilled and appropriately experienced TOBIN ecologists on the 25th of January 2021 and on the 13th April 2021. The data collected was robust and allowed TOBIN to draw accurate, definitive and coherent conclusions on the possible impacts of the proposed development on ecological receptors.

The aim of the survey was to determine the presence or absence of habitats and species of ecological value/significance, including Annex I habitats and Annex II and IV species, bird species protected under the EU Birds Directive, Wildlife Act species and Flora Protection Order species. The survey was also undertaken to assess the suitability of the habitats along the proposed development site to support protected species.

Further details of the survey methodologies undertaken are presented hereunder.

12.2.6.1 Habitat and Botanical Survey

Habitat and botanical surveys were carried out within the study area on the 13th of April 2021 following methodology outlined by *'Best Practice Guidance for Habitat Survey and Mapping'*



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(Smith *et al.*, 2011)²⁰ and ‘*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*’ (NRA, 2008)²¹. The data was recorded, and the habitats encountered during the site visit were classified in accordance with Fossitt (2000)²² with reference made to the ‘*Interpretation Manual of EU Habitats*’ (EC, 2013)²³ as appropriate.

The proposed development site was also searched for evidence of invasive plant species listed in Part 1 of the Third Schedule of S.I No. 477/2011 – European Communities (Birds and Natural Habitats) Regulations 2011. Species protected under Flora Protection Order, 2015 (S.I. No. 356/2015) or listed under the Irish Red Data List of Irish Plants were also searched for.

A habitat assessment of the small stream in the vicinity of the proposed development was also undertaken. Watercourse characteristics including bankside vegetation, substrate, and flow rate were recorded. An evaluation was made on the suitability of the habitat to support aquatic species of conservation concern.

Following the completion of desktop analysis and field surveys, a habitat map of the proposed development site was prepared according to the methodology outlined in Smith *et al.* (2011)²⁰. The habitat map details habitats and habitat complexes recorded within the area is provided in Figure 12.2.

12.2.6.2 Mammal Surveys

A terrestrial mammal survey was carried out at the proposed development site. Following the desktop assessment it was considered that the key target mammal species potentially occurring within habitats, which may be potentially affected by the proposed development, are badger, otter and bat species. Other protected mammal species such as Irish hare (*Lepus timidus*), hedgehog (*Erinaceus europaeus*), and pygmy shrew (*Sorex minutus*), which are all protected under the Wildlife Acts, may also occur within the proposed development site. The potential for the proposed development to support the above mentioned protected mammal species was assessed during the field surveys and any evidence of same was recorded.

Survey methodologies adopted during the target species surveys, for otter, badger and bat are outlined as follows:

12.2.6.2.1 Otter

Otter surveys were undertaken along the Baldonnell Stream following methodologies outlined in the NRA (2006)¹⁸ guidelines and within ‘*Monitoring the Otter Lutra Lutra*’ (Chanin, 2003)²⁴. The survey included the stretch of the watercourse located within 150m of the proposed development site. Any evidence/signs of otter such as; tracks, spraints, couches, slides, feeding remains or holts, were recorded.

²⁰ Smith, G. F., O’Donoghue, P., O’Hora, K., & Delaney, E. (2011). Best practice guidance for habitat survey and mapping. The Heritage Council: Ireland.

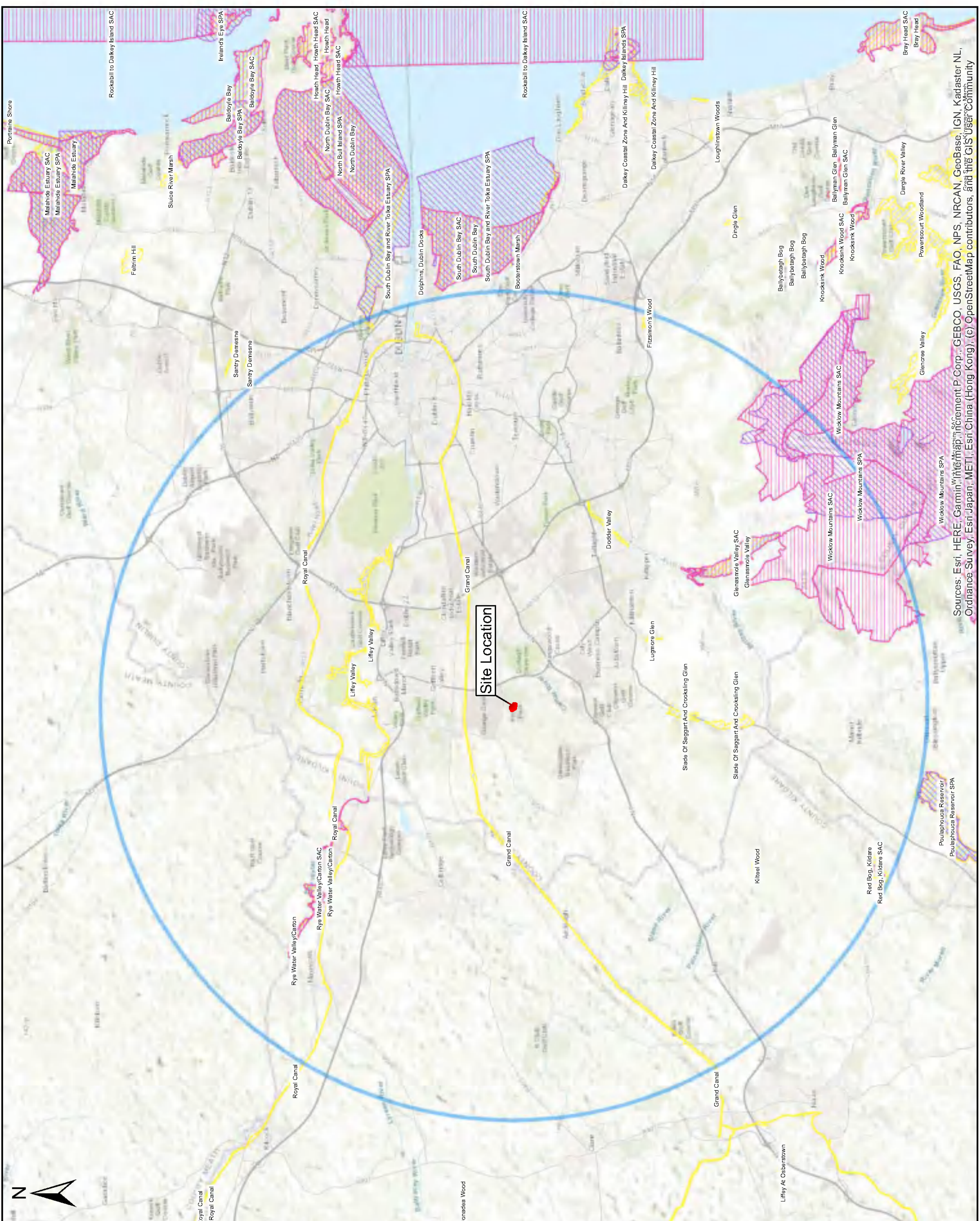
²¹ National Roads Authority (NRA; now known as Transport Infrastructure Ireland) (2008). *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*.

²² Fossitt, J. A. (2000). *A guide to habitats in Ireland*. Heritage Council/Chomhairle Oidhreachta.

²³ European Commission (2013). *Interpretation Manual of European Habitats*. Eur 28. April 2013.

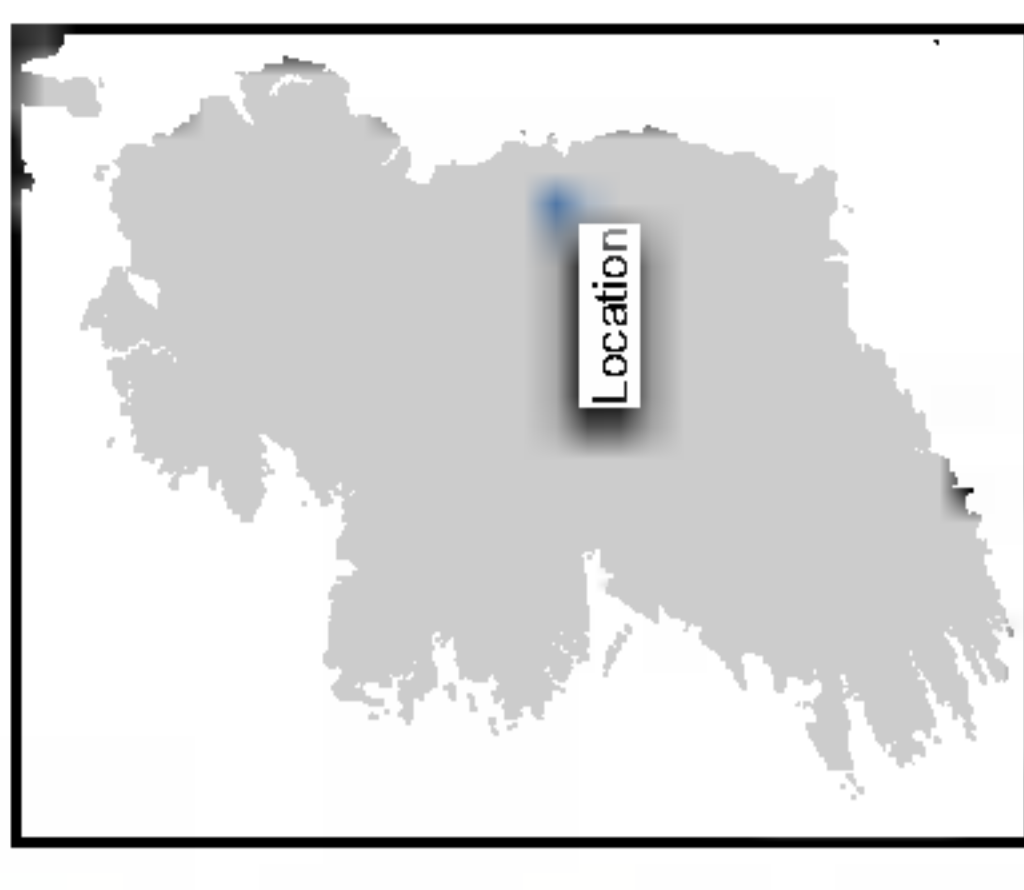
²⁴ Chanin P (2003). *Monitoring the Otter Lutra Lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature Peterborough.





