



Appropriate Assessment Screening Report
for a Strategic Housing Development at lands in Abingdon, Shankill,
Co. Dublin

prepared for ES Shan Limited

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This report has been prepared by Scott Cawley Ltd. in accordance with the particular instructions and requirements of our agreement with the Client, the project's budgetary and time constraints and in line with best industry standards. The methodology adopted and the sources of information used by Scott Cawley Ltd. in providing its services are outlined in this report. The scope of this report and the services are defined by these circumstances.

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The conclusions presented in this report represent Scott Cawley Ltd.'s best professional judgement based on review of site conditions observed during the site visit (if applicable) and the relevant information available at the time of writing. Scott Cawley Ltd. has used reasonable skill, care and diligence in compiling this report and no warranty is provided as to the report's accuracy.

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Appendix I

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1 Introduction

- 1 This report, which contains information required for the competent authority (in this instance An Bord Pleanála) to undertake a screening for Appropriate Assessment (AA), has been prepared by Scott Cawley Ltd. on behalf of the applicant. It provides information on, and assesses the potential for, the proposed development to impact on the Natura 2000 network (hereafter referred to as European sites)¹. The proposed development consists of a Strategic Housing Development at lands in Abingdon, Shankill, Co. Dublin.
- 2 An AA is required if significant effects on European sites arising from a proposed development cannot be ruled out at the screening stage, either alone or in combination with other plans or projects. It is the responsibility of the competent authority to make a decision as to whether or not the proposed development is likely to have significant effects on European sites, either individually or in combination with other plans or projects.

For the reasons set out in detail in this AA Screening Report, an **Appropriate Assessment of the proposed development is required in this instance** as it cannot be concluded, on the basis of objective information, that the proposed development, either individually or in combination with other plans or projects, will not have a significant effect on the following European site(s): **Dalkey Islands SPA, Rockabill to Dalkey SAC**

2 Methodology

2.1 Guidance

- 3 This Appropriate Assessment Screening Report has been prepared with regard to the following guidance documents, as relevant:
 - *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision)
 - *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10
 - *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2001)
 - *Communication from the Commission on the precautionary principle* (European Commission, 2000), and
 - *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019)

¹ The Natura 2000 network is a European network of important ecological sites, as defined under Article 3 of the Habitats Directive 92/43/EEC, which comprises both special areas of conservation and special protection areas. Special conservation areas are sites hosting the natural habitat types listed in Annex I, and habitats of the species listed in Annex II, of the Habitats Directive, and are established under the Habitats Directive itself. Special protection areas are established under Article 4 of the Birds Directive 2009/147/EC for the protection of endangered species of wild birds. The aim of the network is to aid the long-term survival of Europe's most valuable and threatened species and habitats.

In Ireland these sites are designed as *European sites* - defined under the Planning Acts and/or the Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

2.2 Assessment Methodology

- 4 The above referenced guidance sets out a staged process for carrying out Appropriate Assessment. To determine if an Appropriate Assessment is required, documented screening is required. Screening identifies the potential for effects on the conservation objectives of European sites, if any, which would arise from a proposed plan or project, either alone or in combination with other plans and projects (i.e. likely significant effects).
- 5 Significant effects on a European site are those that would undermine the conservation objectives supporting the favourable conservation condition of the Qualifying Interest (QI) habitats and/or the QI/Special Conservation Interest (SCI) species of a European site(s).
- 6 Screening for Appropriate Assessment involves the following steps:



- 7 If the conclusions at the end of screening are that there is no likelihood of significant effects occurring on any European sites as a result of the proposed plan or project, either alone or in combination with other plans and projects, then there is no requirement to undertake an Appropriate Assessment.
- 8 In establishing which European sites are potentially at risk (in the absence of mitigation) from the proposed development, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its QI(s) or SCI(s)²), and a pathway between the source and the receptor (e.g. pathway by air for airborne pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.
- 9 The identification of source-pathway-receptor connection(s) between the proposed development and European sites essentially is the process of identifying which European sites are within the Zone of Influence (Zoi) of the proposed development, and therefore potentially at risk of significant effects. The Zoi is the area over which the proposed development could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives³.
- 10 The identification of a source-pathway-receptor link does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for airborne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs). Where uncertainty exists, the precautionary principle⁴ is applied.

2.3 Desktop Data Review

- 11 The desktop data sources used to inform the assessment presented in this report are as follows (accessed on the 07 July 2020):
 - Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents
 - Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
 - Information on the surface water network and surface water quality in the area available from www.epa.ie

² The term qualifying interest is used when referring to the habitats or species for which an SAC is designated; the term special conservation interest is used when referring to the bird species (or wetland habitats) for which an SPA is designated.

³ As defined in the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018)

⁴ The precautionary principle is a guiding principle that derives from Article 191 of the Treaty on the Functioning of the European Union and has been developed in the case law of the European Court of Justice (e.g. ECJ case C-127/02 – Waddenzee, Netherlands).

The guidance document *Communication from the Commission on the Precautionary Principle* (European Commission, 2000) notes that the precautionary principle “covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection”.

Applying the precautionary principle in the context of screening for appropriate assessment requires that where there is uncertainty or doubt about the risk of significant effects on a European site(s), it should be assumed that significant effects are possible and AA must be carried out.

- Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- Information on the location, nature and design of the proposed development supplied by the applicant's design team

2.4 Consultations

- 12 A consultation letter was submitted by email to the Development Applications Unit of the Department of Culture, Heritage and the Gaeltacht on 21 July 2020. The letter included an outline description of the proposed development, and a request for any comments on the proposal. No response was been received by Scott Cawley prior to submission of the planning application for the proposed development

2.5 Baseline Surveys

- 13 This section describes the ecological surveys carried out on the proposed development site, some of which were used to inform the assessment of likely significant effects on European sites. A summary of all ecological surveys carried out at the proposed development site is listed below in Table 1.

Table 1: Ecological surveys and survey dates

Survey	Survey Date(s)
Habitat surveys	03 July 2020
Terrestrial Mammal Survey (excl. bats)	11 April 2019
Wildlife camera monitoring ⁵ :	08 February – 10 March 2020
Winter Bird Surveys	27 January 2020 07 February 2020 24 February 2020 10 March 2020 23 March 2020
Breeding Bird Surveys	20 May 2020 03 June 2020 29 June 2020
Bat activity surveys:	
• Static detectors deployed	25 September – 09 October 2019
• Post-dusk roost emergence and activity survey	01 October 2019 09 October 2019 02 June 2020
• Pre-dawn roost re-entry and activity survey	19 June 2020

2.5.1 Habitats and Flora Survey

- 14 A habitat survey was undertaken of the proposed development site on the 03 July 2020 by Lorna Gill of Scott Cawley Ltd. following the methodology described in *Best Practice Guidance for Habitat Survey and*

⁵ Carried out under NPWS wildlife photography licence 007/2020

*Mapping*⁶. All habitat types were classified using the *Guide to Habitats in Ireland*⁷, recording the indicator species and abundance using the DAFOR scale⁸ and recording any species of conservation interest. Vascular and bryophyte plant nomenclature generally follow that of *The National Vegetation Database*⁹, having regard to more recent taxonomic changes to species names after the *New Flora of the British Isles*¹⁰ and the British Bryological Society's *Mosses and Liverworts of Britain and Ireland: A Field Guide*¹¹. Annex I habitat types were classified after the *Interpretation manual of European Union Habitats EUR28*¹² with reference to the corresponding national habitat survey reports and NPWS wildlife manuals, as applicable. The nomenclature for Annex I habitats follows that of the *Interpretation manual of European Union Habitats EUR28* with abbreviated names after those used in *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview*¹³.

