

# Screening Report for Appropriate Assessment of proposed Strategic Housing Development at Belcamp, Dublin 17

Compiled by OPENFIELD Ecological Services

Pádraic Fogarty, MSc MIEMA

for Gerard Gannon Properties



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## Introduction

This document provides for the screening for appropriate assessment of a proposed residential development on a site at Belcamp, Co. Dublin, to enable An Bord Pleanála as the competent authority to determine whether or not the proposed development is likely to have significant effects on any European sites, individually or in combination with other plans and projects, having regard to the site's conservation objectives. This report provides the necessary information to allow An Bord Pleanála to carry out this screening.

## Background

Biodiversity is a contraction of the words 'biological diversity' and describes the enormous variability in species, habitats and genes that exist on Earth. It provides food, building materials, fuel and clothing while maintaining clean air, water, soil fertility and the pollination of crops. A study by the Department of Environment, Heritage and Local Government placed the economic value of biodiversity to Ireland at €2.6 billion annually (Bullock et al., 2008) for these 'ecosystem services'.

All life depends on biodiversity and its current global decline is a major challenge facing humanity. In 1992, at the Rio Earth Summit, this challenge was recognised by the United Nations through the Convention on Biological Diversity which has since been ratified by 193 countries, including Ireland. Its goal to significantly slow down the rate of biodiversity loss on Earth has been echoed by the European Union, which set a target date of 2010 for *halting* the decline. This target was not met but in 2010 in Nagoya, Japan, governments from around the world set about redoubling their efforts and issued a strategy for 2020 called 'Living in Harmony with Nature'. In 2011 the Irish Government incorporated the goals set out in this strategy, along with its commitments to the conservation of biodiversity under national and EU law, in the second national biodiversity action plan (Dept. of Arts, Heritage and the Gaeltacht, 2011). A third plan was published in 2017 while a fourth plan is due for publication in 2022.

## Legislative Background

The main pieces of legislation for conserving biodiversity in Ireland have been the Directive 2009/147/EC of the European Parliament and of the Council of November 2009 on the conservation of wild birds (Birds Directive) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). Among other things, these require member states to designate areas of their territory that contain important bird populations in the case of the former; or a representative sample of important or endangered habitats and species in the case of the latter. These areas are known as Special Protection Areas (SPA) and Special Areas of Conservation (SAC) respectively. Collectively they form a network of sites across the European Union known as Natura 2000.

Article 6(3) of the Habitats Directive states:

*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

The Birds and Habitats Directives have been transposed into Irish legislation by Part XAB of the Planning and Development Act 2000, as amended, and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Part XAB applies in relation to AA screening and AA to be undertaken in respect of this proposed development.

Section 177U of the Planning and Development Act 2000 as amended requires the following in respect of AA Screening:

*A screening for appropriate assessment shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.*

The test at stage 1 AA Screening is that:

*The competent authority shall determine that an appropriate assessment of a proposed development is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.*

The test at stage 2 (Appropriate Assessment) under section 177V of the Planning and Development Act 2000 as amended, is:

*Whether or not the proposed development, individually or in-combination with other plans or projects would adversely affect the integrity of a European site having regard to the European Site's conservation objectives.*

#### About OPENFIELD Ecological Services

OPENFIELD Ecological Services is headed by Pádraic Fogarty who has worked for 25 years in the environmental field and in 2007 was awarded an MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EclA) in Ireland. Since its inception in 2007 OPENFIELD has carried out numerous EclAs for Environmental Impact Assessment Reports, and Screening Reports for Appropriate Assessment in accordance with the EU Habitats Directive, as well as individual planning applications. Pádraic is a full member of the Institute of Environmental Management and Assessment (IEMA).

## Methodology

This AA Screening Report has been undertaken in accordance with the following guidance:

- *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).
- *Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021).

The methodology used for this assessment is set out in a document prepared for the Environment DG of the European Commission entitled 'Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (EC, 2021).

An earlier document, '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' (Oxford Brookes University, 2001). Chapter 3, part 1, of this document deals specifically with screening while Annex 2 provides the template for an AA report to be used.

In accordance with this guidance, the following methodology has been used to produce this screening statement:

### **Step 1: Information Required**

This assesses whether adequate information is available in order to complete the AA or if, taking the Precautionary Principle into account, additional data are required.

### **Step 2: Impact Prediction**

This identifies the likely impacts that may arise as a result of the project.

### **Step 3: Conservation Objectives**

An assessment of whether or not there will be adverse effects on the integrity of the Natura 2000 site as defined by the conservation objectives and status of the site.

#### **Step 4: Mitigation Measures**

Mitigation through avoidance of adverse effects must be proposed. Where it is likely that significant effects will remain despite mitigation then a full assessment of alternative options must be undertaken and an application for the project to proceed made under Article 6(4) of the Habitats Directive: Imperative Reasons of Overriding Public Interest.

The steps are compiled into an AA report, a template of which is provided in Appendix II of the EU methodology.

Reference is also made to guidelines for Local Authorities from the Department of the Environment, Heritage and Local Government (DoEHLG, 2009).

A full list of literature sources that have been consulted for this study is given in the References section to this report while individual references are cited within the text where relevant.

#### Screening Template as per Annex 2 of EU methodology:

This plan is not necessary for the management of the site and so Step 1 as outlined above is not relevant.

#### **Brief description of the project**

A 10-year planning permission is sought by Gerard Gannon Properties for a proposed Strategic Housing Development on lands at Belcamp Hall (protected structure), Malahide Road, the R139 road and Carr's Lane, Belcamp, Dublin 17. The proposed development will consist of the construction of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development.

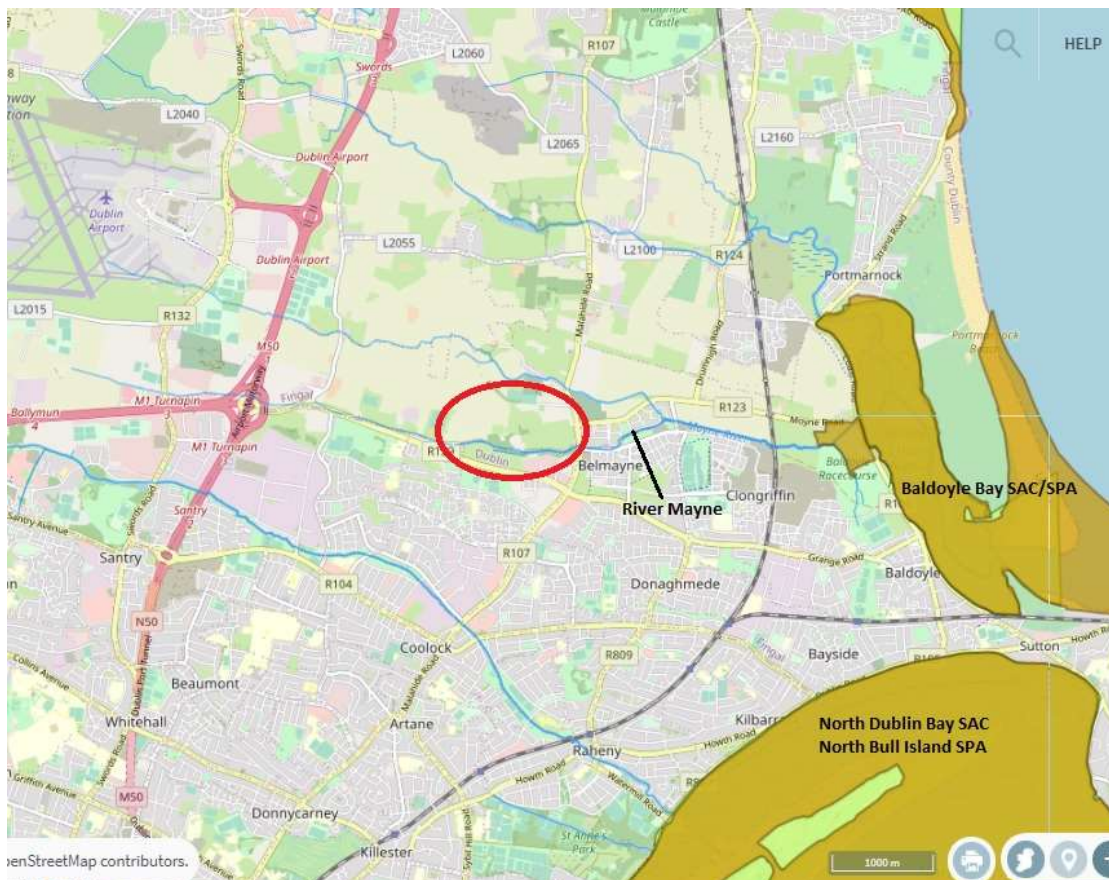
The site location is shown in figures 1 and 2 while the proposed layout is given in figure 3.