Legend

- Site Location
- 15km buffer
- Special Area of Conservation (SAC)
- Special Protection Areas (SPA)
- National Heritage Areas (NHA)
- proposed National Heritage Areas (pNHA)



Issue	Date	Description	By	Chkd
A	20/04/2021	Designated Sites Maps	S.P	A.S



Client: **Greener Ideas**

Project: **Profile Park Power Plant**

Title: **Figure 12.1 Designated Sites**

Scale @ A3: 1:10,450,000

Prepared by: S. Pezzetta
Checked: A. Sands
Date: April 2021

Project Director: D. Grehan

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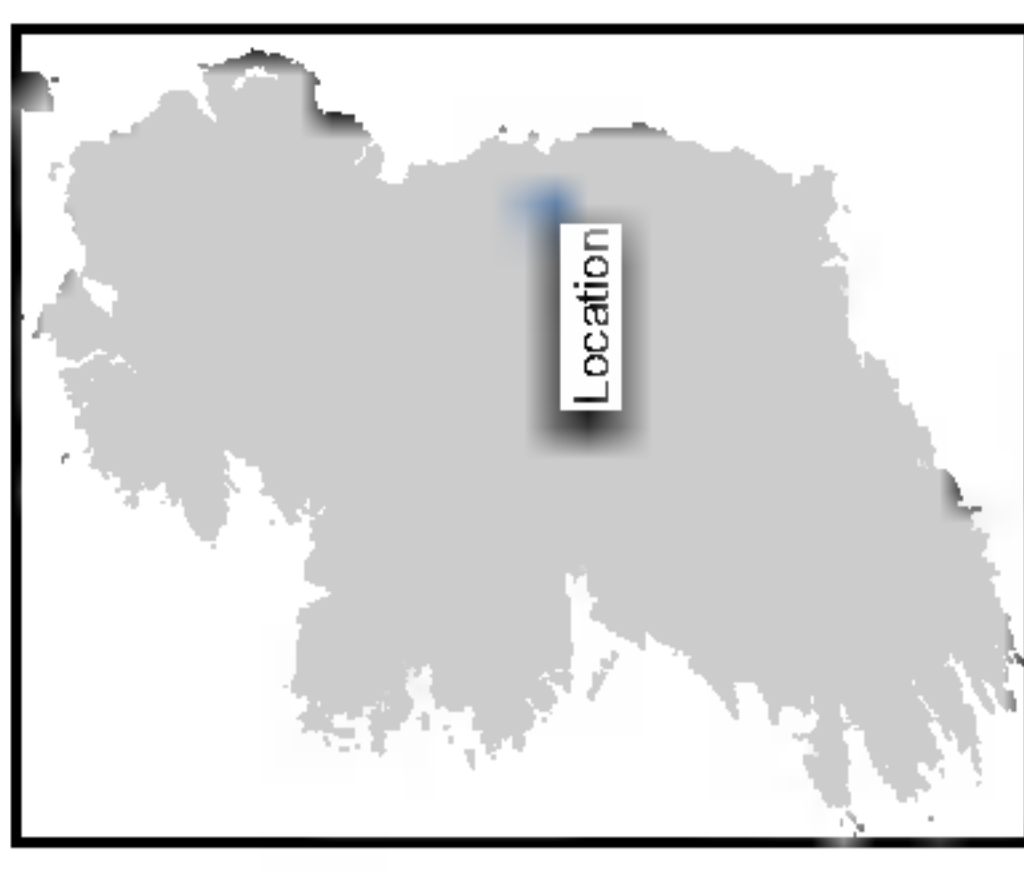
Issue: **A**

Sources: Esri, HERE, DeLorme, Mapbox, Microsoft, Swatch, Bing, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swire, OpenStreetMap contributors, and the GIS User Community



Legend

- ▭ Site Location
- Habitats/Fossitt Codes**
- FW1 Eroding/upland rivers
- + WL1 Hedgerows
- BL3 Buildings and artificial surfaces
- GS1 Dry calcareous and neutral grassland
- GS4 Wet grassland



Issue	Date	Description	By	Chkd.
A	20/04/2021	Habitats	S.P	A.S



Client: **Greener Ideas**

Project: **Profile Park Power Plant**

Title: **Figure 12.2
Habitat Map**

Scale @ A3: 1:1,500

Prepared by: S. Pezzetta
Checked: A. Sands
Date: April 2021

Project Director: D. Grehan

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Issue: **A**
Drawing No.: **Figure 12.2**

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

12.2.6.2.2 Badger

Badger surveys were undertaken within the proposed development site plus a 150m buffer of the footprint of the works. The badger survey followed methodologies outlined in *Surveying Badgers* (Harris *et al.*, 1989)²⁵ and guidance outlined in the NRA guidance (NRA, 2005b)¹⁷. Any evidence of badger activity such as setts, trails, latrines and feeding signs were recorded.

12.2.6.2.3 Bats

Bat surveys comprised a daytime visual assessment of suitable roosting and foraging habitat within the Zol of the proposed development site in accordance with ‘*Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*’ (Collins, 2016)²⁶.

There are no trees, treelines, hedgerows or structures located within the proposed development site. There are however a number of scattered trees and treelines located in close proximity to proposed development site, and a small stream along the northern boundary. A daytime ground-level visual assessment of the trees was undertaken. The suitability of habitat features for bats, within the survey area, was assessed in accordance with Collins (2016) as described in Table 12-1 below. Where a potential roost feature was identified, the feature was then further investigated using an inspection bat endoscope.

Table 12-1: Guidelines for Assessing Potential Bat Roosts (Collins, 2016)

Suitability	Roosting Potential	Commuting and Foraging Potential
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat likely to be used on a regular basis by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or with features seen only with very limited roost potential.	Habitats, that could be used by small numbers of commuting bats such as gappy hedgerows or unvegetated streams, but are isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.

²⁵ Harris, S., Cresswell, P., Jefferies D (1989) *Surveying Badgers*. Mammal Society – No. 9

²⁶ Collins, J. (ed.)(2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.



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Suitability	Description of Potential Habitat	Comments and Foraging Habitat
	conservation status, which is established after presence is confirmed).	
High	A structure with one or more potential roost sites that could be used that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edges. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed parkland. Site is close to and connected to known roosts.

12.2.6.2.4 Birds

A winter bird survey was undertaken on the 25th of January 2021 and a breeding bird survey was undertaken on the 13th of April 2021. The survey methodology for both surveys followed the *Bird Monitoring Methods* by Gilbert *et al.* (1998)²⁷. Both surveys commenced at dawn and surveyors walked slowly along transects throughout the proposed development site. Birds were identified by sight and call and the location and activity were recorded using the British Trust for Ornithology species and activity codes²⁸.

Due to the size and location of the proposed development site, and lack of suitable favourable nesting and roosting habitat such as hedgerows, treelines and wetlands, a single winter and breeding bird survey were considered sufficient to establish usage of the site by breeding and wintering birds. In addition, a robust desktop assessment of previous bird surveys undertaken within surrounding lands was also conducted to further inform the assessment.

12.2.6.3 Fisheries and Aquatic Ecology

An aquatic habitat assessment was carried out along the stretch of the Baldonnell Stream located within the proposed development site and in the receiving environment directly downstream, using the methodology provided in the Scottish Environment Protection Agency's '*River Habitat Survey in Britain and Ireland Field Survey Guidance Manual: 2003 Version*' (Environment Agency, 2003).

12.2.7 BASELINE EVALUATION CRITERIA

Ecological resources/receptors are evaluated following the NRA (2009)²⁹ guidelines (refer to Table 12-2 below) which sets out the importance of the ecological resource/receptor in a geographic context. These guidelines are consistent with the approach recommended in the '*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (CIEEM, 2018)³⁰.

²⁷ Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods – A Manual of Techniques for Key UK Species. RSPB.

²⁸ <https://www.bto.org/our-science/projects/bbs/taking-part/download-forms-instructions>

²⁹ NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes. (Revision 2, National Roads Authority)

³⁰ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.



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The information gathered from desk studies and field surveys was used to carry out an Ecological Impact Assessment (EclA) of the proposed development upon the identified ecological receptors on an importance scale ranging from international - national - county importance - local importance (higher value) - local importance (lower value). Those features identified as being of high local importance or greater, were then given particular mention in the ecological evaluation as key ecological receptors (KERs) when considering the potential for significant impacts and subsequent requirement for appropriate mitigation.

In addition, all potential impacts were assessed and characterised in accordance with the guidance produced by the EPA, ‘*Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports*’ (EPA, 2017)³¹ (refer to Table 12-3 below). Via this approach, a scientific and repeatable method was applied whereby all aspects of a potential impact were considered.

Table 12-2: Site Evaluation Criteria

Importance	Ecological Receptors
International Importance	<ul style="list-style-type: none"> • European sites including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA), proposed Special Area of Conservation (pSAC), and/or Proposed Special Protection Area (pSPA). • Site that fulfils the criteria for designation as a ‘European site’ (see Annex III of the Habitats Directive, as amended). • Features essential to maintaining the coherence of the Natura 2000 Network. • Site containing ‘best examples’ of the habitat types listed in Annex I of the Habitats Directive. • Resident or regularly occurring populations (assessed to be important at the national level) of the following: <ul style="list-style-type: none"> ○ Species of bird listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). • World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). • Biosphere Reserve (UNESCO Man & The Biosphere Programme). • Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). • Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). • Biogenetic Reserve under the Council of Europe. • European Diploma Site under the Council of Europe. • Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).
National Importance	<ul style="list-style-type: none"> • Site designated or proposed as a Natural Heritage Area (NHA). • Statutory Nature Reserve.

³¹ Environmental Protection Agency (EPA) (2017). *Guidelines on the information to be contained in Environmental Impact Assessment Reports. Draft, August 2017.*



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Importance	Ecological Valuation
	<ul style="list-style-type: none"> • Refuge for Fauna and Flora protected under the Wildlife Acts. • National Park. • Undesignated site fulfilling the criteria for designation as an NHA, Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Acts; and/or a National Park. • Resident or regularly occurring populations (assessed to be important at the national level) of the following: <ul style="list-style-type: none"> ○ Species protected under the Wildlife Acts; and/or ○ Species listed on the relevant Red Data list. • Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.
<p>County Importance</p>	<ul style="list-style-type: none"> • Area of Special Amenity. • Area subject to a Tree Preservation Order. • Area of High Amenity, or equivalent, designated under the County Development Plan. • Resident or regularly occurring populations (assessed to be important at the County level) of the following: <ul style="list-style-type: none"> ○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; ○ Species protected under the Wildlife Acts; and/or ○ Species listed on the relevant Red Data list. • Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. • County important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP), if these have been prepared. • Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
<p>Local Importance (Higher Value)</p>	<ul style="list-style-type: none"> • Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared. • Resident or regularly occurring populations (assessed to be important at the Local level) of the following: <ul style="list-style-type: none"> ○ Species of bird listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; ○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; ○ Species protected under the Wildlife Acts; and/or ○ Species listed on the relevant Red Data list. • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
<p>Local Importance (Lower Value)</p>	<ul style="list-style-type: none"> • Sites containing small areas of semi-natural habitat that are of some local importance for wildlife.