2.5.2 Fauna Surveys

2.5.2.1 Wintering Birds

- 15 Wintering bird surveys were undertaken on 27 January, 07 February, 24 February, 10 March and 26 March by Lorna Gill and Shane Brien of Scott Cawley Ltd. using a methodology based on the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species*. Lands were initially surveyed visually using binoculars/scope from a vantage point(s) at the edge of the study area followed by a walkover of the area to identify birds which may not be visible from a distance (e.g. waders), and to identify evidence of usage by wildfowl such as swans or geese (e.g. droppings and feathers). Transects were undertaken to look for goose droppings. Birds were identified by sight and general location and activity were recorded using the British Trust for Ornithology (BTO) species and activity codes. Weather conditions and recorded disturbance events are presented in Appendix III.

3 Provision of Information for Screening for Appropriate Assessment

- 16 The following sections provide information to facilitate the Appropriate Assessment screening of the proposed development to be undertaken by the competent authority.
- 17 A description of the proposed development and the receiving environment is provided to identify the potential ecological impacts. The environmental baseline conditions are discussed, as relevant to the assessment of ecological impacts where they may highlight potential pathways for impacts associated with the proposed development to affect the receiving ecological environment (e.g. geological, hydrogeological and hydrological data).
- 18 The potential impacts are examined in order to define the potential zone of influence of the proposed development on the receiving environment. This then informs the assessment of whether the proposed

⁶ Smith, G.F., O'Donoghue, P., O'Hora, K. & Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council Church Lane, Kilkenny, Ireland.

⁷ Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

⁸ The DAFOR scale is an ordinal or semi-quantitative scale for recording the relative abundance of plant species. The name DAFOR is an acronym for the abundance levels recorded: Dominant, Abundant, Frequent, Occasional and Rare.

⁹ Weekes, L.C. & FitzPatrick, Ú. (2010) *The National Vegetation Database: Guidelines and Standards for the Collection and Storage of Vegetation Data in Ireland*. Version 1.0. Irish Wildlife Manuals, No. 49. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

¹⁰ Stace, C. (2019) *New Flora of the British Isles. 4th Edition*. C&M Floristics.

¹¹ Atherton, I., Bosanquet, S. & Lawley, M. (2010) *Mosses and Liverworts of Britain and Ireland: A Field Guide*. Latimer Trend & Co., Plymouth.

¹² CEC. (Commission of the European Communities) (2013) *Interpretation manual of European Union Habitats EUR28*. European Commission, DG Environment.

¹³ NPWS (2019). *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview*. Unpublished NPWS report.

development will result in significant effects on any European sites; i.e. affect the conservation objectives supporting the favourable conservation condition of the European site's QIs or SCIs.

3.1 Description of the Proposed Development

- 19 The proposed development will consist of a 'Build to Rent' residential scheme comprising 193 no. apartments within four no. blocks ranging in height up to eight storeys. The development will also include a residents pavilion, residential amenities areas, car, cycle and motorcycle parking. Vehicular connection via Clifton Park. Provision of additional pedestrian/cyclist accesses including to Shanganagh Park. All associated site development works and services provisions including bin storage areas, substations/switch rooms, plant areas, open spaces, boundary treatments, landscaping and all services required to facilitate the proposed development. A detailed development description is included the statutory notices.
- 20 A new surface water sewer network shall be provided for the proposed development which will be entirely separated from the foul water sewer network. All surface water run-off from roof areas and hardstanding areas are designed to be collected by a gravity pipe network. The network will discharge to the south-east corner of the site to an existing surface water main on Clifton Park. This public surface water drain discharges to the Loughlinstown River also known as the Shanganagh River.
- 21 Sustainable Urban Drainage Systems (SuDS) proposed for the site include:
- Two attenuation tanks - to attenuate flows up to a 1 in 100-year storm event with a 10% allowance for climate change, located in the south-east corner of the site under the access road;
 - Green roofs - the total proportion of green roofs provided will be a minimum of 60% of the total roof area of the proposed development in accordance with the County Development Plan;
 - Green podium – two podium areas are proposed to have an intensive green podium area;
 - Permeable pavements - the car parking bays on site are proposed as permeable pavements. The use of permeable pavers for car parking areas not under the podium is proposed in lieu of an oil separator;
 - Tree pits – interception design of tree root system (bio retention areas), pavements drained by tree root systems can be considered to provide Interception;
 - Rain gardens - a large proportion of pavement surfaces are to runoff overland to rain gardens. These tree rain garden systems provide interception and treatment prior to entering the drainage network;
 - A petrol inceptor - located upstream of the proposed attenuation tanks; and,
 - Soft landscape - to reduce the run-off generated from the site.

The proposed foul water sewer will discharge by gravity to the south-east corner of the site along the proposed access road. It will connect to the existing foul sewer network and the 225mm concrete pipe. During operation, foul water generated by the proposed development comprising 521.1 population Equivalent (P.E.) will ultimately be discharges to the Shanganagh Wastewater Treatment Plant (WWTP) and treated prior to discharge into Southwestern Irish Sea – Killiney Bay. The Shanganagh WWTP is currently operating under its capacity of 186,000, with a current loading of 127,618 P.E. The Shanganagh WWTP is compliant with the limits set out in its licence and its discharge is not having an observable negative impact on water quality of the Irish Sea, including Killiney Bay (Irish Water, 2020)¹⁴.