It is planned to construct a residential development on the site at Belcamp, Dublin 13 as previously described. This will include site clearance and preparation and a construction phase to include new surface water drainage infrastructure and connection to electricity and wastewater networks.

The main phases of this project include:

- Site preparation including removal of inert material.
- A construction phase using standard building materials.
- Construction will include a new surface water drainage infrastructure and connection to electricity and wastewater networks. It will include 4 new crossings of the River Mayne for motor vehicles, pedestrians and cyclists.
- An operation phase to which will see the homes occupied.

- The corridor of the River Mayne and its associated riparian vegetation will be enhanced and landscaped to provide a landscape and biodiversity amenity.



**Figure 1 – Site location (red circle) showing proximity to Natura 2000 sites. The SAC and SPA boundaries overlap to a considerable degree in this location.**

The development site is not located within or directly adjacent to any Natura 2000 site (SAC or SPA). This part of north Dublin is a built-up residential zone and is predominantly composed of surfaces that are sealed with tar macadam and concrete.

Site visits were carried out on the 27<sup>th</sup> of August 2020, the 27<sup>th</sup> of January 2021, the 13<sup>th</sup> of April 2021, the 16<sup>th</sup> of February 2022. The site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

The development lands can be broadly divided in two, with lands within Fingal County Council to the north of the River Mayne and lands within Dublin City Council to the South.

To the south of the river, the lands are confined to a long and narrow belt which is mostly bounded by the R139 road to the south. This is largely divided into a number of agricultural fields, most of which are **arable crops – BC1**. These were bare lands during the most recent survey in February 2022.

The field to the far west, as well as a small patch to the far east, are **dry neutral grasslands – GS1** and are grazed by horses. The sward is very tightly grazed with Ragwort *Senecio jacobaea*, Docks *Rumex sp.*, Creeping Thistle *Cirsium arvense* and Creeping Buttercup *Ranunculus repens*.

These fields are bounded by **hedgerows – WL1** with Blackthorn *Prunus spinosa*, Brambles *Rubus fruticosus agg.*, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna* and Field-rose *Rosa arvensis*.

The River Mayne is a **lowland river – FW2** and its riparian zone is characterised by **treelines – WL2** and dense **scrub – WS1**. Treelines include Beech *Fagus sylvatica*, Horse Chestnut *Aesculus hippocastanum*, Ash, Sycamore *Acer pseudoplatanus*, Ivy *Hedera helix*, Elm *Ulmus sp.*, Holly *Ilex aquilinum* and Crack Willow *Salix fragilis*.

Areas of scrub along the river include dense Brambles and Elder *Sambucus nigra* while the strip to the far east of the development site is wet with fallen and dead trees and stands of Angelica *Angelica sylvestris*.

North of the River Mayne there are a series of **artificial ponds – FL8** as well as bands of **broadleaved woodland – WD4**. The woodland within the development site boundary is composed of tall trees of a variety of species including Beech, Sycamore, Aspen *Populus tremula* and Yew *Taxus baccata* as well as Holly and Hazel *Corylus avellana*. The ground level includes a lot of Ivy but also ferns such as Hart's-tongue *Asplenium scolopendrium*. The upper (western) pond is surrounded by dense vegetation including dead and fallen trees. There are large rafts of Duckweed *Lemna sp.* on the water surface. The lower (eastern) pond has had much of its vegetation cleared as part of permitted works for on-going development.

The River Mayne is a short and highly urbanised water course and so its stretch through the Belcamp development site is of county significance in biodiversity terms for the relative naturalness of its habitats.

North of the River Mayne there is a network of fields of arable crops with mature treeline and hedgerow boundaries, some of which are associated with **drainage ditches – FW4**. A strip of broadleaved woodland is found along the northern development site boundary at Burgage.

To the east of this area there are small patches of scrub vegetation, an un-grazed field corner which is a patch of **dry meadow – GS2**. There is also a field of dry grassland which is grazed by horses in this area.

Collectively, the Belcamp development site consists of a variety of semi-natural features which range from intensively managed, low biodiversity value agricultural habitats to high local value hedgerows and treelines and the River Mayne with its associated woodlands and scrub are of county value.

However, there are no habitats which are examples of those listed on Annex I of the Habitats Directive. The River Mayne provides a direct hydrological

connection between the development site and the Baldoyle Estuary, which is designated for its intertidal habitats and coastal bird communities.

Habitats on the development site are not suitable for populations of wetland/wading/wintering birds which are qualifying interests of the Baldoyle Bay SPA or other Natura 2000 sites (either for foraging or nesting). The surveys in January 2021 and February 2022 were undertaken during the optimal period for wintering birds and no such species were recorded.

There are no plant species growing on the site which are listed as alien invasive under SI No. 477 of 2011. The developments lands have been subject to invasive species surveys by Peter Cuthbert since 2018 with the most recent survey in spring 2022. Growths of Giant Hogweed *Heracleum mantegazzianum* along the Mayne River have been subject to on-going treatment, most recently in 2021. It is believed that recolonisation of the Belcamp lands may be arising from seed sources upstream of the development site.

Inert construction and demolition waste will be removed by a licenced contractor and disposed of in accordance with the Waste Management Act .

Currently there is no attenuation of rain run-off and surface water percolates to the ground or follows surface pathways to the River Mayne. In accordance with the Greater Dublin Strategic Drainage Study this project will incorporate sustainable drainage systems (SuDS). Discharge to the River Mayne will be via attenuation storage and controlled flow.

According to the engineering report prepared for this development by Waterman Moylan:

*South of the Mayne River, it is proposed to utilise the existing ditches that run south to north along the existing hedge-lines as open surface water features, but these are not needed or desirable for attenuation as there are trees lining both sides of the ditch. Each proposed block will drain to a ditch via underground surface water drains. The ditches will, in turn, each flow into a headwall before culverting under the road and ultimately discharging to the Mayne River. Steps will be provided into/out of each of the ditches as a health and safety feature. The main regional attenuation will be provided in the open space adjacent to the Mayne River, east of the main road in a dry detention format. A Downstream Defender unit is proposed upstream of the basin to remove pollutants and debris and protect the hydrobrake outfall chamber from siltation.*

North of the River Mayne:

*It is proposed to redirect a significant portion of the catchment from this culvert to maintain its capacity for the C1 catchment (Belcamp Phase 1B). This diverted catchment will flow to the lower lake south of Belcamp Hall adjacent to the Mayne River.*



Additional SUDS measures include:

*Permeable Paving:*

*It is proposed to introduce permeable paving in private courtyard areas throughout the development. Downpipes from the roofs of the blocks will drain to filter drains beneath the permeable paving to facilitate maximum infiltration of surface water from paved and roof areas. The goal of permeable paving is to control stormwater at the source to reduce runoff. In addition to reducing surface runoff, permeable paving has the dual benefit of improving water quality by trapping suspended solids and filtering pollutants in the substrata layers.*

*Green Roof:*

*It is proposed to introduce green roofing as a source control device. Each block will have green roofing introduced on at least 60% of the roof area.*

*The substrate and the plant layers in a green roof absorb large amounts of rainwater and release it back into the atmosphere by transpiration and evaporation. They also filter water as it passes through the layers, so the runoff, when it is produced, has fewer pollutants. Rainfall not retained by green roofs is detained, effectively increasing the time to peak and slowing peak flows.*

*A green roof can reduce annual percentage runoff by between 40% and 80% through this retention and evapotranspiration, with the impact dependent on a range of factors including the depth of substrate, the saturation of substrate at the onset of a rain event, the angle of the roof, the range of vegetation growing, intensity of rainfall and the time of year.*