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Importance	Ecological Values
	<ul style="list-style-type: none"> Sites or features containing non-native species that are of some importance in maintaining habitat links.

Table 12-3: Description of Effects

Description of Effects	Definition
Quality of Effects	Positive Effects A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Significance of Effects	Imperceptible An effect capable of measurement but without significant consequences.
	Not significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Very Significant An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.
Duration and Frequency of Effects	Momentary Effects Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually.



12.3 BASELINE ENVIRONMENT

12.3.1 OUTPUT OF DESKTOP ASSESSMENT

12.3.1.1 Designated Conservation Sites

Sites of International Importance

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network. The Natura 2000 network comprises sites of the highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SAC) and Special Protection Areas (SPA). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats.

Nine European sites (six SACs and three SPAs) occur within 15km of the proposed development site and are listed in Table 12.4.



The European sites; North Dublin Bay SAC, South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA are hydrologically to the proposed development site via the Baldonnell Stream, Grifeen River and River Liffey (hydrological route ca. 25km). North Bull Island SPA occurs 18km from the proposed power plant but is also hydrologically connected to the proposed development site via the Baldonnell Stream, Grifeen River and River Liffey (hydrological route ca. 25km).

Sites of National Importance

Natural Heritage Areas (NHA) are the basic wildlife designation in Ireland. These areas are considered nationally important for the habitats present or which holds species of plants and animals whose habitats needs protection. Under the Wildlife Acts, NHAs are legally protected from damage from the date they are formally proposed for designation (source: www.npws.ie). Proposed Natural Heritage Areas (pNHA) were published on a non-statutory basis in 1995 and have not since been statutorily proposed or designated.

There are no NHAs located within 15km of the proposed power plant.

Sixteen pNHA's occurs within 15km of the proposed development site and are listed in Table 12-4 below.

Three pNHAs; North Dublin Bay pNHA, South Dublin Bay pNHA and Dolphin Docks pNHA are all hydrologically connected to the proposed development site via the Baldonnell Stream, Grifeen River and River Liffey (hydrological route ca. 25km).

All designated sites within 15km of the proposed power plant are illustrated in Figure 12.1.



Table 12-4: Designated Conservation Sites within 15km of the Proposed Development

Name	Site Code	Approximate distance from the Proposed Development Site (km)
International Sites (European Sites)		
Rye Water Valley/Carton SAC	001398	Ca. 6.1km north-west of the proposed development site
Glenasmole Valley SAC	001209	Ca. 7.8km south-east of the proposed development site
Wicklow Mountain SAC	002122	Ca. 9.5km south-east of the proposed development site
Red Bog, Kildare SAC	000397	Ca. 15km south-west of the proposed development site
North Dublin Bay SAC	000206	Ca. 15km east of the proposed development site and is hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)
South Dublin Bay SAC	000206	Ca. 15.5km east of the proposed development site and hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)
Wicklow Mountain SPA	004040	Ca. 12.8km south-east of the proposed development site
South Dublin Bay and River Tolka Estuary SPA	004024	Ca. 15km east of the proposed development site and hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)
North Bull Island SPA	004006	Ca. 18km north-east of the proposed development site and is and hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)
National Sites		
Grand Canal pNHA	002140	Ca. 1.6km north of the proposed development site
Liffey Valley pNHA	000218	Ca. 4.6km north of the proposed development site
Lugmore Glen pNHA	001212	Ca. 5.3 north-east of the proposed development
Slade of Saggart and Crooksling Glen pNHA	000211	Ca. 5.5km south of the proposed development site
Slade of Saggart and Crooksling Glen pNHA	000211	Ca. 5.5km south of the proposed development site
Rye Water Valley /Carton pNHA	001398	Ca. 6.1km north-west of the proposed development site
Royal Canal pNHA	002103	Ca. 6.4km north of the proposed development site
Dodder Valley pNHA	000991	Ca. 7.4km south-east of the proposed development site
Glenasmole Valley pNHA	001209	Ca. 7.8km south-east of the proposed development site
Kilteel Wood pNHA	001394	Ca. 10.5km south-west of the proposed development site
Red Bog, Kildare pNHA	000397	Ca. 15km south-west of the proposed development site
Poulaphouca Reservoir pNHA	000731	Ca. 15km south of the proposed development site
Fitzsimon’s Wood pNHA	001753	Ca. 15km south-east of the proposed development site
North Dublin Bay pNHA	000206	Ca. 15km east of the proposed development site and is hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)
South Dublin Bay pNHA	000206	Ca. 15.5km east of the proposed development site and is hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)
Dolphin Dublin Docks pNHA	000201	Ca. 17km east of the proposed development site and is hydrologically connected via the Baldonnell Stream and River Liffey (hydrological route ca. 25km)



Other National Sites

Other sites of natura conservation within the Zol or within 15km of the proposed power plant site are discussed hereunder:

- There are no National Parks located within 15km.
- No Nature Reserves occur within 15km.
- One Wildfowl Sanctuary; Brittas Bay (WFS-18) occurs within the 15km buffer and is located ca. 8km to the south.

12.3.1.2 Records of Protected Species and Habitats

A review of previously recorded protected fauna and flora and invasive species within the study area was undertaken and is summarised hereunder.

12.3.1.2.1 National Biodiversity Data Centre Data

A search of the National Biodiversity Data Centre (NBDC)³² database was carried out for protected flora and fauna and species listed under the Third Schedule of the Birds and Natural Habitats Regulations (2011) within the 2km grid squares; O03F and O03K, which both encompass the proposed development site, and are listed in Table 12-5.

A total of 51 bird species have previously been recorded within the two 2km grid squares. Due to the large number of species recorded only species protected by the EU Birds Directive or species listed as either Red or Amber under the Birds of Conservation Concern³³ have been listed in Table 12-5, as they are of higher ecological concern.

Table 12-5: Previous Records of Protected Fauna and Flora within the 2km grid squares; O03K and O03F

2km Grid Square	Species	Designation	Location in Relation to the Proposed Development Site
O03K	Barn swallow (<i>Hirundo rustica</i>)	WA, Red Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F, O03K	Black-headed Gull (<i>Larus ridibundus</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F	Great Black-backed Gull (<i>Larus marinus</i>)	WA, Red Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03K	Common Coot (<i>Fulica atra</i>)	Annex II, Annex III, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site

³² Accessed online via: <https://maps.biodiversityireland.ie/Map>

³³ Gilbert G, Stanbury A, Lewis, L (2021), "Birds of Conservation Concern in Ireland 2020-2026. Irish Birds 9: 523-544.



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2km ² Square	Species	Designation	Location in Relation to the Proposed Development Site
O03K	Common Starling (<i>Sturnus vulgaris</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03K	Eurasian Tree Sparrow (<i>Passer montanus</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F	Great Cormorant (<i>Phalacrocorax carbo</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03F) which encompasses the proposed development site
O03F	Herring Gull (<i>Larus argentatus</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03F) which encompasses the proposed development site
O03K	House Sparrow (<i>Passer domesticus</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F	Lesser Black-backed Gull (<i>Larus fuscus</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03F) which encompasses the proposed development site
O03F	Little Grebe (<i>Tachybaptus ruficollis</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03F) which encompasses the proposed development site
O03F, O03K	Mallard (<i>Anas platyrhynchos</i>)	Annex II, Annex III, WA	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F, O03K	Mute Swan (<i>Cygnus olor</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F, O03K	Northern Lapwing (<i>Vanellus vanellus</i>)	Annex II, WA, Red Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03K	Sand Martin (<i>Riparia riparia</i>)	WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03F, O03K	Tufted Duck (<i>Aythya fuligula</i>)	Annex II, Annex III, WA, Amber Listed	Previously recorded within the 2km square grid (O03K) which encompasses the proposed development site
O03K	Indian Balsam (<i>Impatiens glandulifera</i>)	Invasive Species >> Regulation S.I. 477 (Ireland)	Closest previous recording located 1.7km east of the proposed development site



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OS Grid Square	Species	Designation	Location in Relation to the Proposed Development Site
O03K	Japanese Knotweed (<i>Fallopia japonica</i>)	Invasive Species >> Regulation S.I. 477 (Ireland)	Closest previous recording located ca. 1.7km east of the proposed development site
O03K	Spanish Bluebell (<i>Hyacinthoides hispanica</i>)	Invasive Species >> Regulation S.I. 477 (Ireland)	Closest previous recording located ca. 1.7km east of the proposed development site
O03K	American Mink (<i>Mustela vison</i>)	Invasive Species >> Regulation S.I. 477 (Ireland)	Closest previous recording located ca. 1.2km south-east of the proposed development site
O03K	Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	Invasive Species >> Regulation S.I. 477 (Ireland)	A number of previous recordings located ca. 500m north-east of the proposed development site and ca. 1.7km east of the proposed development site
O03F	Daubenton's Bat (<i>Myotis daubentonii</i>)	Annex IV, WA	A number of previous recordings located ca. 500m east, 800m south and 700 north-west of the proposed development site
O03F	Brown Long-eared Bat (<i>Plecotus auritus</i>)	Annex IV, WA	A number of previous recordings located ca. 500m east, 800m south and 700 north-west of the proposed development site
O03F, O03K	Lesser Noctule (<i>Nyctalus leisleri</i>)	Annex IV, WA	A number of previous recordings located ca. 500m east, 800m south and 700 north-west of the proposed development site
O03F, O03K	Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	Annex IV, WA	A number of previous recordings located ca. 500m east, 800m south and 700 north-west of the proposed development site
O03F, O03K	Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	Annex IV, WA	A number of previous recordings located ca. 500m east and 700 north-west of the proposed development site
O03F, O03K	West European Hedgehog (<i>Erinaceus europaeus</i>)	WA	Closest previous recording located ca.800m south of the proposed development site

NBDC Bat Landscapes Tool

A review of the Bat Landscapes Tool was utilised to determine the habitat suitability of the study area to support protected bat species. The bat 'habitat suitability' index is the research outcome of a study by Lundy *et al.* (2011)³⁴ examining the relative importance of landscape and habitat associations across Ireland for bats. The 'habitat suitability' index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for various bat species. The results of the Bat Landscape Tool are also shown in Table 12-6. The habitat suitability score for all bat species was 26.57 (moderate suitability).