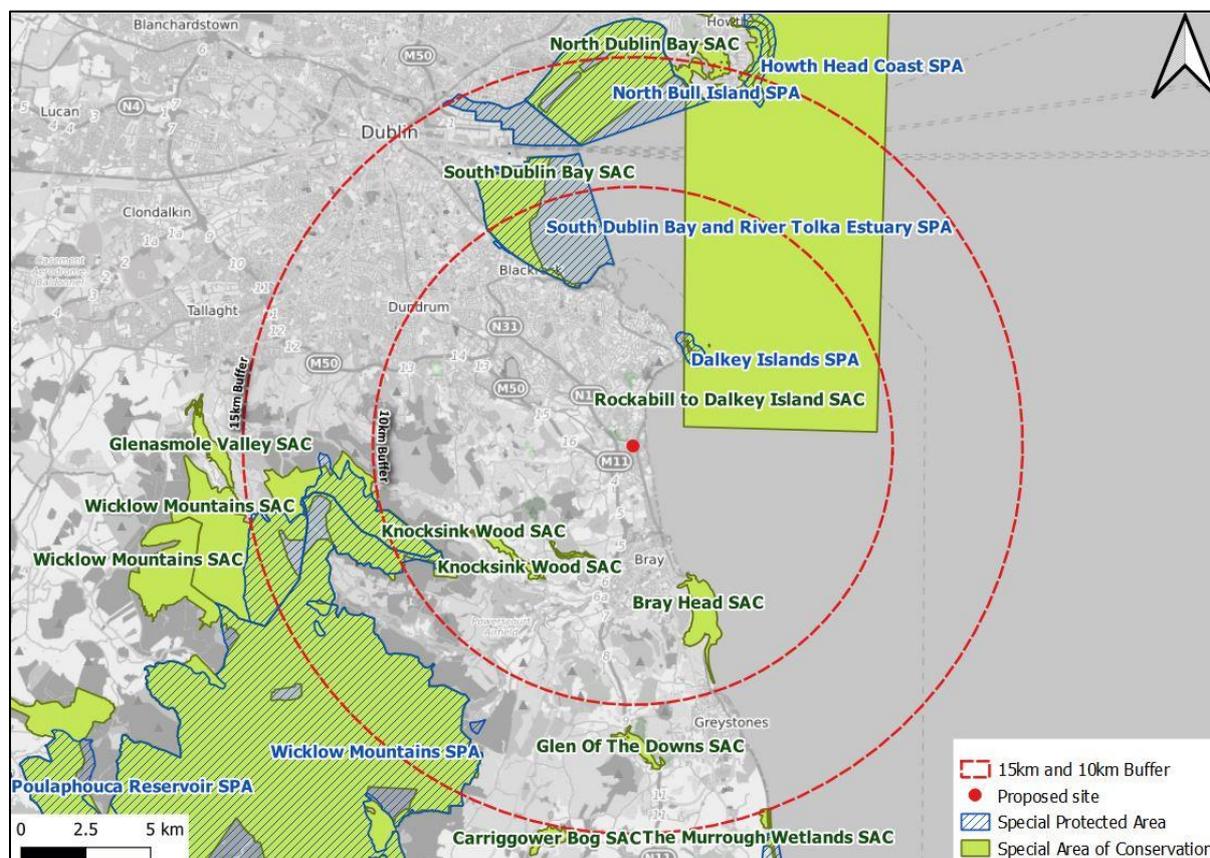
¹⁴ Irish Water (2020) Shanganagh D0038-01 Annual Environmental Report 2019.

3.2 Overview of the Receiving Environment

3.2.1 European sites

- 22 There are no European sites within or directly adjacent to the boundaries of the proposed development site. There are 16 European sites located within c. 15km of the proposed development.. The closest European site to the proposed development is Rockabill to Dalkey Island SAC; c. 2km to the north-east.
- 23 All of the European sites present in the vicinity of the proposed development are shown on Figure 1 below. The QIs/SCIs of the European sites in the vicinity of the proposed development are provided in Appendix I.

Figure 1 European sites in the vicinity of the proposed development



3.2.2 Habitats

- 24 The proposed site comprises of dry meadow grassland with fringing scrub vegetation bounded by sections of treeline to the north, south and north-east and hedgerow to the north, west and south-east. The grassland is currently unmanaged and unused. In previous years it had been grazed by cattle. Other habitats surrounding the proposed site include buildings and artificial surfaces, treelines and amenity grassland to the south.
- 25 There are no Annex I habitats present within the proposed development site or immediate environs.

3.2.3 Flora and Fauna Species

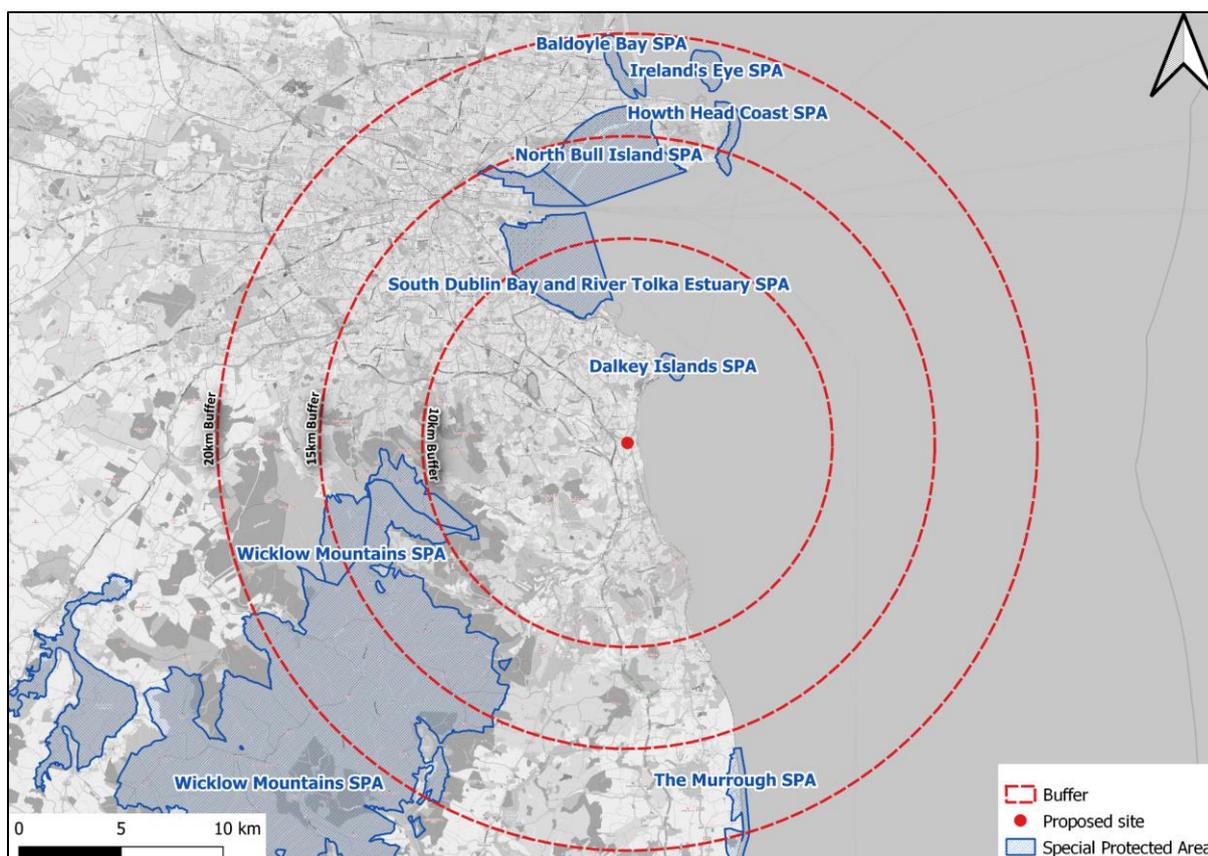
- 26 A National Biodiversity Data Centre (NBDC) database search of a custom polygon approx. 2km around the proposed site returned records of the following Annex II flora species, Annex I bird species, Annex II/Annex IV fauna species:
- Petalwort *Petalophyllum ralfsii*
 - Common tern *Sterna hirundo*