*Planted Areas:*

*It is proposed to provide open grassed areas with low level planting at the ground floor around each apartment block. This will act as soft scape and will significantly slow down and reduce the amount of surface water runoff from the open spaces. Planter boxes and planted areas will also take surface water runoff from the downpipes from buildings before draining to filter drains beneath the permeable paving.*

*Roadside Bioretention Tree Pits:*

*It is proposed to provide roadside trees along the main access road. Trees can help control and treat storm water runoff from the surrounding road / footpath because their leaves, stems, and roots slow rain from reaching the ground and capture and store rainfall to be released later. Tree pits help to attenuate flows, trap silts and pollutants, promote infiltration and prevent erosion. Incorporating tree planting offers multiple benefits, including attractive planting features, improved air quality and increased biodiversity whilst helping to ensure adaptation to climate change.*

*Downstream Defender:*

*A downstream defender (trade name for a large chamber that retains solids and hydrocarbons) is intended for the DCC lands that will treat the flows that are to be stored in the basin.*

As part of regional water control measures:

*Attenuation Lakes:*

*The two existing lakes, parallel to the Mayne River, will be used to attenuate the development north of the Mayne. These lakes have natural reeds and lake vegetation assisting with pollution and hydrocarbon removal. Excess surface water runoff, over and above the greenfield runoff, will be attenuated within the lakes above the permanent water level.*

*[...]*

*For Catchment A1, a new hydrobrake or similar approved flow control device will be provided on the lower lake weir to the river to regulate the discharge rate, limiting flows to the greenfield equivalent runoff rate. This flow control has been designed and provided for under phase 1.*

*Flows to the upper lake, from Catchment A2, will be through the existing ditch immediately east of the distributor road over the Mayne. This ditch flows into the upper lake which in turn flows into the lower lake and over the weir into the Mayne. The flows in the upper lake will be attenuated by means of a hydrobrake in a manhole installed in the causeway that splits the lakes. It may not be possible to utilise the existing culvert between the two lakes that is under the causeway, but it is intended to keep this in place for historical and conservation reasons.*

*The DCC catchment is split by the main distributor road, but it is intended to amalgamate the attenuation into one offline dry detention basin east of the distributor road where levels are most suitable. A hydrobrake at the outfall will limit flows to the greenfield equivalent rate, with excess surface water attenuated at the dry detention basin.*

Foul effluent from the proposed development will be sent to the wastewater treatment plant at Ringsend in Dublin. Emissions from the plant are currently not in compliance with the Urban Wastewater Treatment Directive. In April 2019 Irish Water was granted planning permission to upgrade the Ringsend plant.

Contractors for the upgrade work to the plant comprising a new 400,000 population equivalent extension were appointed in February 2018.. In addition, it is stated that Irish Water is working on infrastructure to achieve a population equivalent of 2.1 million by the second half of 2023. The upgrade to use of aerobic granular sludge (which allows for a greater amount of wastewater to be treated to a higher standard within the current plant) and other phased upgrades to achieve a population equivalent of 2.4 million is expected to be completed by 2027.

Fresh water supply for the development will be via a mains supply. This originates in reservoirs along the River Liffey.

There are no point air emissions from the site while some dust and noise can be expected during the construction phase.

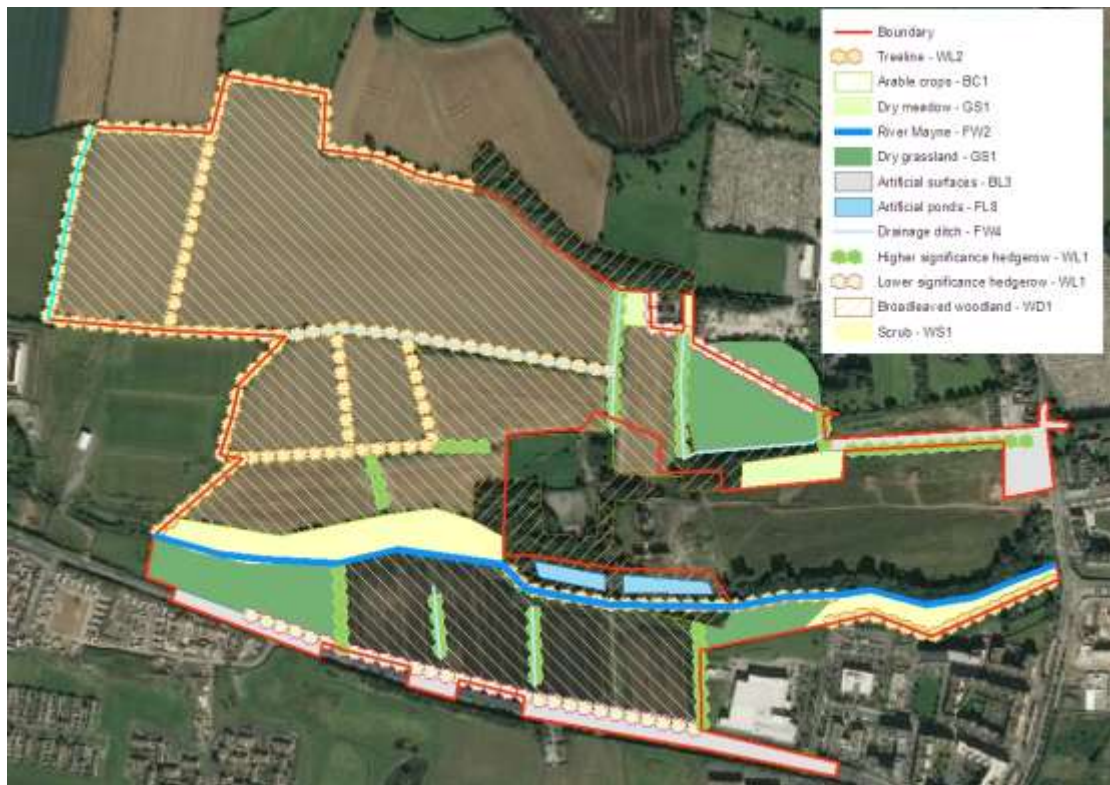


Figure 2 – Indicative site boundary and habitats (aerial photo from [www.google.com](http://www.google.com))



Figure 3 –overview of the proposed development

### Brief description of Natura 2000 sites

In assessing the zone of influence of this project upon Natura 2000 sites the following factors must be considered:

- Potential impacts arising from the development
- The location and nature of Natura 2000 sites
- Pathways between the development and the Natura 2000 network

It has already been stated that the development site is not located within or directly adjacent to any Natura 2000 site. For projects of this nature an initial 15km radius is normally examined. This is an arbitrary distance however and impacts can occur at distances greater than this. The potential for connectivity with European Sites at distances greater than 15km from the Proposed Development was also considered in this initial assessment. In this case, it has been assessed there is no potential connectivity between the Proposed Development Site and European Sites located at a distance greater than 15km from the Proposed Development. There are a number of Natura 2000 sites within a 15km radius.



**Figure 4 – Approximate 15km radius around the proposed development (red circle) site and Natura 2000 sites.**

### **Baldoyle Bay SAC/SPA. 3km from the development site.**

This SAC (site code: 0199) is the estuary of the Sluice and the Mayne Rivers that is largely enclosed by a sand spit that stretches from Portmarnock to Howth. At low tide it has large areas of exposed mud and sediment that support rich invertebrate communities. There are a number of habitats here that are listed in the EU's Habitats Directive Annex I while there are two plants recorded from the Bay that are protected under the Flora Protection Order: Borrer's Saltmarsh-grass *Puccinellia fasciculata* and Meadow Barley *Hordeum secalinum* (NPWS, 2013a & 2014a).

The reasons why the bay falls under the SAC designation are set out in the qualifying interests. They are either habitat types listed in Annex I or species listed in Annex II of the Habitats Directive. This information is provided by the National Parks and Wildlife Service (NPWS) and is shown in table 1 below. In this case the SAC is designated only for protected habitat types. Status is based on the NPWS national assessments under Article 17 of the Habitats Directive and unless otherwise stated do not refer to the status within the SAC in question.