³⁴ Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) Landscape conservation for Irish bats & species roosting characteristics. Bat Conservation Ireland.



Table 12-6: Results of the Bat Landscape Tool

Species	Landscape Suitability Index
All Bat species	26.57
Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	35
Brown long-eared bat (<i>Plecotus auratus</i>)	40
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	41
Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>)	0
Lesser noctule (<i>Nyctalus leisleri</i>)	41
(<i>Myotis mystacinus</i>)	19
Daubenton's bat (<i>Myotis daubentoniid</i>)	19
Nathusius's pipistrelle (<i>Pipistrellus nathusli</i>)	19
Natter's bat (<i>Myotis nattereri</i>)	26

12.3.1.2.2 National Parks and Wildlife Services

Known records of protected or rare plant species, occurring within the 10km square grid (O03) which encompasses the proposed development site was supplied by the NPWS Scientific Unit to TOBIN. Flora Protection Order (FPO) species previously recorded within the 10km grid square, which encompasses the proposed development site, included historic records of meadow barley (*Hordeum secalinum*), red hemp-nettle (*Galeopsis angustifolia*), hairy St John's-wort (*Hypericum hirsutum*) and blue fleabane (*Erigeron acer*). It should be noted that none of the above plant species were recorded within the study area during the habitat and botanical survey in April 2021.

12.3.1.2.3 Inland Fisheries Ireland

Inland Fisheries Ireland (IFI) undertook electrofishing at two sites within the Grifeen River in 2011 (Kelly *et al.*, 2012)³⁵. One site, Grifeen (Grange Castle), is located approximately 1.3km upstream of the Baldonnell Stream confluence, while the second site, Grifeen (Grifeen Avenue), is located approximately 1.2km downstream of the Baldonnell Stream confluence.

A total of four fish species were recorded in the 'Grifeen Avenue' site which included three-spined stickleback (*Gasterosteus aculeatus*), brown trout (*Salmo trutta*), roach (*Rutilus rutilus*) and eel (*Anguilla Anguilla*). Only one fish species, three-spined stickleback, was recorded at the 'Grange Castle' site.

12.3.1.2.4 Review of Previous Ecological Assessments

A review of past ecological surveys which were carried out in proximity to the proposed development was also undertaken and are summarised hereunder.

Distribution Centre (Planning Ref: SD20A/0124)

Scott Cawley Ltd. undertook an ecological impact assessment for a proposed Distribution Centre located immediately north-west of the proposed development site (Scott Cawley,

³⁵ Kelly, F.L., Matson, R., Connor, L., Feeney, R., Morrissey, E., Wogerbauer, C., and Rocks, K. (2012) Water Framework Directive Fish Stock Survey of Rivers in the Eastern River Basin District. Inland Fisheries Ireland.



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2020)³⁶. Scott Cawley undertook a number of ecological surveys and the main findings of the surveys are outlined hereunder.

No evidence of badger or otter, including setts or holts, were recorded during the surveys. During breeding bird surveys a range of common bird species were noted using the site for foraging and breeding purposes. Meadow pipit (*Anthus pratensis*) was the only Red-listed (High Conservation Concern) bird species recorded using the site for foraging and potentially breeding. During bat activity surveys, three bat species were recorded; common pipistrelle, Leisler's, and soprano pipistrelle. No bat roosts were confirmed within the site.

Data Centre Development (Planning Ref: SD20A/0121)

Scott Cawley Ltd. were commissioned to undertake an ecological impact assessment to inform an Environmental Impact Assessment Report for the development of a Data Centre located approximately 320m north-west of the proposed development site (Marston Planning Consultancy, 2020)³⁷. Similarly, a wide suite of ecological surveys were undertaken and the main findings are summarised hereunder.

The proposed Data Centre development site predominantly comprises agricultural grassland. No Annex I habitats or protected plant species were recorded within the site. The invasive plant species, Spanish blue bell (*Hyacinthoides hispanica*) was recorded within a garden of a derelict farmhouse, which is located approximately 870m north-west of the proposed power plant site.

Otter was recorded swimming in the Baldonnell Stream, approximately 600m north-west of the proposed development site. No bat roosts were confirmed during bat surveys. Two species of bat; Leisler's bat and common pipistrelle were recorded during emergence surveys. No signs of badger or other protected mammal species were recorded during the surveys.

Notable bird species recorded during their bird surveys included kingfisher (*Alcedo atthis*) and grey wagtail (*Motacilla cinerea*). Two kingfisher were recorded along the Baldonnell Stream located within the proposed Data Centre site. Grey wagtail was regularly recorded along the river bank during winter surveys.

12.3.2 OUTPUT OF FIELD SURVEYS

12.3.2.1 Habitats

All habitats were classified according to Fossitt (2000)²² during the ecological walkover surveys of the site. The habitats within the proposed development footprint are described herein and illustrated in **Error! Reference source not found.** An assessment of the habitats was undertaken in accordance with the NRA Guidelines (2009)²⁹.

Depositing/lowland Rivers (FW2)

The Baldonnell Stream which occurs along the northern and north-eastern boundary of the site is a depositing/lowland watercourse (FW2). The watercourse flows in a north-westerly direction before discharging into the Grifeen River located approximately 2km downstream of

³⁶ Scott Cawley (2020) Ecological Impact Assessment, Proposed Distribution Centre, Profile Park, Nangor Road, Dublin 22 (Unpublished Report)

³⁷ Marston Planning Consultancy (2020) Environmental Impact Assessment Report, Data Centre Development Grange Castle South Business Park. (Unpublished Report).



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the proposed development site. Within the study area, the stream is approximately 1m wide with steep banks. Rock gabion baskets are present along the lower section of the stream bank.

The stream has been heavily modified and is culverted to the south of the site for a small section underneath the adjacent development, Digital Realty Profile Park, and is also culverted underneath the road located immediately north of the proposed development site and again underneath Profile Park road located approximately 165m north of the proposed development site. The stream substrates consists of fine sediment (70%) with some small pebbles (30%) present in areas. The stream is heavily vegetated with mats of water-cress (*Nasturtium officinale*) and brooklime (*Veronica beccabunga*). The flow of the stream is slow.

The stream at this location was assessed as having low fisheries value due to the heavily modified nature of the watercourse, the presence of culverts and the high level of sedimentation.

No evidence of otter, including holts, were recorded along the stream, both 150m upstream and downstream of the proposed power plant. Considering the highly modified nature of the watercourse, it is likely that the stream, at this location, provides only sub-optimal habitat for otter.

In 2019, Scott Cawley ecologists recorded otter swimming within Baldonnell Stream approximately 900m downstream of the proposed power plant site (Marston Planning Consultancy, 2020)³⁷. In addition, kingfisher and grey wagtail have previously been recorded by Scott Cawley using the watercourse further downstream.

No suitable nesting habitat to support kingfisher or grey wagtail was identified along the stream within the proposed development study area.

The watercourse was assessed as having Local Importance (higher value) as although the stream is considered to be of low ecological value at the proposed development site location, the stream supports a number of protected species further downstream.

Photo 12-1: View of Baldonnell Stream at the Northern Boundary of the Proposed Development Site



Wet Grassland (GS4)

The proposed development site currently comprises wet grassland (GS4). Species present within the grassland includes abundant soft rush (*Juncus effusus*), ribwort plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), silverweed (*Potentilla anserina*), meadowsweet (*Filipendula ulmaria*), with occasional self-heal (*prunella vulgaris*), cuckoo flower (*Cardamine pratensis*), horsetail (*Equisetum spp.*) and immature willow trees (*Salix spp.*). Carpets of *Sphagnum magellanicum* are present in areas within the grassland. Despite the number of species recorded, the grassland is considered to have a relatively low species diversity. The wet grassland has an uneven surface which suggests the habitat has previously been disturbed. In lower areas of the habitat, small pools of standing water are present.

A number of snipe (*Gallinago gallinago*) and a pair of lapwing (*Vanellus vanellus*) were recorded foraging and roosting within the wet grassland habitat during the surveys.

Despite the low species diversity and evidence of previous disturbance, the wet grassland habitat was assessed as having Local Importance (higher value) as it provides an important habitat for two protected bird species.

Photo 12-2: View of Wet Grassland Habitat with Pools of Standing Water



Neutral Grassland (GS1)

Neutral grassland (GS1) occurs to the south-western boundary of the proposed development site. Species recorded included common bent (*Argrostis capillaris*), Yorkshire fog (*Holcus lanatus*), ribwort plantain (*Plantago lanceolata*), white clover, Lady's bedstraw (*Galium verum*) with occasional selfheal (*Prunella vulgaris*), bramble (*Rubus fruticosus*), and gorse (*Ulex europaeus*). There is evidence that the grassland is grazed lightly by horses.

The habitat is assessed as being of Local Importance (lower value).

Hedgerows (WI1) and Treelines (WL2)

A hedgerow comprising hawthorn (*Crataegus monogyna*) occurs along the southern outer boundary of the proposed development site. A wood pigeon's (*Columba palumbus*) nest was recorded within the hedgerow during the survey.

A treeline of ornamental copper beech trees (*Fagus sylvatica*) occurs approximately 20m north-east of the proposed development site. All trees within the treeline were assessed as having 'Negligible' bat roost potential as per Collins (2016) due to the lack of any suitable features present.

Both the hedgerow and treeline habitat were assessed as being of Local Importance (higher value) as the habitats are likely to support protected species such as bats and birds.



Buildings and Artificial Surfaces (BL3)

The proposed development site is located immediately north of an existing development, Digital Realty Profile Park. The adjacent site comprises buildings and artificial surfaces. No suitable bat roost features were identified on the external exterior of the adjacent buildings.

A small concrete culvert and railing was noted at the northern boundary of the proposed development site. The culvert drains the Baldonnel Stream underneath the adjacent road.

A metal fence was observed around the southern, eastern and partly along the northern boundary of the proposed development site.

The built and artificial habitats were assessed as being of Local Importance (lower value) due to the limited ecological value they provide.

Protected/Rare and Invasive Plant Species

No plant species listed under the Flora Protection Order or habitats protected under the Habitat Directive were recorded within the footprint of the proposed development site during the surveys.

In addition, no invasive plant species listed in the Third Schedule of S.I No. 477 of 2011, European Communities (Bird and Natural Habitats) Regulations 2011 were identified within the proposed development site during the surveys.