-
- Golden plover *Pluvialis apricaria*
 - Kingfisher *Alcedo atthis*
 - Little egret *Egretta garzetta*
 - Little gull *Larus minutus*
 - Mediterranean gull *Larus melanocephalus*
 - Peregrine falcon *Falco peregrinus*
 - Red-throated diver *Gavia stellate*
 - Sandwich tern *Sterna sandvicensis*
 - Bottle-nosed dolphin *Tursiops truncatus*
 - Brown long-eared bat *Plecotus auratus*
 - Common dolphin *Delphinus delphis*
 - Common porpoise *Phocoena phocoena*
 - Grey seal *Halichoerus grypus*
 - Loggerhead turtle *Caretta caretta*
 - Northern bottlenose whale *Hyperoodon ampullatus*
 - Otter *Lutra lutra*
 - Pipistrelle species *Pipistrellus sp.*
 - Soprano pipistrelle *Pipistrellus pygmaeus*
- 27 The lands did not contain any signs of use by any species listed on Annex II of the EU Habitats Directive, and do not contain suitable habitat for any Annex II/Annex IV fauna species.
- 28 The NBDC database search returned records of the following non-native invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) :
- American skunk-cabbage *Lysichiton americanus*
 - Giant hogweed *Heracleum mantegazzianum*
 - Japanese knotweed *Fallopia japonica*
 - Nuttall's waterweed *Elodea nuttallii*
 - Sea-buckthorn *Hippophae rhamnoides*
 - Spanish bluebell *Hyacinthoides hispanica*
 - Three-cornered leek *Allium triquetrum*
- 29 Three-cornered leek *Allium triquetrum* and rhododendron *Rhododendron ponticum* which are an invasive flora species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) were identified on the proposed development site during the site visits.

3.2.3.1 Winter Birds

- 30 As birds are mobile, and some wintering goose species can travel up to 20km between roosting and feeding sites¹⁵, it is possible that wintering birds occurring in the vicinity of the proposed development site are associated with SPAs located a significant distance from the proposed development site (see Figure 2). Light-bellied brent goose and other wintering bird species known to use in-land green-field sites. The existing grassland, proposed for development, represents a suitable in-land feeding site for light-bellied brent goose and other wintering bird species known to use in-land sites.
- 31 Winter bird surveys carried out from January to March 2020 did not record any brent geese or signs of use of use by geese, such as droppings, at the proposed development site.
- 32 These surveys recorded one SCI species, Herring Gull *Larus argentatus*, associated with nearby SPAs. The peak count of Herring Gull *Larus argentatus* using the proposed development site was one individual bird feeding on the grassland which is significantly lower than 1% of the international population which is 10,200 birds¹⁶. Results of the winter bird surveys show that the proposed development site is not an important in-land or high tide roost site used by any significant numbers of wintering SCI birds.

Figure 2: SPAs within 20km of the proposed development site



3.2.4 Hydrology

- 33 There are no surface water features located within the proposed development site.

¹⁵ Scottish Natural Heritage (2016) Guidance: Assessing connectivity with Special Protection Areas (SPAs). Version 3

¹⁶ Wetlands International. 2012. Waterbird Population Estimates, Fifth Edition. Summary Report Wetlands International, Wageningen The Netherlands (with estimates available at <http://wpe.wetlands.org/>).

- 34 The site is located within the Ovoca-Vartry catchment and the Dargle sub-catchment. The site is contained within the Shanganagh River sub-basin, which drains to Killiney Bay.
- 35 The nearest watercourse, according to the EPA envision mapping, is the Shanganagh River, c.140m north of the proposed development site. Regarding water quality, the Shanganagh River was awarded a Q Value of 3-4, or “moderate” quality, by the EPA’s water quality monitoring programme, as measured in 2018 at the monitoring station at Commons Road river monitoring station (RS10S010600), located c.240m north of the proposed development site. The Shanganagh River has a ‘Moderate’ Water Framework Directive (WFD) status and is classified as ‘At risk’. The most recent water quality information for Killiney Bay coastal waterbody indicates that it is ‘Unpolluted’ and has a Water Framework Directive status of ‘ and is regarded to be a waterbody which is ‘Not at risk’.

3.2.5 Hydrogeology

- 36 Geological Survey of Ireland (GSI) data indicates that the site is “locally important aquifer – moderately productive only in local zones”. The Groundwater Body (GWB) underlying the proposed site is the Wicklow GWB which is a ‘poorly productive bedrock’. The site is located in an area of ‘Low’ vulnerability with regards to the ease with which groundwater may be contaminated by human activities.
- 37 Wicklow GWB is currently classified by the EPA as having ‘Good Status’. The WFD risk of the Wicklow GWB is currently under review. The European sites which are designated for groundwater dependent habitats/species, and which occur within the same GWB as the proposed site are Ballyman Glen SAC [000713], Knocksink Wood SAC [000725], Wicklow Mountains SAC [002122], Carriggower Bog SAC [000716] and The Murrough Wetlands [002249].

3.2.6 Soils & Geology

- 38 Soils on the proposed development site have been classified as non-hazardous¹⁷.

3.3 Assessment of Effects on European Sites

- 39 This section identifies all the potential impacts associated with the proposed development, examines whether there are any European sites within the ZoI of effects from the proposed development, and assesses whether there is any risk of the proposed development resulting in a significant effect on any European site, either alone or in combination with other plans or projects.
- 40 In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

3.3.1 Habitat loss and fragmentation

- 41 The proposed development does not overlap with the boundary of any European sites. The nearest European site, Rockabill to Dalkey Island SAC [003000], is located c. 2km north east of the proposed development. Therefore, there are no European sites at risk of direct habitat loss impacts.
- 42 The existing dry meadows grassland habitat does represent suitable in-landing feeding habitat for wintering SCI species known to use in-land feeding sites. However winter bird surveys completed at the proposed development site confirmed that the grassland does not support important numbers of SCI species. No evidence of Light-bellied Brent Goose were recorded on the grassland, with recorded peak numbers of herring gull (one individual) and lesser black-backed gull flying over the site significantly lower than 1% of the national or international population numbers, respectively. The grassland habitat does

¹⁷ Causeway Geotech (2020) Abingdon Shankill – Ground Investigations Factual Report

therefore not represent an important inland feeding site for wintering SCI species. Therefore, there are no European sites at risk of direct or *ex situ* habitat loss impacts.

- 43 As the proposed development does not traverse any European sites there is no potential for habitat fragmentation to occur.
- 44 As the proposed development will not result in habitat loss or habitat fragmentation within any European site, there is no potential for any in combination effects to occur in that regard.