**Table 1 – Qualifying interests for the Baldoyle Bay SAC (from NPWS)**

Code	Habitats	Status
1140	Mudflats and sandflats	Intermediate
1310	Salicornia and other annuals colonizing mud and sand	Intermediate
1330	Atlantic salt meadows	Intermediate
1410	Mediterranean salt meadows	Intermediate

- Tidal mudflats (1140). This is an intertidal habitat characterised by fine silt and sediment. The overall status of the habitat is inadequate and declining due to pollution from agriculture, forestry, wastewater sources and marine aquaculture.
- Salicornia mudflats (1310): This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependent upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases this is a natural process.
- Atlantic and Mediterranean salt meadows (1330 & 1410): these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.

Site specific conservation objectives for this SAC have been published (NPWS, 2012) and can be summarised as:

**Mudflats (code 1140)**

Permanent habitat area stable or increasing (estimated at 409 hectares); estuarine muds dominated by polychaetes and crustaceans community complex maintained in a natural condition.

**Salicornia mudflats (1310)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

**Atlantic/Mediterranean Salt Meadows (1330/1410)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

The Baldoyle Bay SPA (site codes: 4016) is composed of estuarine habitats. They are some of the most productive in the world and the nutrients that are deposited here fuel primary and secondary production (levels in the food chain) that in turn provide food for internationally significant numbers of wintering birds (Little, 2000). Specifically, it has a number of species which are 'features of interest' of the SPA, along with 'wetlands and waterbirds'. Table 2 details these.

**Table 2 – Features of Interest for the Baldoyle Bay SPA (from NPWS)**

Species	National Status <sup>1</sup>	SPA Status <sup>2</sup>
<i>Branta bernicula hrota</i> Light-bellied brent goose	Amber (Wintering)	Favourable
<i>Charadrius hiaticula</i> Ringed plover	Amber (Breeding & Wintering)	Intermediate unfavourable
<i>Limosa lapponica</i> Bar-tailed godwit	Red (Wintering)	Highly unfavourable
<i>Pluvialis apricaria</i> Golden plover	Red (Breeding & Wintering)	Unfavourable
<i>Pluvialis squatarola</i> Grey plover	Red (Wintering)	Unfavourable
<i>Tadorna Tadorna</i> Shelduck	Amber (Breeding & Wintering)	Favourable

<sup>1</sup> Birds of Conservation Concern in Ireland. Gilbert et al., 2021

<sup>2</sup> Conservation Objectives Supporting Document. Version 1. National Parks & Wildlife Service. 2012.

Wetlands & Waterbirds
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- **Light-bellied Brent Goose.** There has been a 67% increase in the distribution of this goose which winters throughout the Irish coast since the early 1980s. The light-bellied subspecies found in Ireland breeds predominantly in the Canadian Arctic.
- **Ringed Plover.** This bird is a common sight around the Irish coast where it is resident. They breed on stony beaches but also, more recently, on cut-away bog in the midlands.
- **Bar-tailed Godwit.** These wetland wading birds do not breed in Ireland but are found throughout the littoral zone during winter months. They prefer estuaries where there are areas of soft mud and sediments on which to feed.
- **Golden Plover.** In winter these birds are recorded across the midlands and coastal regions. They breed only in suitable upland habitat in the north-west. Wintering abundance in Ireland has changed little in recent years although it is estimated that half of its breeding range has been lost in the last 40 years.
- **Grey Plover.** These birds do not breed in Ireland but winter throughout coastal estuaries and wetlands. Its population and distribution is considered to be stable.
- **Shelduck.** The largest of our ducks, Shelduck both breed and winter around the coasts with some isolate stations inland. Its population and range is considered stable.

Of those species with unfavourable status in the SPA, Ringed Plover and Bar-tailed Godwit have exhibited losses at Baldoyle Bay while the national population remains stable or has increased. It is therefore reasonable to assume that local factors are leading to declines. The NPWS list a number of factors that may be contributing to this including human disturbance (walkers with or without dogs) and nutrient enrichment (pollution). The latter effect is exhibited by algal mats, typically Sea-lettuce *Ulva* sp. which covers the sediment surface at low tide. This is good for those species which feed on Sea-lettuce but bad for those which cannot reach their favoured prey under the mats.

Site specific conservation objectives have been published for this SPA (NPWS, 2013b) and are similar for each bird species. They can be summarised as:

<b>Birds (similar for all species)</b>
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Long term population trend stable or increasing; there should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation.
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**North Dublin Bay SAC/North Bull Island SPA. 3.5km from the development site.**

The North Dublin Bay SAC (site code: 0206) is focussed on the sand spit on the North Bull island. The qualifying interests for it are shown in table 3. The status of the habitat is also given and this is an assessment of its range, area, structure and function, and future prospects on a national level and not within the SAC itself (NPWS 2013c & 2014b).

**Table 3 – Qualifying interests for the North Dublin Bay SAC**

Code	Habitat/Species	Status
1140	Mudflats and sandflats not covered by seawater at low tide	Inadequate
1310	Salicornia and other annuals colonizing mud and sand	Favourable
1330	Atlantic salt meadows	Inadequate
1410	Mediterranean salt meadows	Inadequate
1210	Annual vegetation of drift lines	Inadequate
2110	Embryonic shifting dunes	Inadequate
2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)	Inadequate
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	Bad
2190	Humid dune slacks	Inadequate
1395	<i>Petalophyllum ralfsii</i> Petalwort	Good

- **Annual vegetation of drift lines (1210)** This habitat of the upper shore is characterised by raised banks of pebbles and stones. They are inhabited by a sparse but unique assemblage of plants, some of which are very rare. The principle pressures are listed as gravel extraction, the building of pipelines and coastal defences.
- **Embryonic shifting dunes (2110).** As their name suggests these sand structures represent the start of a sand dune's life. Perhaps only a meter high they are a transient habitat, vulnerable to inundation by the sea, or developing further into white dunes with Marram Grass. They are threatened by recreational uses, coastal defences, trampling and erosion.
- **Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (2120).** These are the second stage in dune formation and depend upon the stabilising effects of Marram Grass. The presence of the grass traps additional sand, thus growing the dunes. They are threatened by erosion, climate change, coastal flooding and built development.
- **Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130 – priority habitat).** These are more stable dune systems, typically located on the landward side of the mobile dunes. They have a more or less permanent,



and complete covering of vegetation, the quality of which depends on local hydrology and grazing regimes. They are the most endangered of the dune habitat types and are under pressure from built developments such as golf courses and caravan parks, over-grazing, under-grazing and invasive species.

- **Humid dune slacks (2190).** These are wet, nutrient enriched (relatively) depressions that are found between dune ridges. During winter months or wet weather these can flood and water levels are maintained by a soil layer or saltwater intrusion in the groundwater. There are found around the coast within the larger dune systems.
- **Petalwort (1395).** There are 30 extant populations of this small green liverwort, predominantly along the Atlantic seaboard but also with one in Dublin. It grows within sand dune systems and can attain high populations locally.

Site specific conservation objectives are available for this SAC (NPWS, 2013d) and are summarised as:

**Annual vegetation of drift lines (code: 1210)**

Habitat areas stable or increasing subject to natural variation; no decline in habitat distribution; maintain physical and vegetation structure without any physical obstructions, maintain vegetation structure and composition subject to natural variations.

**Atlantic/Mediterranean Salt Meadows (1330/1410)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

**Embryonic shifting dunes (code: 2110)**

Habitat areas stable or increasing subject to natural variation; no decline in habitat distribution; maintain physical and vegetation structure without any physical obstructions, maintain vegetation structure and composition subject to natural variations.

**Salicornia and other annuals colonising mud and sand (code: 3110)**

Habitat area stable or increasing; no decline in habitat distribution; maintain physical and vegetation structure.

**Fixed Coastal Dunes/Shifting Dunes (2130/2120)**

Maintain habitat area and distribution including physical structure (functionality and sediment supply, percentage of bare ground, sward height). Maintain vegetation structure as measured by zonation, vegetation cover, typical species and sub-communities. Absences of the invasive *Hippophae rhamnoides*.