12.3.2.2 Fauna

An assessment of protected species within the survey area was undertaken and is discussed hereunder.

Badger

Badgers and their setts are protected under the Wildlife Acts.

No evidence of badger, including their setts, were recorded within the proposed development site boundary, or within 150m of the development site. There are no hedgerows, treelines or embankments present within the proposed development site which are the favoured habitat for the establishment of setts by badgers (Smal, 1995³⁸ & Byrne *et al.*, 2012³⁹).

A small patch of woodland was recorded to the south of the existing AGI Gas Station, approximately 10m south of the proposed gas line route. No evidence of badger activity was recorded within the woodland.

Despite the lack of evidence recorded, there is potential that badger may forage within the area due the availability of suitable forage habitat.

The local badger population are assessed as being of local importance (higher value).

Otter

Otters and their breeding and resting places are protected under the Wildlife Acts and under the EU Habitat Directive.

An otter survey was undertaken along the Baldonnell Stream, 150m upstream and downstream of the proposed development site. No evidence of otter or their resting or breeding sites were recorded during the survey. Otter are unlikely to commute and forage along the section of the Baldonnell Stream located adjacent to the site due to the highly modified nature of the watercourse and the large sections of culverts present both upstream and downstream of the proposed development site.

There is potential however that otter may occur further downstream. The desktop assessment indicated that historic records of otter have previously been recorded further downstream within the Baldonnell Stream, Grifteen River and in proximity to the Grand Canal. In addition, Scott Cawley in 2020 recorded an otter swimming in the Baldonnell Stream at a location approximately 600m north-west of the proposed development site (Marston Planning Consultancy, 2020³⁷).

The local otter population located downstream are assessed as being of County Importance.

³⁸ Smal, C., (1995) The Badger and Habitat Survey of Ireland.

³⁹ Byrne, A., Sleeman, D, O'Keefe, J., (2012) The Ecology of the European Badger (*Meles meles*) in Ireland: a review. Biology and Environment: Proceedings of the Royal Irish Academy 112B.



Other Small Mammals

There is potential that the proposed development site may support smaller protected mammal species such as hedgehog, pygmy shrew, Irish stoat and Irish hare. No evidence of the above listed species, or any other protected mammal species were recorded during the field surveys. However, the grassland habitats within the proposed development site provides suitable foraging habitat for these species.

Evidence of fox, which included tracks and scat, were recorded within the proposed development site on a number of occasions. Fox are not currently protected under National law, however there is an obligation to protect biodiversity within Ireland under the Convention on Biological Diversity.

Bats

All bat species and their roost sites are protected under the Wildlife Acts. There is additional protection for lesser horseshoe bat (*Rhinolophus ferrumequinum*) which is listed as an Annex II species under the EU Habitats Directive.

No bat roost features were recorded within the proposed development site. There are no trees, hedgerows or structures present within the proposed development site. A number of beech trees were recorded along the outer boundary of the site. All trees were assessed as having 'Negligible' bat roost potential due to the lack of any suitable features.

A manual, dusk, activity survey was undertaken at the proposed development site on the 13th of April 2021. Weather during the survey was dry and calm with temperature ranging between 7 and 8 degrees Celsius. The survey commenced at 20:07 (15 minutes prior to sunset) and ended at 22:22 (two hours post sunset). A transect route was walked along the perimeter of the proposed development site focusing on the linear features which included the small stream, hedgerows and nearby treelines. The results of the survey are listed in Table 12-7.

Table 12-7: Bat Activity Survey Results

Time	Species	Location and Activity
21:02	Common pipistrelle	Recorded commuting along the hedgerow located in the adjacent site immediately south of the proposed development site
21:09	Common pipistrelle	Recorded commuting along the hedgerow located in the adjacent site immediately south of the proposed development site
21:13	Common pipistrelle	Recorded foraging and circling around the north-wester corner of the Digital Realty Profile Park.
21:17	Lesser noctule	Recorded commuting across the site at the centre of the proposed development site.
21:35	Common pipistrelle	Recorded commuting across the site at the centre of the proposed development site.
21:43	Soprano pipistrelle	Recorded commuting along the eastern boundary of the site
21:58	Common pipistrelle	Recorded commuting along the hedgerow located in the adjacent site immediately south of the proposed development site

Records of bat activity within the proposed development site were considered relatively low. Only seven bat activity events were recorded during the survey. The low levels of activity are



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likely due to the existing illumination within the site and limited linear features. The majority of activity was recorded along the hedgerow located within Digital Realty Profile Park located immediately south of the proposed development site. Activity along the hedgerow suggests that the linear features provide some foraging and commuting routes for bats; however, it is not used by a great variety of species or in abundance of numbers. No activity was recorded along the small stream.

The local bat population using the proposed development site and surrounding habitat were assessed as being of Local Importance (higher value).

Birds

All wild birds and their nests are protected under the Wildlife Acts. A number of bird species are also protected under Annex I of the EU Birds Directive.

A single winter bird survey was undertaken on 25th of January 2021 and a breeding bird survey was undertaken on the 13th April 2021. All birds recorded during the two surveys are listed in Table 12-8 below.

Table 12-8: Bird Species Recorded During the Winter and Breeding Bird Surveys

Species	Conservation Status ⁴⁰	Date Recorded	Location/Recorded Activity
Snipe (<i>Gallinago gallinago</i>)	Red	25/01/2021	A pair of snipe were flushed from a grassy tussock, within the proposed development site, on two occasions, during the field survey undertaken in January 2021. It appeared that the pair of snipe were foraging at one of the small pools of water located within the site.
		13/04/2021	Nine snipe were flushed from the wet grassland habitat. The snipe appeared to be foraging within the small pools of water within the grassland habitat.
Woodpigeon (<i>Columba palumbus</i>)	Green	25/01/2021	A single woodpigeon was recorded flying from the hedgerow located along the southern boundary of the proposed development.
		13/04/2021	A woodpigeon was sighted perched on a nest within the hedgerow located along the outer southern boundary of the proposed development site.
Robin (<i>Erithacus rubecula</i>)	Green	25/01/2021	Heard calling in wet grassland habitat located towards the south-eastern boundary of the proposed development site.
Wren (<i>Troglodytes troglodytes</i>)	Green	25/01/2021	Sighted perched on bramble at the southern boundary of the proposed development site.
		13/04/2021	Heard calling in wet grassland habitat located towards the south-eastern boundary of the proposed development site.
Common buzzard (<i>Buteo buteo</i>)	Green	25/01/2021	Buzzard heard calling overhead during the survey.
		13/04/2021	Buzzard sighted perched on a lighting pole to the west of the proposed development site.

⁴⁰ Gilbert, G., Stanbury, A., Lewis, L., (2021), Birds of Conservation Concern in Ireland 2020–2026. Irish Birds. 9: 523-544



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Species	Conservation Status ⁴⁰	Date Recorded	Locations Observed and Activity
Magpie (<i>Pica pica</i>)	Green	25/01/2021	A flock of six were recorded perched on a tree located to the north of the proposed development site.
		13/04/2021	A number of magpies were sighted perched on the metal fences which surround the proposed development site.
Song thrush (<i>Turdus philomelos</i>)	Green	25/01/2021	Heard calling in wet grassland habitat located towards the south-eastern boundary of the proposed development site.
Reed bunting	Green	13/04/2021	Heard calling within the wet grassland habitat located towards the western boundary of the proposed development site. A pair of reed bunting were also heard calling towards the south-western boundary of the site.
Stonechat (<i>Saxicola torquata</i>)	Green	13/04/2021	Sighted perched on top of street light located on the western boundary of the proposed development site. A second stonechat was recorded perched on a immature willow tree located towards the western boundary of the site.
Lapwing (<i>Vanellus vanellus</i>)	Red	13/04/2021	A pair of lapwing were heard calling and were sighted mobbing a hooded crow at the north-western boundary of the proposed development site. As surveyors progressed closer to the pair a nest with a clutch of four eggs in the grassland was recorded (refer to Photo 1-3 below).

The majority of species recorded during the survey are common species typically found within agricultural grasslands and are listed as having Green Conservation Status (Low Conservation Concern). Snipe and lapwing are currently listed as having Red Conservation Status (High Conservation Concern).

The snipe were recorded foraging in the small standing pools during both the winter and summer survey. It's likely that the snipe are also roosting within the site as the species was heard calling during the dusk bat surveys. Snipe recently moved from Amber to the Red listed due to the declining breeding population in Ireland⁴⁰.

The pair of lapwing were confirmed to be breeding within the site due to the recording of a nest (refer to Photo 12-3 overleaf). The nest was located just outside the north-western boundary of the proposed development site. Lapwing are Red listed due to recent breeding and winter population decline in Ireland and European⁴⁰.

The proposed development site and the surrounding habitat supports a variety of wintering and breeding bird species at a local level. The wintering and breeding bird species present within the area are assessed as being of Local Importance (higher value).



Photo 12-3: Lapwing Nest



Herpetofauna and Reptile Species

The Wildlife Acts provides protection to Ireland’s only reptile; common lizard (*Zootoca vivipara*) and two amphibian species, common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*).

Although no frogs or their spawn were recorded during the surveys, both the Baldonnell Stream and the large pools of standing water present within the wet grassland habitat are likely to provide suitable habitat for the protected amphibian species. Local common frog population are assessed as being of Local Importance (higher value).

No suitable habitat to support common lizard or smooth newt was recorded within the proposed development site. The small ponds of standing water were deemed too shallow to support smooth newts, as the species generally utilises ponds with a depth of 0.5-1m (O’Neil *et al.*, 2004⁴¹).

Aquatic Species

The Baldonnell Stream was assessed as having no suitable habitat to support protected fish species, white-clawed crayfish or lamprey species. The stream at this location was assessed as

⁴¹ O’Neil, K., Jennings, S., Forsyth, L., Carey, R., Portig, A., Preston, J., Langton, T. & McDonald, R. (2004) The Distribution and status of smooth newts in Northern Ireland. Environmental & Heritage Service, Belfast. (Unpublished).



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having low fisheries value due to the heavily modified nature of the watercourse, the presence of culverts and the high levels of sedimentation present.

Further downstream however, within the Grifeen River, the fish species; three-spined stickleback, brown trout, roach and eel are known to occur.

The downstream fish population was assessed as being of Local Importance (higher value).