3.3.2 *Habitat degradation as a result of surface water hydrological impacts*

- 45 Surface water run-off during construction and operation will discharge to the local surface water network which will ultimately discharge into Killiney Bay. Therefore, the Zone of Influence (Zoi) of potential effects on water quality from the proposed development during construction and operation could extend to Killiney Bay.
- 46 Contaminated surface water run-off, silt run-off or an accidental pollution event, of a sufficient magnitude, during construction and operation has the potential to affect the receiving aquatic and marine environments (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of European sites in Killiney Bay.
- 47 Breeding SCIs of Dalkey Island SPA utilise the coastal waters of Killiney bay for feeding and roosting. These species would be vulnerable to an accidental pollution incident either directly e.g. through direct contact with oil or other polluting chemicals, or indirectly by affecting the habitats and food supply on which they rely for feeding and roosting. Harbour porpoise would be vulnerable to an accidental pollution incident either directly e.g. through direct contact with oil or other polluting chemicals, or indirectly by affecting the habitats and food supply on which they rely. Reef habitat would be susceptible to sedimentation and changes in water quality also.
- 48 Bray head SAC is not considered a potential source receptor given that the QI habitats Bray Head SAC is designated for occur above the high tide line therefore there is no hydrological or other connectivity.
- 49 The European sites within Dublin Bay are not considered a potential source receptor given Dublin Bay is considered to be a separate coastal waterbody to Killiney Bay (EPA).
- 50 Mitigation measures will be required to ensure that surface water run-off from the proposed development site during construction and operation will not affect the receiving aquatic and marine environments (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of European sites in Killiney Bay; Rockabill to Dalkey Island SAC and Dalkey Island SPA.

3.3.3 *Habitat degradation as a result of foul water hydrological impacts*

- 51 Foul waters from the proposed development will be discharged to the local foul sewer network to the south east of the site. From here they will be transferred to Shanganagh WWTP for treatment prior to discharge into Killiney Bay. The proposed development is anticipated to result in an additional foul water loading value of 521.1 P.E. to Shanganagh WWTP. The Shanganagh WWTP is currently operating under its capacity of 186,000, with a current loading of 127,618 P.E. The Shanganagh WWTP is compliant with the limits set out in its licence and its discharge is not having an observable negative impact on water quality in Killiney Bay (Irish Water, 2020).
- 52 Considering the above, particularly the current 'high' WFD status of Killiney Bay, the proposed development will not have any perceptible impact on water quality of Killiney Bay.
- 53 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the qualifying interests or special conservation interests of the European sites in, or associated with, Killiney Bay as a result of foul water discharges.

3.3.4 *Habitat degradation as a result of hydrogeological impacts*

- 54 The proposed development lies within the Wicklow Groundwater Body (Wicklow GWB). European sites within the Wicklow GWB that are designated for groundwater dependant habitats and/or species are Knocksink Wood SAC [000725], Wicklow Mountains SAC [002122], Carriggower Bog SAC [000716] and The Murrough Wetlands [002249]. Based on information published by Geological Survey Ireland (GSI) on the Wicklow GWB¹⁸, 'The majority of groundwater flow in this aquifer will take place in the upper 3m of the rocks. This will be lateral flow towards discharge point such rivers and streams'. In this instance, groundwater flow will be towards the Shanganagh River. As the proposed development lies down gradient of the European sites listed above, it cannot influence groundwater conditions in these European sites.
- 55 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the qualifying interests or special conservation interests of Knocksink Wood SAC [000725], Wicklow Mountains SAC [002122], Carriggower Bog SAC [000716] and The Murrough Wetlands [002249], either alone or in combination with any other pans or projects, as a result of hydrogeological effects.
- 56 As described groundwater will be "lateral flow towards discharge points such as rivers and streams" of the Wicklow GWB. There is connectivity between the groundwater on site discharging to the Shanganagh River, c. 135m north of the proposed development site and ultimately to the Southwestern Irish Sea - Killiney Bay, c. 625m upstream. A pollution event, of a sufficient magnitude to effect groundwater quality on site which ultimately flows into Killiney Bay, has the potential to affect the receiving aquatic and marine environments of the Southwestern Irish Sea – Killiney Bay (either alone or in combination with other pressures on water quality), for similar reasons outlined in Section 3.3.2 above. Therefore, there is a possibility of the proposed development undermining the conservation objectives of the qualifying interests or special conservation interests of the European sites within Killiney Bay - Dalkey Islands SPA and Rockabill to Dalkey SAC.
- 57 Mitigation measures will be required to ensure that groundwater from the proposed development site during construction and operation will not affect the receiving aquatic and marine environments (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of European sites in Killiney Bay; Rockabill to Dalkey Island SAC and Dalkey Island SPA.

3.3.5 *Habitat degradation as a result of introducing/spreading non-native invasive species*

- 58 As three-cornered leek and rhododendron have been recorded within the proposed development site, there is the potential that the invasive species could be spread or introduced to European sites, and there is a possibility of the spread of invasive species undermining the conservation objectives of the qualifying interests or special conservation interests of the European sites .
- 59 Mitigation measures will be required to ensure that invasive species on the site are treated and managed appropriately so as not to spread or introduce them to Europeans sites and undermine the conservation objectives of European sites.

3.3.6 *Disturbance and displacement impacts*

- 60 Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the proposed development. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m¹⁹. For birds, disturbance effects such as noise and vibrations associated

¹⁸ https://secure.dccae.gov.ie/GSI_DOWNLOAD/Groundwater/Reports/GWB/WicklowGWB.pdf

¹⁹ This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual ZoI of construction related disturbance likely to be much less in reality.

with construction, specifically piling, which is required for the construction of foundations for the proposed development, would not be expected to extend beyond a distance of c. 300m²⁰, as noise levels associated with general construction activities would attenuate to close to background levels at that distance. ²¹ There are no European sites within the disturbance Zol; the next nearest European site to the proposed development is c. 2km away. There are also no habitat areas within the disturbance Zol of the proposed development that support populations of qualifying/special conservation interest species of any European site. ²²

- 61 As the proposed development will not result in the disturbance/displacement of the qualifying/special conservation interest species of any European site, there is no potential for any in combination effects to occur in that regard..

3.3.7 *Habitat degradation as a result of contaminated land*

- 62 Site investigations confirmed the absence of hazardous material at the proposed development site²³.

3.3.8 *Summary*

- 63 The hydrological impacts associated with surface water run-off during construction and operation, hydrogeological impacts associated with groundwater quality during construction and operation and the impacts associated with habitat degradation as a result of introducing/spreading non-native invasive species associated with the proposed development have the potential to affect the receiving environment and, consequently, have the potential to affect the conservation objectives supporting the qualifying interest/special conservation interests of a European site(s). Therefore, the proposed development is likely to have significant effects on a European site(s).
- 64 As the proposed development itself is likely to affect the QIs/SCIs or conservation objectives of a European site(s), there is also the potential for other plans or projects to act in combination with it to result in likely significant effects on European sites.
- 65 The potential impacts of the proposed development on the receiving environment, their Zol, and the European sites at risk of likely significant effects are summarised in

²⁰ Cutts, N., Phelps, A. and Burdon, D. (2009) Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Huber INCA. Institute of Estuarine and Coastal Studies, University of Hull.