**Humid dune slacks (code: 2190)**

Area increasing, subject to natural processes including erosion and succession; No decline or change in habitat distribution, subject to natural processes; Maintain the natural circulation of sediment and organic matter, without any physical obstructions; Maintain natural hydrological regime; Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession; Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground; Maintain structural variation within sward; Maintain range of subcommunities with typical species; Maintain less than 40% cover of creeping willow (*Salix repens*); Negative indicator species (including non-natives) to represent less than 5% cover.

**Petalwort *Petalophyllum ralfsii* (code: 1395)**

No decline in known populations. No decline in population, estimated at 5,824 thalli. No decline in area of suitable habitat. Maintain hydrological conditions; maintain open, low vegetation, with a high percentage cover of bryophytes (small acrocarps and liverwort turf) and bare ground.

The North Bull Island SPA (site code: 0206) is largely coincident with the North Dublin Bay SAC with the exception of the terrestrial portion of Bull Island. Table 4 lists its features of interest

**Table 4 – Features of interest for the North Bull Island SPA**

North Bull Island SPA	National Status
Light-bellied Brent Goose <i>Branta bernicla hrota</i>	Amber (Wintering)
Oystercatcher <i>Haematopus ostralegus</i>	Red (Breeding & Wintering)
Teal <i>Anas crecca</i>	Amber (Breeding & Wintering)
Pintail <i>Anas acuta</i>	Amber (Wintering)
Shoveler <i>Anas clypeata</i>	Amber (Wintering)
Shelduck <i>Tadorna tadorna</i>	Amber (Breeding & Wintering)
Golden Plover <i>Pluvialis apricaria</i>	Red (Breeding & Wintering)
Grey Plover <i>Pluvialis squatarola</i>	Red (Wintering)
Knot <i>Calidris canutus</i>	Red (Wintering)
Sanderling <i>Calidris alba</i>	Green (Wintering)
Dunlin <i>Calidris alpina</i>	Red (Breeding & Wintering)
Black-tailed Godwit <i>Limosa limosa</i>	Red (Wintering)
Bar-tailed Godwit <i>Limosa lapponica</i>	Red (Wintering)

Curlew <i>Numenius arquata</i>	Red (Breeding & Wintering)
Redshank <i>Tringa totanus</i>	Red (Breeding & Wintering)
Turnstone <i>Arenaria interpres</i>	Amber (Wintering)
Black-headed Gull <i>Larus ridibundus</i>	Amber (Breeding)
Wetlands & Waterbirds	

- **Oystercatcher.** Predominantly coastal in habit Oystercatchers are resident birds whose numbers continue to expand in Ireland.
- **Teal.** In winter this duck is widespread throughout the country. Land use change and drainage however have contributed to a massive decline in its breeding range over the past 40 years.
- **Pintail.** Dabbling duck wintering on grazing marshes, river floodplains, sheltered coasts and estuaries. It is a localised species and has suffered a small decline in distribution in Ireland for unknown reasons.
- **Shoveler.** Favoured wintering sites for this duck are inland wetlands and coastal estuaries. While there have been local shifts in population and distribution, overall their status is stable in Ireland.
- **Knot.** These small wading birds do not breed in Ireland but gather in coastal wetlands in winter. Their numbers have increased dramatically since the mid-1990s although the reasons for this are unclear.
- **Sanderling.** This small bird breeds in the high Arctic and winters in Ireland along sandy beaches and sandbars. Its wintering distribution has increased by 21% in the previous 30 years.
- **Dunlin.** Although widespread and stable in number during the winter season, the Irish breeding population has collapsed by nearly 70% in 40 years. Breeding is now confined to just seven sites in the north and west as habitat in former nesting areas has been degraded.
- **Black-tailed Godwit.** Breeding in Iceland these waders winter in selected sites around the Irish coast, but predominantly to the east and southern halves. Their range here has increase substantially of late.
- **Curlew.** Still a common sight during winter at coastal and inland areas around the country it breeding population here has effectively collapsed. Their habitat has been affected by the destruction of peat bogs, afforestation, farmland intensification and land abandonment. Their wintering distribution also appears to be in decline.
- **Redshank.** Once common breeders throughout the peatlands and wet grasslands of the midlands Redshanks have undergone a 55% decline in distribution in the past 40 years. Agricultural intensification, drainage of wetlands and predation are the chief drivers of this change.
- **Turnstone.** This winter visitor to Irish coasts favours sandy beaches, estuaries and rocky shores. It is found throughout the island but changes may be occurring due to climate change.
- **Black-headed Gull.** Widespread and abundant in winter these gulls are nevertheless considered to be in decline. The reasons behind this are

unclear but may relate to the loss of safe nesting sites, drainage, food depletion and increase predation.

Site specific conservation objectives have been published for this SPA (NPWS, 2015a) and are similar for each bird species. They can be summarised as:

**Birds (similar for all species)**

Long term population trend stable or increasing; there should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation

**The South Dublin Bay and Tolka Estuary SPA (side code: 4024). 5.7km from the development site.**

This SPA is largely coincident with the South Dublin Bay SAC boundary with the exception of the Tolka Estuary. These designations encompass all of the intertidal areas in Dublin Bay from south of Bull Island to the pier in Dun Laoghaire. Wintering birds in particular are attracted to these areas in great number as they shelter from harsh conditions further north and avail of the available food supply within sands and soft sediments (NPWS, 2015b). Table 6 lists the features of interest.

- **Light-bellied Brent Goose.** There has been a 67% increase in the distribution of this goose which winters throughout the Irish coast. The light-bellied subspecies found in Ireland breeds predominantly in the Canadian Arctic.
- **Sanderling.** This small bird breeds in the high Arctic and winters in Ireland along sandy beaches and sandbars. Its wintering distribution has increased by 21% in the previous 30 years.
- **Dunlin.** Although widespread and stable in number during the winter season, the Irish breeding population has collapsed by nearly 70% in 40 years. Breeding is now confined to just seven sites in the north and west as habitat in former nesting areas has been degraded.
- **Knot.** These small wading birds do not breed in Ireland but gather in coastal wetlands in winter. Their numbers have increased dramatically since the mid-1990s although the reasons for this are unclear.
- **Black-headed Gull.** Widespread and abundant in winter these gulls are nevertheless considered to be in decline. The reasons behind this are unclear but may relate to the loss of safe nesting sites, drainage, food depletion and increase predation.
- **Ringed Plover.** This bird is a common sight around the Irish coast where it is resident. They breed on stony beaches but also, more recently, on cut-away bog in the midlands.
- **Oystercatcher.** Predominantly coastal in habit Oystercatchers are resident birds whose numbers continue to expand in Ireland.
- **Bar-tailed Godwit.** These wetland wading birds do not breed in Ireland but are found throughout the littoral zone during winter months. They prefer estuaries where there are areas of soft mud and sediments on which to feed.

- **Grey Plover.** These birds do not breed in Ireland but winter throughout coastal estuaries and wetlands. Its population and distribution is considered to be stable.
- **Roseate Tern.** This tern breeds at only a few stations along Ireland's east coast. Most of these are in decline although at Dublin their colony is increasing.
- **Common Tern.** This summer visitor nests along the coast and on islands in the largest lakes. Its breeding range has halved in Ireland since the 1968-1972 period.
- **Arctic Tern.** These long-distance travellers predominantly breed in coastal areas of Ireland. They have suffered from predation by invasive mink and are declining in much of their range.
- **Redshank.** Once common breeders throughout the peatlands and wet grasslands of the midlands Redshanks have undergone a 55% decline in distribution in the past 40 years. Agricultural intensification, drainage of wetlands and predation are the chief drivers of this change.

Bird counts from BirdWatch Ireland are taken from Dublin Bay as a whole and are not specific to any particular portion of the Bay. Dublin Bay is recognised as an internationally important site for water birds as it supports over 20,000 individuals. Table 5 shows the most recent count data available<sup>3</sup>.