12.4 KEY ECOLOGICAL RECEPTORS

Following a review of the existing environment presented above, key ecological receptors (KERs) within the Zol of the proposed development site are evaluated in accordance with the evaluation criteria set out in Table 12-2 and Table 12-3. Consideration of the existing baseline condition/ population stability, conservation status, rarity and legal protection of the KERs was undertaken. A summary of the ecological valuation and identification of KERs is provided in

Table 12-9: Summary of Key Ecological Receptors

Site/Habitat/Species	NHA Ecological Evaluation	KER	Rationale for Inclusion
Designated Sites			
South Dublin Bay SAC (000210)	International	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
South Dublin Bay and River Tolka Estuary SPA (004024)	International	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
North Dublin Bay SAC (000206)	International	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
North Bull Island SPA (004006)	International	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
All other European Sites	International	No	No source-pathway-receptor links exists.
South Dublin Bay pNHA (000210)	National	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
North Dublin Bay pNHA (000206)	National	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
Dublins Docks pNHA (000201)	National	Yes	A source-pathway-receptor link (hydrological connectivity) was identified between the proposed development site and the SAC.
All other nationally designated sites	National	No	No source-pathway-receptor links exists.
Habitats and Flora			
Depositing/ lowland rivers (FW2)	Local Importance (higher value)	Yes	The watercourse supports protected species downstream and occurs within the Zol of the proposed development.



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Site/Habitat/Species	Ecological Evaluation	ICZ	Rationale for Inclusion
Wet Grassland (GS4)	Local Importance (higher value)	Yes	The proposed development will result in the loss of the wet grassland habitat.
Neutral Grassland (GS1)	Local Importance (higher value)	Yes	Potential for indirect impacts.
Hedgerows (WL1) and treelines	Local Importance (higher value)	Yes	Potential for indirect impacts.
Fauna			
Otter	County	Yes	Potential for indirect effect via a degradation in water quality.
Badger	Local Importance (High value)	Yes	Potential for the construction works to result in the disturbance of foraging badger.
Other small protected mammal species	Local Importance (High Value)	Yes	Potential for the construction works to result in the disturbance of small protected mammal species.
Bat species	Local Importance (High value)	Yes	Potential for the construction works to result in the disturbance of bat species.
Breeding bird species	Local Importance (High value)	Yes	Potential for the construction works to result in the disturbance of breeding bird species.
Wintering bird species	Local Importance (High value)	Yes	Potential for the construction works to result in the disturbance of winter bird species.
Amphibian species	Local Importance (High value)	Yes	Potential for the construction works to result in impacts on protected amphibian species.
Fish species	Local Importance (High value)	Yes	Potential for indirect impacts via a degradation of water quality.

12.5 ASSESSMENT OF SIGNIFICANT EFFECTS

The following sections present the assessment of impacts on biodiversity within the Zol of the proposed power plant. Impacts are presented in relation to both the construction, operational and decommissioning phases.

12.5.1 DESIGNATED SITES

12.5.1.1 European Sites

TOBIN prepared an Appropriate Assessment (AA) Screening Report (which accompanies this EIAR in the Planning Application package) which assessed the potential for the proposed development to have likely significant effects on European sites(s) either alone or in-combination with other plans and projects. The AA Screening Report identified hydrological pathways between the proposed development and four European sites, namely; South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC and North Bull



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Island SPA. The AA Screening Report concluded that despite the hydrological connectivity, there is no potential for the proposed development to result in likely significant effects on the integrity of any European site in view of their conservation objectives, due to; the downstream hydrological distance (ca. 25km), the potential assimilative capacity of the receiving watercourses coupled with the small scale and temporary nature of the proposed works.

The screening assessment concluded that the proposed development, either alone or in combination with other plans and projects, will not result in significant effects on any European site, in view the conservation objectives of the site, and therefore a Stage 2 Appropriate Assessment was not required.

12.5.1.2 National Sites

The proposed development is also hydrologically linked to three nationally designated sites; South Dublin Bay pNHA, North Dublin Bay pNHA and Dublin's Docks pNHA. The three sites are located within the same setting as the above mentioned Dublin Bay European sites.

Due to the similar location of the national sites to the above mentioned European sites, there is similarly no potential for water quality impacts on the sites due to the downstream hydrological distance, the assimilative capacity of the receiving watercourses and the small scale and temporary nature of the proposed works. No impacts on the three pNHA sites are anticipated.

12.5.2 CONSTRUCTION PHASE

Details of the construction of the proposed development can be found in Chapter 3 (Description of the Development). Impacts on biodiversity associated with the construction phase are discussed hereunder.

12.5.2.1 Habitats and Flora

Habitat Loss

The proposed development site is approximately 1.90 hectares (ha) in size and will therefore result in the permanent loss of habitat of a similar footprint. Habitat within the proposed development comprises wet grassland.

The wet grassland habitat was assessed as being of Local Importance (higher value). There were no habitats within the proposed development site of greater biodiversity value than local importance (higher value). The higher value is due to the presence of protected bird species which nest and forage within the habitat. The wet grassland habitat has a low species diversity and there is evidence of previous disturbance. Wet grassland habitat is common and widespread within the surrounding environment, and as such, the loss of the habitats will not result in significant effects on the receiving environment.

The loss of the habitat/vegetation within the proposed development site during the construction phase would result in a permanent, slight, negative effect on Biodiversity at a local geographical scale.



Habitat Degradation

The construction works have the potential to result in the runoff of sediment and/or construction pollution and the generation of dust during the works.

Sediment and Construction Pollution

During the construction phase, there is potential for accidental spills and leaks of oils, fuels and chemicals from storage areas, plant and equipment to impact on the surrounding habitats. Accidental spills of fuels, oils and construction materials (e.g. concrete), if not appropriately managed, can affect habitat quality through deposition of materials in the environment. Site clearance, excavation activities and the stockpiling of material have the potential to result in the runoff of sediment if not appropriately managed. The runoff of sediment could result in the sedimentation of nearby watercourses.

The Baldonnell Stream is located directly adjacent to the proposed works. There is a high risk runoff of construction pollution and/or sediment could discharge into the nearby watercourse if not appropriately managed, particularly during periods of heavy rainfall. Increased silt loading in watercourses can stunt aquatic plant growth, limit dissolved oxygen capacity and overall reduce the ecological quality of watercourses, with the most critical period associated with low flow conditions. Water quality impacts on the Baldonnell Stream could result in short-term, slight negative effects on aquatic vegetation present, at a local geographical scale only.

During the excavation works there is potential that the dewatering or overpumping of groundwater ingress may be required. If not appropriately managed, there is potential that groundwater quality may be impacted during the construction works. It is noted that no groundwater features/habitats (i.e. petrifying springs) occur in proximity to the proposed development site.

Dust

Construction activities can result in the generation of dust in the locality of the works area. Construction activities associated with the proposed development which are likely to result in the generation of dust include; earthworks, construction works and trackout⁴². It is noted that no demolition or blasting will be undertaken during the proposed works. The Institute of Air Quality Management provide guidelines; '*Guidance on the Assessment of Dust from Demolition and Construction*' (Holman *et al.*, 2014)⁴³, which prescribes potential dust emission risk classes to ecological receptors. Following the guidelines and considering the size of the proposed development, the scale of the earthworks were considered Large (total site area >10,000m²). The guidelines specify that receptor sensitivity is 'High' up to 20m from the source and reduces to 'Medium' at 50m. Dust may also be generated from trackout due to heavy duty vehicle (HDV) movements from the site entrance. It is anticipated that HDV movement will range between 5-10 outward movements a day which equates to 'Small' trackout movement. The guidelines indicate that Small trackout equates to dust occurring up to 50m from the site.

⁴² Trackout – the transport of dust and dirt from the construction site onto the public road network.

⁴³ Holman, C., Barrowcliffe, R., Birkenshaw, D., Dalton, H., Gray, G., Harker, G., Brett, P., Laxen, D., Marnier, B., Marsh, D. and Prissall, F., (2014). IAQM Guidance on the Assessment of Dust from Demolition and Construction. *Institute of Air Quality Management, London* (accessed 11.03. 14). www.iaqm/wpcontent/uploads/guidance/dust_assessment.pdf.



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There are no protected sites or habitats located within 50m of the proposed development site. There is potential that surrounding habitats of local importance may be impacted by the generation of dust. The deposition of dust on flora or habitats can inhibit effective photosynthesis and transpiration. Dust impacts are likely to result in a temporary, slight, negative effect on the receiving biodiversity at a local geographic scale.

Invasive Plant Species

No invasive, non-native plant species listed under Part 1 of the Third Schedule of S.I No. 477 of 2011 were recorded within the proposed development site during the field surveys. There is potential, however, for the construction works to result in the introduction of invasive non-native species if not appropriately managed. The effects of introducing non-native invasive plant species to ecologically important habitat areas during the construction works, have the potential to result in significant negative effects at a local geographic scale.

12.5.2.1.1 Fauna

Otter

Loss of Habitats

No evidence of otter, including otter holts or layups/couches, were recorded along the Baldonnell Stream within the survey area. No instream works will occur within the Baldonnell Stream. The proposed works will not result in any loss of important habitat for otter.

Disturbance

Construction works can result in disturbance impacts for otter to a distance up to 150m, as per the NRA guidelines (NRA, 2006)¹⁸. As noted, no otter holts or couches were identified within the Zol of the proposed development site. Also due to the low fishery value of the watercourse at the proposed development site and the highly modified nature, otter are unlikely to foraging/commute there. There is therefore no potential for direct disturbance of otter during the construction works.

There is potential however that water quality impacts within the Baldonnell Stream may negatively impact otter which forage further downstream. Chanin (2003)⁴⁴ notes that 'Otters are not directly affected by water quality and will forage in conditions that seem extremely unpleasant to humans, however, where deterioration in water quality leads to a deterioration in food supply there will clearly be an indirect effect'.

Indirect impacts on otter, due to water quality impacts, would result in a short-term, negative effect on the downstream otter population, at a County geographic scale.

Badger

Loss of Habitat

⁴⁴ Chanin P (2003). *Monitoring the Otter Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough



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No badger setts or evidence of badger activity was recorded within 150m of the proposed development site. There is potential however that badgers may forage occasionally within the site due to the suitable habitat present. The proposed development will result in a loss of a small area of potential foraging habitat for badger. Considering the small area of habitat which will be lost, the lack of recordings of badger within the site and the availability of alternative foraging sites within the surrounding lands, the loss of the habitat is likely to have only a slight, negative effect on the local badger population, at a local geographical scale.