²¹ The disturbance zone of influence for waterbirds is based on the relationship between the noise levels generated by general construction traffic/works (BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise) and the proximity of those noise levels to birds – as assessed in Cutts, N. Phelps, A. & Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*, and Wright, M., Goodman, P & Cameron, T. (2010) Exploring Behavioural Responses of Shorebirds to Impulsive Noise. *Wildfowl* (2010) 60: 150–167. At 300m, noise levels are below 60dB or, in most cases, are approaching the 50dB threshold below which no disturbance or displacement effects would arise.

²² There is a need to consider use of habitat areas outside of an SPA by SCI bird species where they support the SCI populations and the site's conservation objectives. These habitat areas can comprise alternative roosting sites, foraging areas, staging grounds or migration routes and can, but not necessarily exclusively, be situated within the immediate hinterland of the SPA, or in areas ecologically connected to it.

²³ Causeway Geotech (2020) Abingdon Shankill – Ground Investigations Factual Report

- 66 Table 2 below. In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Table 2 Summary of Analysis of Likely Significant Effects on European sites

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
<p>Habitat loss Habitat loss will be confined to the lands within the proposed development boundary.</p>	<p>No There are no European sites within the proposed development boundary</p>
<p>Habitat degradation as a result of hydrological impacts Habitats and species downstream of the proposed development site and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.</p>	<p>Yes The following European sites are at risk of hydrological effects arising from surface water run-off and pollution:</p> <ul style="list-style-type: none"> • Dalkey Islands SPA • Rockabill to Dalkey SAC
<p>Habitat degradation as a result of hydrogeological impacts Groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the proposed development site.</p>	<p>Yes The following European sites at risk of hydrogeological effects associated with the proposed development</p> <ul style="list-style-type: none"> • Dalkey Islands SPA • Rockabill to Dalkey SAC
<p>Habitat degradation as a result of introducing/spreading non-native invasive species Habitat areas within, adjacent to, and potentially downstream of the proposed development site.</p>	<p>Yes There are non-native invasive species present on the proposed development site, therefore there is a risk associated with the proposed development to European sites from the spread/ introduction of non-native invasive species.</p>
<p>Disturbance and displacement impacts Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, taking into account the sensitivity of the qualifying interest species to disturbance effects</p>	<p>No There are no European sites within the potential zone of influence of disturbance effects associated with the construction or operation of the proposed development</p>

4 Conclusions of Screening Assessment Process

- 67 Following an examination, analysis and evaluation of the best available information, and applying the precautionary principle, it can be concluded that there is the possibility for significant effects on the following European sites, either arising from the project alone or in combination with other plans and projects, as a result of habitat degradation as a result of hydrological, hydrogeological and introduction/spread of invasive species: Dalkey Islands SPA and Rockabill to Dalkey SAC.
- 68 In reaching this conclusion, the nature of the project and its potential relationship with all European sites within the zone of influence, and their conservation objectives, have been fully considered.
- 69 Therefore, it is the professional opinion of the authors of this report that the application for consent for the proposed development does require an Appropriate Assessment and the preparation of a Natura Impact Statement (NIS).

Appendix I

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the proposed development site (see Figure 1 and Figure 2)

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
Special Area of Conservation (SAC)	
<p>Rockabill to Dalkey Island SAC [003000] 1170 Reefs 1351 Harbour porpoise <i>Phocoena phocaena</i></p> <p>NPWS (2013) <i>Conservation Objectives: Rockabill to Dalkey Island SAC 003000</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	c. 2km north east of the proposed development
<p>Ballyman Glen SAC [000713] 7220 Petrifying springs with tufa formation (Cratoneurion)* 7230 Alkaline fens</p> <p>NPWS (2019) <i>Conservation Objectives: Ballyman Glen SAC 000713</i>. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	c. 4.4km south west of the proposed development
<p>Bray Head SAC [000714] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths</p> <p>NPWS (2017) <i>Conservation Objectives: Bray Head SAC 000714</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	c. 5.3km south east of the proposed development
<p>Knocksink Wood SAC [000725] 7220 Petrifying springs with tufa formation (Cratoneurion)* 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p>NPWS (2020) <i>Conservation objectives for Knocksink Wood SAC [000725]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	c. 5.7km south west of the proposed development
<p>South Dublin Bay SAC [000210] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 <i>Salicornia</i> and other annuals colonising mud and sand 2110 Embryonic shifting dunes</p> <p>NPWS (2013) <i>Conservation Objectives: South Dublin Bay SAC 000210</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	c. 6.5km north west of the proposed development
<p>Wicklow Mountains SAC [002122] 3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p>	c. 8.3km south west of the proposed development