**Table 5 – Mean count of birds species (qualifying interests of SPAs) for Dublin Bay from the Irish Wetland Birds Survey (IWeBS) from 2010 - 2020**

Species	Mean
Light-bellied Brent Goose	3,453
Sanderling	500
Dunlin	5,951
Knot	5,093
Black-headed Gull	3,340
Ringed Plover	176
Oystercatcher	3,419
Bar-tailed Godwit	1,965
Grey Plover	328
Roseate Tern	0
Common Tern	23
Arctic Tern	0
Redshank	2,050
Teal	1,335
Pintail	184
Shoveler	101

<sup>3</sup> <https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88>

Black-tailed Godwit	2,038
Curlew	882
Turnstone	272

There were also internationally important populations of particular birds recorded in Dublin Bay (i.e. over 1% of the world population): Light-bellied brent geese *Branta bernicula hrota*; Black-tailed godwit *Limosa limosa*; Knot *Calidris canutus* and Bar-tailed godwit *L. lapponica*.

**Table 6 – Qualifying interests for the South Dublin Bay & River Tolka Estuary SPA (EU code in square parenthesis)**

<b>South Dublin Bay and Tolka Estuary SPA</b>
Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> ) [A046]
Oystercatcher ( <i>Haematopus ostralegus</i> ) [A130]
Ringed Plover ( <i>Charadrius hiaticula</i> ) [A137]
Grey Plover ( <i>Pluvialis squatarola</i> ) [A140]
Knot ( <i>Calidris canutus</i> ) [A143]
Sanderling ( <i>Calidris alba</i> ) [A144]
Dunlin ( <i>Calidris alpina</i> ) [A149]
Bar-tailed Godwit ( <i>Limosa lapponica</i> ) [A157]
Redshank ( <i>Tringa totanus</i> ) [A162]
Black-headed Gull ( <i>Croicocephalus ridibundus</i> ) [A179]
Roseate Tern ( <i>Sterna dougallii</i> ) [A192]
Common Tern ( <i>Sterna hirundo</i> ) [A193]
Arctic Tern ( <i>Sterna paradisaea</i> ) [A194]
Wetlands & Waterbirds [A999]

Site specific conservation objectives have been published for this SPA (NPWS, 2015c) and are similar for each bird species. They can be summarised as:

**Birds (similar for all species)**

Long term population trend stable or increasing; there should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation

The **South Dublin Bay SAC** (side code: 0210). 8.3km from the development site)

This SAC is concentrated on the intertidal area of Sandymount Strand (NPWS, 2015d). It has four qualifying interests: mudflats and sandflats not covered by seawater at low tide (1140), annual vegetation of drift lines (1210), Salicornia and other annuals colonising mud and sand (1310) and Embryonic shifting dunes (2110).

- **Annual vegetation of drift lines (1210)** This habitat of the upper shore is characterised by raised banks of pebbles and stones. They are inhabited by a sparse but unique assemblage of plants, some of which are very rare. The principle pressures are listed as gravel extraction, the building of pipelines and coastal defences.
- **Embryonic shifting dunes (2110)**. As their name suggests these sand structures represent the start of a sand dune's life. Perhaps only a meter high they are a transient habitat, vulnerable to inundation by the sea, or developing further into white dunes with Marram Grass. They are threatened by recreational uses, coastal defences, trampling and erosion.
- **Tidal mudflats (1140)**. This is an intertidal habitat characterised by fine silt and sediment. The overall status of the habitat is inadequate and declining due to pollution from agriculture, forestry, wastewater sources and marine aquaculture.
- **Salicornia mudflats (1310)**: This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependant upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases this is a natural process.

Site specific conservation objectives have been set out for mudflats in this SAC (NPWS, 2013e) and are summarised as:

**Mudflats (code 1140)**

Permanent habitat area stable or increasing (estimated at 720 hectares); Maintain the extent of the Zostera-dominated community, subject to natural processes; Conserve the high quality of the Zostera-dominated community, subject to natural processes; Conserve the following community type in a natural condition: Fine sands with *Angulus tenuis* community complex.

For other qualifying interests, only generic conservation objectives are available.

**Malahide Estuary SAC and SPA (code: 0205 and 4025). 5.1km from the development site.**

The estuary is designated for its intertidal habitats and important wintering bird population as detailed in table 8 (NPWS, 2017a & 2013f).

In addition to its Natura 2000 designations it is also a Ramsar site (Broadmeadow estuary no. 833) and a Marine Protected Area under the OSPAR Convention (site code: O-IE-0002967).

The qualifying interests for the SAC (the reasons why the site is of European value) are detailed in table 7 while the Special Conservation Interests (analogous to qualifying interests for SPAs) for the SPA are given in table 8.

**Table 7 – Site qualifying interests for the Malahide estuary SAC**

Aspect	Level of Protection	Status
Fixed coastal dunes with herbaceous vegetation (grey dunes) (code: 2130)	Habitats Directive Annex I priority habitat	Bad
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') (code: 2120)	Habitats Directive Annex I	Inadequate
Salicornia and other annuals colonizing mud and sand (code: 1310)		Inadequate
Mediterranean salt meadows (code: 1410)		Inadequate
Atlantic salt meadows (code: 1330)		Inadequate
Mudflats and sandflats not covered by seawater at low tide (code: 1140)		Inadequate

- **Tidal mudflats (1140).** This is an intertidal habitat characterised by fine silt and sediment. The overall status of the habitat is inadequate and declining due to pollution from agriculture, forestry, wastewater sources and marine aquaculture.
- **Salicornia mudflats (1310):** This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependent upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases this is a natural process.
- **Atlantic and Mediterranean salt meadows (1330 & 1410):** these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.
- **Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (2120).** These are the second stage in dune formation and depend upon the stabilising effects of Marram Grass. The presence of the grass



traps additional sand, thus growing the dunes. They are threatened by erosion, climate change, coastal flooding and built development.

- **Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130 – priority habitat).** These are more stable dune systems, typically located on the landward side of the mobile dunes. They have a more or less permanent, and complete covering of vegetation, the quality of which depends on local hydrology and grazing regimes. They are the most endangered of the dune habitat types and are under pressure from built developments such as golf courses and caravan parks, over-grazing, under-grazing and invasive species.

Site specific conservation objectives have been published for this SAC (NPWS, 2013g) and are summarised here:

#### **Mudflats (code 1140)**

Permanent habitat area stable or increasing (estimated at 311 hectares); Maintain the extent of the *Zostera*-dominated community and the *Mytilus edulis*-dominated community complex, subject to natural processes; Conserve the high quality of the *Zostera*-dominated community, subject to natural processes; Conserve the high quality of the *Mytilus edulis* dominated community, subject to natural processes; Conserve the following community types in a natural condition: Fine sand with oligochaetes, amphipods, bivalves and polychaetes community complex; Estuarine sandy mud with Chironomidae and *Hediste diversicolor* community complex; and Sand to muddy sand with *Peringia ulvae*, *Tubificoides benedii* and *Cerastoderma edule* community complex.

#### **Salicornia mudflats (1310)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

#### **Atlantic/Mediterranean Salt Meadows (1330/1410)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

#### **Fixed Coastal Dunes/Shifting Dunes (2130/2120)**

Maintain habitat area and distribution including physical structure (functionality and sediment supply, percentage of bare ground, sward height). Maintain vegetation structure as measured by zonation, vegetation cover, typical species and sub-communities. Absences of the invasive *Hippophae rhamnoides*.

**Table 8 – Qualifying Interests for Malahide Estuary SPA**

Species	National Status <sup>4</sup>
<i>Anas acuta</i> Pintail	Amber (Wintering)
<i>Branta bernicula hrota</i> Light-bellied brent goose	Amber (Wintering)
<i>Bucephala clangula</i> Goldeneye	Red (Wintering)
<i>Calidris alpina</i> Dunlin	Red (Breeding & Wintering)
<i>Calidris canutus</i> Knot	Red (Wintering)
<i>Haematopus ostralegus</i> Oystercatcher	Red (Breeding & Wintering)
<i>Limosa lapponica</i> Bar-tailed godwit	Red (Wintering)
<i>Limosa limosa</i> Black-tailed godwit	Red (Wintering)
<i>Mergus serrator</i> Red-breasted Merganser	Amber (Breeding & Wintering)
<i>Pluvialis apricaria</i> Golden Plover	Red (Breeding & Wintering)
<i>Pluvialis squatarola</i> Grey Plover	Red (Wintering)
<i>Podiceps cristatus</i> Great-crested Grebe	Red (Breeding & Wintering)
<i>Tadorna tadorna</i> Shelduck	Amber (Breeding & Wintering)
<i>Tringa totanus</i> Redshank	Red (Breeding & Wintering)
Wetlands & Waterbirds	

- **Pintail.** Dabbling duck wintering on grazing marshes, river floodplains, sheltered coasts and estuaries. It is a localised species and has suffered a small decline in distribution in Ireland for unknown reasons.
- **Light-bellied Brent Goose.** There has been a 67% increase in the distribution of this goose which winters throughout the Irish coast. The light-bellied subspecies found in Ireland breeds predominantly in the Canadian Arctic.
- **Goldeneye.** This duck wintering throughout Ireland on suitable coastal areas, river valleys and wetlands. There has been an 11% contraction in its Irish wintering range since the early 1980s and a 37% decline in abundance since the 1990s.
- **Dunlin.** Although widespread and stable in number during the winter season, the Irish breeding population has collapsed by nearly 70% in 40 years. Breeding is now confined to just seven sites in the north and west as habitat in former nesting areas has been degraded.
- **Knot.** These small wading birds do not breed in Ireland but gather in coastal wetlands in winter. Their numbers have increased dramatically since the mid-1990s although the reasons for this are unclear.