Disturbance

Construction works can result in the disturbance of badger's breeding sites located within 150m of a construction works site (NRA, 2005b)¹⁷. As noted no setts were recorded within 150m of the proposed development site during the surveys. There is no suitable breeding habitat (hedgerows, treelines, embankments) present within the site. The potential for new badger setts to establish within the proposed development site is considered unlikely.

The disturbance of foraging badgers during the construction works could result in a short-term, slight, negative effect on the local badger population, at a local geographic scale.

Other Mammal Species

There is potential that the proposed development site may support other small, protected mammal species such as hedgehog, pygmy shrew or Irish hare. However, similarly considering the availability of higher valuable habitat within the surrounding environment and the lack of evidence of such species within the site it is considered that the proposed development site is unlikely to support significant numbers of protected small mammals.

The proposed construction works have the potential to result in the loss of habitat and disturbance of such species. However, given the low number of species likely to be using the site and the mobile nature of these species, the clearance of vegetation and disturbance is unlikely to result in significant negative effects on the local population of small mammal species, at a local geographical scale.

Bats

Loss of Habitats

No active bat roosts were confirmed within the ZOI of the proposed development site. In addition, the proposed works will not result in the loss of any linear feature such as hedgerows or treelines. There will be no loss of habitat impacts to the local bat population due to the proposed development.

Disturbance

During the dusk activity surveys, only low numbers of bats were recorded within the survey area. A small number of bats were recorded commuting along the hedgerow located along the outer, southern boundary of the proposed development site. It is likely that temporary construction lighting will be required during the construction works. The construction lighting has the potential to result in the illumination of the surrounding linear features which may displace commuting/foraging bats from the habitat. Lighting can disturb bats feeding



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behaviours (Bat Conservation Ireland, 2010⁴⁵). The disturbance of bats within the area, from temporary construction lighting, would result in a slight, negative effect at local geographical scale.

Breeding Birds

Loss of Habitat

The proposed construction works will result in the loss of wet grassland habitat. A lapwing nest was found in the wet grassland habitat just outside the western boundary of the proposed development site. There is also potential that snipe may be breeding within the wet grassland as well. If the removal of the wet grassland occurs within the breeding bird nesting season (1st March – 31st August inclusive), there is potential that nests and eggs will be lost.

Considering that both lapwing and snipe are Red listed species, the loss of their nests and nesting habitat would result in a permanent, significant negative effects on the two species, at a local geographical scale.

The loss of habitat to other breeding bird species is considered low considering the lack of hedgerows, treelines and scrub habitat within the proposed development site and the availability of alternative suitable habitat within the wider environment.

Disturbance

Construction related noise and the physical presence of machinery and construction personnel could result in the disturbance of breeding birds from habitats located in close proximity to the proposed development site.

A lapwing nest was identified approximately 80m south-west of the proposed development site. Cutts *et al.*, (2013)⁴⁶ notes that ‘lapwing are reasonably tolerant of moderate level visual disturbance stimuli, but birds that are closer than 300m to planned activities should be considered when commencing works’. Cutts *et al.*, (2013)⁴⁶ further notes that ‘noise of up to 72dB acceptable at the bird [lapwing] but with caution given for noise levels in excess of 55dB (60dB in a highly disturbed area)’.

The disturbance of a lapwing nest could result in the parents neglecting their nest for long periods of time which could result in the eggs failing to hatch or chicks dying due to exposure to the cold or predation. Disturbance to nesting lapwing could result in short-term (one nesting season) negative effects on the local lapwing population at a local geographical scale.

Disturbance to other breeding bird species is considered unlikely given the lack of suitable nesting habitat such as hedgerows and trees.

Wintering Bird

Loss of Habitat

⁴⁵ Bat Conservation Ireland (2010) Guidance Notes for: Planners, Engineers, Architects and developers.

⁴⁶ Cutts, N., Hemingway, K., Spencer, J., (2013) Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects.



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The wet grassland habitat provides valuable foraging habitat for snipe. The proposed development will result in loss of approximately 15,435m² of wet grassland habitat. The wet grassland habitat located at the western boundary of the site will remain in situ.

Disturbance

Construction related noise and the physical presence of machinery and construction personnel could result in the disturbance of breeding birds from habitats located in close proximity to the application site. Cutts *et al.*, (2013)⁴⁶ notes that different types of disturbance stimuli are characterised by different avifaunal reactions, however as a general rule of thumb, a distance of 300m can be used to represent the maximum likely disturbance distance for waterfowl.

The proposed construction works may result in short-term disturbance to wintering bird species which forage within the surrounding area; however, it is likely that birds will acclimatise to human presence over time.

Fish and Aquatic Species

Loss of Habitat

Baldonnell Stream is likely to support common frog in proximity to the proposed development site and fish species further downstream. The proposed construction works have the potential to result in a degradation of water quality and aquatic vegetation, in the absence of mitigation measures. A degradation in water quality and aquatic habitat has the potential to result in temporary negative impacts on fisheries and the local frog population at a local geographical scale.

The small pools of standing water are also likely to provide suitable habitat for frogs and their spawn. Loss of the habitat could result in a slight negative effect on the local frog population at a local geographic scale.

12.5.3 OPERATIONAL PHASE

Details of the operational phase of the proposed development can be found in Chapter 3 (Description of the Development). Impacts on biodiversity associated with the operational phase are discussed hereunder.

12.5.3.1 Noise and Disturbance

During the operational phase, the proposed development will be predominantly unmanned; however, personnel will be on site carrying out routine maintenance, attending meetings, and dealing with deliveries etc. The power plant will be monitored and dispatched remotely, where a dedicated management team will be based. Disturbance during the operational phase will be limited and will not result in significant effects on the receiving environment.

Emergency external lighting will be provided throughout the building in accordance with BS 5266-1 Emergency Lighting. The permanent lighting will result in a slight increase in artificial lighting during the operational phase.



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Artificial lighting can impact bats' roosting sites, commuting routes and foraging areas (Bat Conservation Ireland, 2010)⁴⁷. No active roost sites were confirmed within the ZOI of the proposed development. In addition, only low levels of activity were noted along the surrounding treelines and hedgerows. The direct illumination of foraging/commuting routes can alter feeding patterns and/or deter bats from commuting along affected corridors. However, considering the low levels of activity recorded and the availability of alternative suitable habitat, the slight increase in lighting is not likely to result in significant negative effects on the local bat population.

12.5.3.2 Pollution

Storage of Materials

During the operation of the proposed development, chemicals such as urea, lubricating oil and low sulphur oil will be stored on site. All material will be stored in tanks within designated, bunded areas. The tanks will be bunded in accordance with the requirements set out in the EPA publication, '*Storage and Transfer of Materials for Scheduled Activities*' (EPA, 2004), which states bunds are to contain 110% of the volume of the tank in the event of a tank rupture. Considering the bunded storage areas there is no potential for leaks or spills of material to negatively impact the nearby watercourse.

Foul and Stormwater Drainage

Domestic type wastewater effluent will be generated on site. Wastewater will be pumped to the existing foul sewer network in Profile Park. There will be no process wastewater generated from the proposed development. There is therefore no potential for process or domestic wastewater to negatively impact the receiving environment.

Surface water runoff will be generated from all surfaces within the facility that are exposed to rainwater or to which water is applied in order to clean. In order to comply with the Arterial Drainage (Amendment) Act 1995 the surface water system proposed as part of the development will include down pipes and gullies, full retention petrol interceptors and attenuation tanks and swales. The surface water system will also include flow control devices to limit the surface water runoff from the site to be similar to the Greenfield runoff as per the requirements of the Great Dublin Strategic Drainage Study. All surface water will discharge to the Baldonnel Stream, post treatment (i.e. water will be within the prescribed water quality limits, $\leq 25\text{mg/L}$ Total Suspended Solids [TSS] in accordance with the Freshwater Fish Directive [2006/44/EC] and Salmonid Waters Regulations [1988]), which is located adjacent to the proposed development site. There is no potential for water quality impacts on Baldonnel Stream during the operation of the development.

Air Emissions

During the operation of the proposed development, exhaust gases will be discharged to the atmosphere through a 31.8m high stack. The single stack cluster will contain up to six exhaust flues, one for each of the gas engines.

⁴⁷ *Bat Conservation Ireland (2010) Bats and Lighting Guidance Notes for: Planners, engineers, architects and developers.*



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As noted in Chapter 10 (Air Quality and Climate) of this EIAR, AWN Consulting Ltd. were commissioned by TOBIN to carry out an air dispersion modelling study of emissions from the proposed power plant. The purpose of the study was to determine the air quality impact, in line with the Industrial Emissions Directive (2010/75/EU) and Best Available Techniques (BAT) Reference Document for Large Combustion Plants (EC, 2017), from the proposed plant in isolation and cumulatively with the existing licensed facilities at Profile Park which included Pfizer, Takeda and the Grange Castle Power Facility.

As noted, the dispersion modelled considered the potential for air emission impacts on the closest sensitive ecosystems. The impact of emissions of NO_x from the proposed plant and existing emission points on ambient ground level concentrations within the Dodder Valley pNHA, Glenasmole Valley SAC/pNHA, Grand Canal pNHA, Killeel Wood pNHA, Liffey Valley pNHA, Lugmore Glen pNHA, Royal Canal pNHA, Rye Water Valley/Carton SAC/pNHA, Slade of Saggart and Crooksling Glen pNHA and Wicklow Mountains SPA/SAC was assessed using AERMOD.

The Profile Park Power plant NO_x modelling results are detailed in Table 10-6 within Chapter 10 (Air Quality and Climate). Emissions from the facility may lead to an ambient NO_x concentration (excluding background) which will range from 2 to 3% of the annual limit value at the worst-case location within the designated sites over the five years of meteorological data modelled. No background value has been added to the results as the background concentration of NO_x exceeds the limit value for the protection of ecosystems at most urban and suburban locations in Dublin based on a review of the EPA NO_x monitoring data (EPA, 2019; EPA, 2020). As previously discussed, the NO_x limit value is applicable only in highly rural areas away from major sources of NO_x such as large conurbations, factories and high road vehicle activity such as a dual carriageway or motorway. Therefore, the NO_x limit value is not applicable at Profile Park due to the urban and industrial nature of the environs of the proposed development site. In addition, modelling results based on conservative assumptions indicate that the proposed power plant in isolation will have an imperceptible impact on NO_x concentrations within the Designated sites in the surrounding area, contributing at most 3% of the limit value at the worst-case location in the worst-case year modelled.