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>4030 European dry heaths 4060 Alpine and Boreal heaths 6130 <i>Calaminarian</i> grasslands of the <i>Violetalia calaminariae</i> 6230 Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) 8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 1355 <i>Lutra lutra</i> (Otter)</p> <p>NPWS (2017) <i>Conservation Objectives: Wicklow Mountains SAC 002122</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	
<p>Glen of the Downs SAC [000719] 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>NPWS (2020) <i>Conservation Objectives for Glen of the Downs SAC [000719]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 10.8km south of the proposed development</p>
<p>North Dublin Bay SAC [000206] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes) 2190 Humid dune slacks 1395 Petalwort <i>Petalophyllum ralfsii</i></p> <p>NPWS (2013) <i>Conservation Objectives: North Dublin Bay SAC 000206</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 11.7km north of the proposed development</p>
<p>Howth Head SAC [000202] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths</p> <p>NPWS (2016) <i>Conservation Objectives: Howth Head SAC 000202</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>c. 13.5km north of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>Carriggower Bog SAC [000716] 7140 Transition mires and quaking bogs NPWS (2019) <i>Conservation Objectives: Carriggower Bog SAC 000716</i>. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 14.7km south west of the proposed development</p>
<p>The Murrough Wetlands SAC [002249] 1210 Annual vegetation of drift lines 1220 Perennial vegetation of stony banks 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 7210 Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion <i>davallianae</i> 7230 Alkaline fens NPWS (2020) <i>Conservation objectives for The Murrough Wetlands SAC [002249]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 14.8km south east of the proposed development</p>
Special Protection Area (SPA)	
<p>Dalkey Islands SPA [004172] A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> NPWS (2020) <i>Conservation objectives for Dalkey Islands SPA [004172]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 3.8km north east of the proposed development</p>
<p>South Dublin Bay and River Tolka Estuary SPA [004024] A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A162 Redshank <i>Tringa totanus</i> A179 Black-headed Gull <i>Croicocephalus ridibundus</i> A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> A999 Wetland and Waterbirds</p>	<p>c. 6.4km north west of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>NPWS (2015) <i>Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>Wicklow Mountains SPA [004040] A098 Merlin <i>Falco columbarius</i> A103 Peregrine <i>Falco peregrinus</i></p> <p>NPWS (2020) <i>Conservation objectives for Wicklow Mountains SPA [004040]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 8.3km south west of the proposed development</p>
<p>North Bull Island SPA [004006] A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A052 Teal <i>Anas crecca</i> A054 Pintail <i>Anas acuta</i> A056 Shoveler <i>Anas clypeata</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A169 Turnstone <i>Arenaria interpres</i> A179 Black-headed Gull <i>Croicocephalus ridibundus</i> A999 Wetlands & Waterbirds</p> <p>NPWS (2015) <i>Conservation Objectives: North Bull Island SPA 004006</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 11.7km north of the proposed development</p>
<p>Howth Head Coast SPA [004113] A188 Kittiwake <i>Rissa tridactyla</i></p> <p>NPWS (2020) <i>Conservation objectives for Howth Head Coast SPA [004113]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 13.9km north east of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>The Murrough SPA [004186] [A001] Red-throated Diver <i>Gavia stellata</i> [A043] Greylag Goose <i>Anser anser</i> [A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A050] Wigeon <i>Anas penelope</i> [A052] Teal <i>Anas crecca</i> [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i> [A184] Herring Gull <i>Larus argentatus</i> [A195] Little Tern <i>Sterna albifron</i> [A999] Wetland and Waterbirds</p> <p>NPWS (2020) <i>Conservation objectives for The Murrough SPA [004186]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 15.8km south east of the proposed development</p>
<p>Baldoyle Bay SPA [004016] [A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i> [A048] Shelduck (<i>Tadorna tadorna</i>) [A137] Ringed Plover <i>Charadrius hiaticula</i> [A140] Golden Plover <i>Pluvialis apricaria</i> [A141] Grey Plover <i>Pluvialis squatarola</i> [A157] Bar-tailed Godwit <i>Limosa lapponica</i> [A999] Wetland and Waterbirds</p> <p>NPWS (2013) <i>Conservation Objectives: Baldoyle Bay SPA 004016</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 16.8km north of the proposed development</p>
<p>Ireland's Eye SPA [004117] [A017] Cormorant <i>Phalacrocorax carbo</i> [A184] Herring Gull <i>Larus argentatus</i> [A188] Kittiwake <i>Rissa tridactyla</i> [A199] Guillemot <i>Uria aalge</i> [A200] Razorbill <i>Alca torda</i></p> <p>NPWS (2020) <i>Conservation objectives for Ireland's Eye SPA [004117]</i>. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 17.6km north east of the proposed development</p>

Appendix II

Desk Study Flora and Fauna Records

Desktop records of protected, rare, or other notable plant species are listed below in **Table 3**. These are plant species which are legally protected under the Flora (Protection) Order, 2015 and/or are listed as Critically Endangered, Endangered or Vulnerable on the relevant national Red Data list for Ireland²⁴.

The majority of the bryophyte species which were added to the revised Flora (Protection) Order, 2015 legislation were considered highly unlikely to occur within the study area, based on a review of the habitat preferences for each species and on the habitats present within the scheme study area.

Table 3: Records of protected, red-listed or notable flora recorded from the desk study in the vicinity of the study area

Common Name/ Scientific name	Legal Status ²⁵	Red List Status	Source
Petalwort (<i>Petalophyllum ralfsii</i>)	FPO	Least Concern	NBDC online database record

Desktop records of protected, rare, or other notable fauna species are listed below in **Table 4**. In relation to amphibian, reptile and mammal species those which are protected under the Wildlife Acts, the Habitats Directive and/or are listed as threatened (Vulnerable to Critically Endangered) on the relevant national Red Lists are included. In the case of bird species, only those species listed in Annex I of the Birds Directive or on the Birds of Conservation Concern in Ireland (BoCCI) Red List are included in the table below. For invertebrate species, those which are listed as threatened (Vulnerable to Critically Endangered) on the relevant national Red List are included.

Table 4: Records of protected, red-listed or notable fauna from the desktop study in the vicinity of the study area

Common Name/ Scientific Name	Legal Status ²⁶	Red List Status ²⁷	Source
Amphibians			

²⁴ Vascular flora from Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) *Ireland Red List No. 10: Vascular Plants*. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

Bryophytes from Lockhart, N., Hodgetts, N. & Holyoak, D. (2012) *Ireland Red List No.8: Bryophytes*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

²⁵ HDII/IV/V = Habitats Directive Annexes II/IV/V; FPO = Flora (Protection) Order, 2015; WA = Wildlife Acts

²⁶ HD_II/IV/V = Habitats Directive Annexes II/IV/V; WA = Wildlife Acts; BD_I/II/III = Birds Directive Annex I/II/III; OSPAR = Convention for the protection of the marine environment of the North-east Atlantic 1992

²⁷ Mammal Red-list from Marnell, F., Kingston, N. & Looney, D. (2009) *Ireland Red List No. 3: Terrestrial Mammals* and Marnell, F., Looney, D. & Lawton, C. (2019) *Ireland Red List No. 12: Terrestrial Mammals*.

Birds from Colhoun, K. & Cummins, S. (2013) *Birds of Conservation Concern in Ireland 2014-2019. Irish Birds 9:523-544*.

Amphibians, reptiles and fish from King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., Fitzpatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) *Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish*.

Non-Marine Molluscs from Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) *Ireland Red List No. 2 – Non-Marine Molluscs*.

Butterflies from Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010) *Ireland Red List No. 4 – Butterflies*.

Common Name/ Scientific Name	Legal Status ²⁶	Red List Status ²⁷	Source
Common frog <i>Rana temporaria</i>	HD_V, WA	Least concern	NBDC online database record
Smooth newt <i>Triturus vulgaris</i>	WA	Least concern	NBDC online database record
Reptiles			
Loggerhead Turtle (<i>Caretta caretta</i>)	HD_II, WA	n/a	NBDC online database record
Mammals (Marine)			
Grey seal <i>Halichoerus grypus</i>	HD_II & V, WA	n/a	NBDC online database record
Common dolphin <i>Delphinus delphis</i>	HD_IV, WA	n/a	NBDC online database record
Common porpoise <i>Phocoena phocoena</i>	HD_II & IV, WA	n/a	NBDC online database record
Bottle-nosed dolphin <i>Tursiops truncatus</i>	HD_II & IV, WA	n/a	NBDC online database record
Northern Bottlenose Whale <i>Hyperoodon ampullatus</i>	HD_IV, WA	n/a	NBDC online database record
Mammals (Terrestrial)			
Badger	WA	Least concern	NBDC online database record
Otter <i>Lutra lutra</i>	HD_II & IV, WA	Near threatened	NBDC online database record
Brown long-eared bat <i>Plecotus auritus</i>	HD_IV, WA	Least concern	NBDC online database record
Pipistrelle bat spp <i>Pipistrellus sp.</i>	HD_IV, WA	Least concern	NBDC online database record
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	HD_IV, WA	Least concern	NBDC online database record
Hedgehog <i>Erinaceus europaeus</i>	WA	Least concern	NBDC online database record NPWS record (M22 and M32)

Moths from Allen, D., O'Donnell, M., Nelson, B., Tyner, A., Bond, K.G.M., Bryant, T., Crory, A., Mellon, C., O'Boyle, J., O'Donnell, E., Rolston, T., Sheppard, R., Strickland, P., Fitzpatrick, U., & Regan, E. (2016) *Ireland Red List No. 9: Macro-moths (Lepidoptera)*.