<sup>4</sup> Birds of Conservation Concern in Ireland. Gilbert et al., 2021

- **Oystercatcher.** Predominantly coastal in habit Oystercatchers are resident birds whose numbers continue to expand in Ireland.
- **Bar-tailed Godwit.** These wetland wading birds do not breed in Ireland but are found throughout the littoral zone during winter months. They prefer estuaries where there are areas of soft mud and sediments on which to feed.
- **Black-tailed Godwit.** Breeding in Iceland these waders winter in selected sites around the Irish coast, but predominantly to the east and southern halves. Their range here has increase substantially of late.
- **Red-breasted Merganser.** A widely distributed duck in winter Red-breasted Mergansers also breed in Ireland at certain coastal and inlands locations to the north and west. They have suffered small declines in both their wintering and breeding ranges and possible reasons have been cited as predation by American Mink and shooting.
- **Golden Plover.** In winter these birds are recorded across the midlands and coastal regions. They breed only in suitable upland habitat in the north-west. Wintering abundance in Ireland has changed little in recent years although it is estimated that half of its breeding range has been lost in the last 40 years.
- **Grey Plover.** These birds do not breed in Ireland but winter throughout coastal estuaries and wetlands. Its population and distribution is considered to be stable.
- **Great-crested Grebe.** These birds breed predominantly on freshwater sites north of the River Shannon while coastal areas along the east and south are used for wintering. Numbers in Ireland have decline by over 30% since the 1990s.
- **Shelduck.** The largest of our ducks, Shelduck both breed and winter around the coasts with some isolate stations inland. Its population and range is considered stable.
- **Redshank.** Once common breeders throughout the peatlands and wet grasslands of the midlands Redshanks have undergone a 55% decline in distribution in the past 40 years. Agricultural intensification, drainage of wetlands and predation are the chief drivers of this change.

**Table 9 – Mean count of bird species (qualifying interests) for Malahide Estuary SPA from the Irish Wetland Birds Survey (IWeBS) from 2010 - 2020<sup>5</sup>**

Species	Mean
Light-bellied Brent Goose	3,453
Sanderling	500
Dunlin	5,951
Knot	5,093
Black-headed Gull	3,340
Ringed Plover	176
Pintail	19

<sup>5</sup> <https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88>

Light-bellied Brent Goose	932
Goldeneye	34
Dunlin	515
Knot	414
Oystercatcher	1,050
Bar-tailed Godwit	89
Black-tailed Godwit	387
Red-breasted Merganser	71
Golden Plover	77
Grey Plover	54
Shelduck	322
Redshank	

Site specific conservation objectives have been published for this SPA (NPWS, 2013h) and are similar for each bird species. They can be summarised as:

**Birds (similar for all species)**

Long term population trend stable or increasing; there should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation

**Rogerstown estuary SAC (code: 0208) SPA (code: 4015). 10.6km from the development site.**

This area is also a Statutory Nature Reserve, a proposed Natural Heritage Area (code: 0208) and is listed under the international Ramsar convention on the protection of wetlands (site no. 412) (NPWS, 2013i & 2014c).

The estuary is situated north of Donabate and is transected by the Rogerstown viaduct, built in the 1840s and rebuilt after a section of it collapsed in 2009. The mudflats, salt marsh and sand dune habitats are all important and during winter there are internationally important populations of the pale-bellied brent goose *Branta bernicula hrota*. The site is also of international importance as it supports in excess of 20,000 waterbirds each season.

There is site-specific information available for the SAC and SPA available from the NPWS as 'site synopsis' reports (from 2013c and 2014 respectively). 'Site qualifying interests' (i.e. the reasons the site is designated) are given by the NPWS for the SAC. For the SPA 'features of interest' are given. These are shown in tables 10 & 11.

**Table 10 – Site qualifying interests for the Rogerstown estuary SAC**

Habitat and EU code	Current national status
Fixed coastal dunes with herbaceous vegetation (grey dunes) (code: 2130)	Bad
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') (code: 2120)	Inadequate
Salicornia and other annuals colonizing mud and sand (code: 1310)	Favourable
Mediterranean salt meadows (code: 1410)	Inadequate
Atlantic salt meadows (code: 1330)	Inadequate
Estuaries (code: 1130)	Inadequate
Mudflats and sandflats not covered by seawater at low tide (code: 1140)	Inadequate

- **Estuary (1130):** This is the portion of a river that is influenced by the tide but retaining a significant freshwater influence. Substrates can range from rocks and boulders, to expanses of fine mud and sand. They are an important resource for birds and other fauna and many estuaries have twin designations (i.e. both SAC and SPA). It considered that the majority of estuary habitat is in good condition however approximately a quarter is negatively affected by excess nutrient input and damaging fishing practices.

Site specific conservation objectives have been published for this SAC (NPWS, 2013j) and are summarised here:

**Estuaries (code: 1130)**

Permanent habitat area stable or increasing (estimated at 268 hectares); Maintain the extent of the *Zostera*-dominated community and the *Mytilus edulis*-dominated community, subject to natural processes; Conserve the high quality of the *Zostera*-dominated community, subject to natural processes; Conserve the high quality of the *Mytilus edulis* dominated community, subject to natural processes; Conserve the following community types in a natural condition: Sand to coarse sediment with *Nephtys cirrosa* and *Scolelepis squamata* community complex; Estuarine sandy mud to mixed sediment with *Tubificoides benedii*, *Hediste diversicolor* and *Peringia ulvae* community complex.

**Mudflats (code 1140)**

Permanent habitat area stable or increasing (estimated at 370 hectares); Maintain the extent of the *Zostera*-dominated community and the *Mytilus edulis*-dominated community, subject to natural processes; Conserve the high quality of the *Zostera*-dominated community, subject to natural processes; Conserve the high quality of the *Mytilus edulis* dominated

community, subject to natural processes; Conserve the following community types in a natural condition: Sand to coarse sediment with *Nephtys cirrosa* and *Scolecipis squamata* community complex; Estuarine sandy mud to mixed sediment with *Tubificoides benedii*, *Hediste diversicolor* and *Peringia ulvae* community complex.

#### **Salicornia mudflats (1310)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

#### **Atlantic/Mediterranean Salt Meadows (1330/1410)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

#### **Fixed Coastal Dunes/Shifting Dunes (2130/2120)**

Maintain habitat area and distribution including physical structure (functionality and sediment supply, percentage of bare ground, sward height). Maintain vegetation structure as measured by zonation, vegetation cover, typical species and sub-communities. Absences of the invasive *Hippophae rhamnoides*.