The cumulative impact of NO₂ emissions from the proposed development and emissions from Pfizer, Takeda and the Grange Castle Power Facility are detailed in Table 10-7 and Table 10-8 within Chapter 10 (Air Quality and Climate). The results indicate that the ambient ground level concentrations are below the relevant air quality standards for NO₂. For the worst-case year, emissions from the sites could lead to an ambient NO₂ concentration (including background) which is 74% of the maximum 1 hour limit value (measured as a 99.8th percentile) for the worst-case year modelled (2020) and 71% of the annual limit value at the worst-case off-site receptor for the worst-case year modelled (2018).

With regard to NO₂, emissions from the facility will result in ambient NO₂ concentrations (including background) which are in compliance with the relevant limit values, reaching at most 74% of the 1-hour limit value (measured as a 99.8th percentile) and 70% of the annual limit value at the worst-case off-site location. NO_x concentrations at the worst-case ecological receptor in the worst-case year modelled were at most 3% of the limit value.

The cumulative assessment with Pfizer, Takeda and the Grange Castle Power Facility also found results to be in compliance with the relevant ambient air quality limit values. Emissions from both facilities lead to an ambient NO₂ concentration (including background) which is 74% of the maximum ambient 1-hour limit value (measured as a 99.8th percentile) and 71% of the annual



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mean limit value at the worst-case off-site receptor. NO_x concentrations at the worst-case ecological receptor in the worst-case year modelled were at most 18% of the limit value.

In conclusion, ambient levels of nitrogen oxides (as NO₂, including background) from the proposed development as well as the cumulative emissions from Pfizer, Takeda and the Grange Castle Power Facilities are in compliance with the air quality limit values for the protection of human health and it is predicted that air emissions from the installation will not result in any significant impacts on Designated sites.

12.5.4 DECOMMISSIONING PHASE I

The proposed development is expected to be operational for at least 25 years. Should the proposed development be decommissioned all operational activities will cease and the power plant will be dismantled. Decommissioning will include the dismantling of infrastructure, minor excavation activities and the removal of waste offsite. Impacts during decommissioning are expected to be similar type and magnitude to those anticipated during construction but generally of a shorter duration.

12.6 MITIGATION AND MONITORING MEASURES

12.6.1 CONSTRUCTION PHASE

12.6.1.1 Vegetation Clearance

In accordance with Section 40 of the Wildlife Acts, the vegetation (wet grassland) which is proposed to be removed, which may be used as nesting sites by breeding birds, will be cleared outside of the birds nesting season (1st March to 31st August inclusive). This will ensure there is no loss of nests as a result of the proposed construction works. In the event that clearance of vegetation is required within the bird nesting season, vegetation will be first surveyed by an experienced ecologist to identify the presence of active nests. The survey will specifically target ground nesting birds including lapwing and snipe. Only vegetation confirmed to be nest free may be cleared. In the event that a nest is confirmed as present, the nest will either be removed under license obtained from NPWS or the nest will be cordoned off until the chicks have fledged or until nesting has failed.

The construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Disturbed areas of ground will be fully reinstated following completion of the works.

12.6.1.2 Sediment and Pollution Control

Measures to prevent accidental spillage/leakage of chemicals and pollutants and uncontrolled runoff of contaminated surface water and sediment are outlined in Chapter 8 (Land, Soils and Geology) and Chapter 9 (Hydrology and Hydrogeology). The implementation of control measures will ensure that there is no potential for impact to ecological receptors in the receiving environment. However a summary of the sediment and pollution control measures which will be implemented are provided hereunder.



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All works must comply with the guidance set out in the guidance document entitled: “*Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532)*” (CIRIA, 2001)⁴⁸.

Silt fences will be installed along the entire inside boundary of the Baldonnell Stream. Silt fences will also be installed around large stock piles of material. Silt fences will be constructed using a permeable filter fabric (Hy-Tex Terrastop Premium silt fence or similar). Silt fencing will be installed as per the manufacturer’s guidelines and shall be maintained until vegetation on the disturbed ground has been re-established. Once installed, the silt fence shall be inspected regularly during construction and more frequently during heavy rainfall.

Excavation activities will not be carried out during or following heavy rainfall. All stockpiled material will be stored within the site construction compound a minimum of 50m from the Baldonnell Stream.

All concrete will be mixed off site and poured in place at site. All concrete browsers will be washed down at a dedicated concrete washout onsite located within the construction compound or off site. Concrete washings will not be disposed of onsite to any surface or ground water feature. All washings will be removed offsite and treated at a licensed facility. No chemicals that are deleterious to aquatic organisms are to be used in cleaning works. All raw, uncured waste concrete must be cured at a designated location within the construction compound or off site.

Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated hard surface, bunded areas within this construction compound or off site only. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations in order to contain any spillages that may occur. Refuelling will only occur within the construction compound or off site.

12.6.1.3 Dust Control

Access routes and entrance sites with the potential to give rise to dust will be regularly watered as appropriate. All stocked piled material will be covered with tarpaulin when not in use. Water misting or bowsers will operate on site as required to reduce dust in dry weather conditions. The transport of sediment or other materials with the potential to generate dust will be undertaken in tarpaulin covered vehicles.

12.6.1.4 Noise and Disturbance

Bats

All temporary lighting associated with the construction works will be placed strategically by the Contractor following consultation with a suitably qualified ecologist. This will ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay. No lighting will be directed towards the hedgerows and treelines located around the outer boundary of the proposed development site. Only low-pressure sodium, high pressure sodium or LED luminaires will be used on site to ensure that there are no

⁴⁸ <https://www.ciria.org/ProductExcerpts/C532.aspx>



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significant negative impacts on bats. In addition, the column height of the temporary lights will be carefully considered to minimise light spill.

Birds

In the event that any lapwing or snipe nests are identified within the ZOI during the nest survey appropriate mitigation measures in consultation with Bird Watch Ireland will be implemented. Hoarding will be erected between the nest and the proposed development site to limit both noise and visual disturbance.

12.6.1.5 Management of Invasive Plant Species

No invasive plant species listed on the ‘Third Schedule’ of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) were recorded at the proposed development site. On a precautionary basis however, in order to comply with Regulations 49 and 50 of the European Communities (Birds and Natural Habitat) Regulations (2011), the appointed Contractor will ensure biosecurity measures are implemented throughout the construction phase to ensure the introduction and translocation of new invasive species is prevented.

The following mitigation measures are prescribed to control the translocation or spread of invasive species and / or pathogens:

Biosecurity measures will be employed during the construction works. The biosecurity measures will have regard to IFI Biosecurity Protocols including " IFI Biosecurity Protocol for Field Survey Work (December 2010)".

All machinery and equipment used will be inspected and will be completely dry prior to works commencing to prevent the risk of pathogen translocation. A ‘Check, Clean, Dry’ protocol will be undertaken with all equipment, machinery and vehicles entering and leaving the proposed development site. All equipment/machinery used within the drainage ditch will be checked for living plants and animals. Equipment and machinery used will be washed thoroughly and then allowed to dry for at least 48 hours.

12.6.2 OPERATIONAL PHASE

12.6.2.1 External Lighting

All new external lighting proposed within the development site will be designed in consultation with a suitably qualified ecologist and in accordance with the Bat Conservation Ireland guidelines; ‘Bats and Lighting Guidance Notes: Planners, Engineers, Architects and Developers’ (BCI 2010). Lighting will only be switched on when manned. Light shields and directional lighting will be used to minimise light spill. All lighting will be directed away from surrounding linear features including treelines and hedgerows.

12.6.3 DECOMMISSIONING PHASE

The same mitigation measures implemented during the construction phase, will be applied during the decommissioning works.



12.7 CUMULATIVE EFFECTS

Cumulative effects is defined in the EIAR (2017) EPA guidance as “*The addition of many minor or significant effects, including the effects of other projects, to create larger, more significant effects*”.

Information on relevant projects within the vicinity of the proposed development is described in Chapter 2 of this EIAR. The information was sourced from a search of the local authority planning register, planning applications, EIAR documents and planning drawings which facilitated the identification of past and future projects, their activities and their potential environmental impacts. Key projects with the potential for cumulative effects are described further below.

12.7.1 PROJECTS

Distribution Centre (Planning Ref: SD20A/0124)

Scott Cawley Ltd. undertook an ecological impact assessment for a proposed Distribution Centre located immediately north-west of the proposed development site (Scott Cawley, 2020)⁴⁹. The EclA concluded that with the implementation of mitigation measures, including stringent surface water control measures, there is no potential for the development of the Distribution Centre to result in significant negative effects on biodiversity. Thus, there is no potential for cumulative negative effects on biodiversity with the proposed development under appraisal in this report.

Data Centre Development (Planning Ref: SD20A/0121)

Digital Reality Trust are proposing the development of a data centre located in Profile Park Industrial Estate in Grange Castle Dublin 22 (located ca. 320m north-west of the proposed development site). An ecological impact assessment of the proposed data centre, to inform the EIAR, was undertaken by Scott Cawley in 2020 (Marston Planning Consultancy, 2020)³⁷. The EIAR concluded that following the implementation of the mitigation measures there is no potential for the proposed data centre to result in significant negative effect on the receiving biodiversity and there is no potential for residual impacts. There is therefore no potential for cumulative negative effects on biodiversity with the proposed development under appraisal in this report.

12.7.2 PLANS

The South Dublin Development Plan 2016-2022⁵⁰ indicates that the proposed development site is located within Enterprise and Employment zoned lands. The development plan indicates that Enterprise and Employment zoned lands will accommodate low to medium intensity enterprise employment uses.

The County Development Plan also indicates policies and objectives associated with the protection of biodiversity and European sites (Objectives: HCL12, HCL15, IE2 etc.). All new

⁴⁹ Scott Cawley (2020) Ecological Impact Assessment, Proposed Distribution Centre, Profile Park, Nangor Road, Dublin 22 (Unpublished Report).

⁵⁰ <https://sdcc.ie/en/download-it/publications/south-dublin-county-council-development-plan-2016-2022-written-statement.pdf>.



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plans and projects proposed within the local administrative area must adhere to the above-mentioned objectives. Adherence to the Council's policies and objectives will therefore ensure that all plans and projects proposed within the area will not result in significant effects on biodiversity and international and national sites. There is no potential for significant cumulative effects on biodiversity.

12.8 RESIDUAL EFFECTS

It is anticipated with the implementation of mitigation measures (as detailed above), the construction, operational and decommissioning phases of the proposed development will not result in likely significant residual effects on any of the key ecological receptors at any geographic scale, with the exception of permanent loss of wet grassland habitat within the proposed development site, which will have a likely significant residual effect at a local geographic scale.