Damselflies and dragonflies from Nelson, B., Ronayne, C. & Thompson, R. (2011) *Ireland Red List No.6: Damselflies & Dragonflies (Odonata)*.

Water beetles from Foster, G. N., Nelson, B. H. & O Connor, Á. (2009) *Ireland Red List No. 1 – Water beetles*.

Common Name/ Scientific Name	Legal Status ²⁶	Red List Status ²⁷	Source
Red squirrel <i>Sciurus vulgaris</i>	WA	Near threatened	NBDC online database record
Pygmy shrew <i>Sorex minutus</i>	WA	Least concern	NBDC online database record NPWS record (M22)
Birds			
Black-headed gull <i>Larus ridibundus</i>	WA	Red	NBDC online database record
Curlew <i>Numenius arquata</i>	BD_II (II), WA	Red	NBDC online database record
Golden plover <i>Pluvialis apricaria</i>	BD_I, II (II), III (III), WA	Red	NBDC online database record
Herring gull <i>Larus argentatus</i>	WA	Red	NBDC online database record
Lapwing <i>Vanellus vanellus</i>	BD_II (II), WA	Red	NBDC online database record
Long-tailed duck <i>Clangula hyemalis</i>	BD_II (II), WA	Red	NBDC online database record
Yellowhammer <i>Emberiza citrinella</i>	WA	Red	NBDC online database record
Barn Swallow <i>Hirundo rustica</i>	WA	Amber	NBDC online database record
Black Guillemot <i>Cephus grylle</i>	WA	Amber	NBDC online database record
Black-legged Kittiwake <i>Rissa tridactyla</i>	WA	Amber	NBDC online database record
Black-tailed Godwit <i>Limosa limosa</i>	WA	Amber	NBDC online database record
Brent Goose <i>Branta bernicla</i>	WA	Amber	NBDC online database record
Common Guillemot <i>Uria aalge</i>	WA	Amber	NBDC online database record
Common tern <i>Sterna hirundo</i>	BD_I, WA	Amber	NBDC online database record
Cormorant <i>Phalacrocorax carbo</i>	WA	Amber	NBDC online database record
Great Black-backed Gull <i>Larus marinus</i>	WA	Amber	NBDC online database record
Great Crested Grebe <i>Podiceps cristatus</i>	WA	Amber	NBDC online database record

Common Name/ Scientific Name	Legal Status ²⁶	Red List Status ²⁷	Source
House Martin <i>Delichon urbicum</i>	WA	Amber	NBDC online database record
House Sparrow <i>Passer domesticus</i>	WA	Amber	NBDC online database record
Kestrel <i>Falco tinnunculus</i>	BD_I, WA	Amber	NBDC online database record
Kingfisher <i>Alcedo atthis</i>	BD_I, WA	Amber	NBDC online database record
Lesser Black-backed Gull <i>Larus fuscus</i>	WA	Amber	NBDC online database record
Linnet <i>Carduelis cannabina</i>	WA	Amber	NBDC online database record
Little egret <i>Egretta garzetta</i>	BD_I, WA	Green	NBDC online database record
Little gull <i>Larus minutus</i>	BD_I, WA	Amber	NBDC online database record
Mediterranean Gull <i>Larus melanocephalus</i>	BD_I, WA	Amber	NBDC online database record
Mew Gull <i>Larus canus</i>	WA	Amber	NBDC online database record
Mute Swan <i>Cygnus olor</i>	WA	Amber	NBDC online database record
Northern Gannet <i>Morus bassanus</i>	WA	Amber	NBDC online database record
Oystercatcher <i>Haematopus ostralegus</i>	WA	Amber	NBDC online database record
Peregrine <i>Falco peregrinus</i>	BD_I, WA	Green	NBDC online database record
Razorbill <i>Alca torda</i>	WA	Amber	NBDC online database record
Red-throated diver <i>Gavia stellata</i>	BD_I, WA	Amber	NBDC online database record
Ringed Plover <i>Charadrius hiaticula</i>	WA	Amber	NBDC online database record
Reed Warbler <i>Acrocephalus scirpaceus</i>	WA	Amber	NBDC online database record
Sand Martin <i>Riparia riparia</i>	WA	Amber	NBDC online database record

Common Name/ Scientific Name	Legal Status ²⁶	Red List Status ²⁷	Source
Sandpiper <i>Actitis hypoleucos</i>	WA	Amber	NBDC online database record
Sandwich Tern <i>Sterna sandvicensis</i>	BD_I, WA	Amber	NBDC online database record
Shag <i>Phalacrocorax aristotelis</i>	WA	Amber	NBDC online database record
Sky Lark <i>Alauda arvensis</i>	WA	Amber	NBDC online database record
Snipe <i>Gallinago gallinago</i>	BD_I, WA	Amber	NBDC online database record
Starling <i>Sturnus vulgaris</i>	WA	Amber	NBDC online database record
Swift <i>Apus apus</i>	WA	Amber	NBDC online database record
Tree Sparrow <i>Passer montanus</i>	WA	Amber	NBDC online database record
Water Rail <i>Rallus aquaticus</i>	WA	Amber	NBDC online database record
Woodcock <i>Scolopax rusticola</i>	BD_I, WA	Amber	NBDC online database record
Invertebrates			
<i>Enicocerus exsculptus</i>	none	Endangered	
Dark Green Fritillary <i>Argynnis aglaja</i>	none	Vulnerable	NBDC online database record
Wall <i>Lasiommata megera</i>	none	Endangered	NBDC online database record
Field Cuckoo Bee <i>Bombus (Psithyrus) campestris</i>	none	Vulnerable	NBDC online database record

Appendix III

Winter Bird Survey Conditions Summary

Date	Survey Time	Sunrise/Sunset	Tide Time	Weather	Disturbance
27/01/2020	13:30-17:30	16:57	High tide (13:03) Low tide (19:02)	Moderate breeze and dry.	None
07/02/2020	07:50-12:00	08:00	High tide (10:05)	Windy and dry	None
24/02/2020	13:30-17:30	17:51	High tide (12:11) Low tide (18:05)	Calm with drizzle at the beginning of the survey.	None
10/03/2020	07:40-11:40	06:51	High tide (11:49) Low tide (04:30)	Overcast, and windy with light rain.	None
26/03/2020	14:50-17:50	18:49	High tide (12:43) Low tide (18:28)	Dry and calm.	Two cats observed on site. People taking bore holes on site.