**Table 11 – Site features of interest for the Rogerstown Estuary SPA**

Species and EU Code	National Status
Shoveler ( <i>Anas clypeata</i> ) [A056]	Amber (Wintering)
Greylag Goose ( <i>Anser anser</i> ) [A043]	Amber (Wintering)
Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> ) [A046]	Amber (Wintering)
Knot ( <i>Calidris canutus</i> ) [A143]	Red (Wintering)
Dunlin ( <i>Calidris alpina</i> ) [A149]	Red (Breeding & Wintering)
Ringed Plover ( <i>Charadrius hiaticula</i> ) [A137]	Green
Oystercatcher ( <i>Haematopus ostralegus</i> ) [A130]	Red (Breeding & Wintering)
Black-tailed Godwit ( <i>Limosa limosa</i> ) [A156]	Red (Breeding)
Grey Plover ( <i>Pluvialis squatarola</i> ) [A141]	Red (Wintering)
Shelduck ( <i>Tadorna tadorna</i> ) [A048]	Amber (Breeding & Wintering)
Redshank ( <i>Tringa totanus</i> ) [A162]	Red (Breeding & Wintering)

Wetlands and waterbirds	-
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The status given for each species is taken from BirdWatch Ireland's 'Birds of Conservation Concern in Ireland' (Gilbert et al., 2021) while the summaries below are all from the *Bird Atlas 2007-11* (Balmer et al., 2013).

- **Shoveler.** Favoured wintering sites for this duck are inland wetlands and coastal estuaries. While there have been local shifts in population and distribution, overall their status is stable in Ireland.
- **Greylag Goose.** Wintering Greylag Geese are very scattered in Ireland and occur on both coastal in inland sites. Their population has expanded greatly in their more northerly ranges (Iceland and Scotland) and this has coincided with losses elsewhere.
- **Ringed Plover.** This bird is a common sight around the Irish coast where it is resident. They breed on stony beaches but also, more recently, on cut-away bog in the midlands.
- **Shelduck.** The largest of our ducks, Shelduck both breed and winter around the coasts with some isolate stations inland. Its population and range are considered stable.

Site specific conservation objectives have been published for this SPA (NPWS, 2013k) and are similar for each bird species. They can be summarised as:

#### **Birds (similar for all species)**

Long term population trend stable or increasing; there should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation

#### **Howth Head SAC and Howth Head Coast SPA. 6.5km from the development site.**

The Howth Head SAC (site code: 0202) is designed for two qualifying interests: vegetated sea cliffs and dry heath.

- **Vegetated sea cliffs (1230)** These coastal habitats can be composed of hard or soft material which in turn influences the rate at which erosion occurs. Vegetation can be sparse but composed of a variety of specially adapted species. It is nationally assessed as of intermediate status.
- **Dry heath (4030):** This is a community of heather shrubs that occurs on well-drained, acidic, nutrient-poor mineral or peaty soils. Pressures on this habitat arise from high levels of sheep grazing, as well as afforestation, mining and quarrying. Unregulated burning is also identified as an important threat to the structure of this habitat. It is nationally assessed as of bad status.

Howth Head is also a pNHA and is home to a number of threatened plant species as well as locally rare or noteworthy habitats, such as patches of blanket bog (NPWS, 2013l).

Site specific conservation objectives have been published for this SAC (NPWS, 2016) and are summarised here:

**Vegetated sea cliffs (code: 1230)**

Habitat areas stable or increasing subject to natural processes; no decline in habitat distribution; No alteration to natural functioning of geomorphological and hydrological processes, including groundwater quality, due to artificial structures; maintain range of sea cliff habitat zonation including transitional zones, subject to natural processes including erosion and succession; maintain vegetation structure, composition.

**European Dry Heaths (4030)**

Habitat area stable or increasing subject to natural processes; no decline in habitat distribution; maintain soil nutrient status within natural range; maintain vegetation composition and structure (including negative indicator species and absence of burning); less than 10% disturbed/bare ground.

The Howth Head Coast SPA (code: 4133) is home to large colonies of breeding seabirds, particularly Kittiwake, the SPAs only feature of interest. These vocal seagulls spend most of their time at sea, returning to favoured coastal sites for breeding. Nesting is on suitable rocky cliffs around the Irish coast (NPWS, 2011a). These Irish colonies are considered stable (Balmer et al., 2013).

Generic conservation objectives only are available for this SPA (NPWS, 2022a).

**Rockabill to Dalkey Island SAC** (site code: 0300). 7.9km from the development site.

This is an off-shore (i.e. marine) SAC (NPWS, 2014d). It has two qualifying interests which are reefs and Harbour Porpoise *Phocoena phocoena*. Conservation objectives for this SAC have been published to maintain or restore the area of habitat and status of the population to 'favourable conservation status'.

- Reefs can be intertidal or subtidal features and are characterised by hard or rocky substrates. The main pressures that have been identified by the NPWS are commercial fishing, aquaculture, water pollution and commercial/recreational uses of the marine environment. Nationally their status is assessed as 'bad' (NPWS, 2013).
- Harbour porpoise This is the smallest cetacean species regularly occurring in Irish waters. It is commonly found in residential pods close to the shore and it is not considered threatened in Irish waters. Its status nationally is 'good'.

Specific conservation objectives are provided for this SAC (NPWS, 2013m) and are summarised as:



**Reefs (code: 1170)**

The permanent habitat area and distribution of the habitat are stable or increasing; the biological composition is conserved.

**Harbour Porpoise (code: 1351)**

Species range within the site should not be restricted by artificial barriers to site use; Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site.

**Ireland's Eye SAC/SPA. 7.2km from the development site.**

Ireland's Eye is an uninhabited island 1.5km north of Howth harbour (NPWS, 2014e & 2011b). Its southern side is gently sloping however steep cliffs descend to the seas on its northern and eastern coasts. The thin soil and maritime influence provide habitat for an assemblage of notable plant species, including the rare Sea-Kale *Crambe maritima*. The SAC (site code: 2193) has two qualifying interests: vegetated sea cliffs and perennial vegetation of stony banks. The latter habitat is nationally of intermediate status. It is a habitat of the high tide line characterised by loose stones and shingle. It is a highly dynamic feature, being continually reshaped by tides and waves. It can be home to very rare plants and a number of coastal nesting birds.

Specific conservation objectives are provided for this SAC (NPWS, 2017b) and are summarised as:

**Perennial vegetation of stony bank (code: 1220)**

Habitat areas stable or increasing subject to natural variation; no decline in habitat distribution; maintain physical and vegetation structure without any physical obstructions, maintain vegetation structure and composition subject to natural variations.

**Vegetated sea cliffs (code: 1230)**

Habitat areas stable or increasing subject to natural processes; no decline in habitat distribution; No alteration to natural functioning of geomorphological and hydrological processes, including groundwater quality, due to artificial structures; maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession; maintain vegetation structure, composition.

The Ireland's Eye SPA (code: 4117) is centred on the island's value as a large seabird colony. It is one of only six number of locations where Gannets *Morus bassanus* regularly breed in Ireland. The features of interest for the SPA are given in table 12.

**Table 12 – Features of Interest for the Ireland’s Eye SPA (from NPWS)**

Species	National Status
<i>Phalacrocorax carbo</i> Cormorant	Amber (Breeding & Wintering)
<i>Larus argentatus</i> Herring Gull	Amber (Breeding)
<i>Rissa tridactyla</i> Kittiwake	Red (Breeding)
<i>Uria aalge</i> Guillemot	Amber (Breeding)
<i>Alca torda</i> Razorbill	Red (Breeding)

- **Cormorant.** Wintering populations of this large, fish-eating bird have increased in Ireland since the early 1980s. Breeding also occurs widely along the coast and inland waterways. It is amber-listed due to a moderate decline in numbers.
- **Herring Gull.** This large gull breeds predominantly around the Irish coast and only occasionally inland. Numbers at these colonies have fallen by 60% since 1969, a decline which is attributed to a number of sources including a reduction in available food at landfill, botulism and predation.
- **Guillemot.** This member of the auk family is found only near land during the breeding season. They nest on suitable rocky outcrops and cliffs where there is protection from predators. The population at four of Ireland’s largest colonies is estimated to have increased by 22% over the past decade.
- **Razorbill.** This member of the auk family breeds exclusively at suitable coastal sites, where there are rocky cliffs to provide protection from predators. Indications are that populations at Irish colonies are stable.

Generic conservation objectives only are available for this SPA (NPWS, 2022b).

#### **Lambay Island SAC/SPA. 13km from the development site.**

This island is located 4km off the coast of North Dublin and is characterised by steep cliffs on three sides (NPWS, 2014f). The SAC (site code: 0204) is designated for marine and terrestrial habitats as well as Ireland’s two resident seal species. The cliffs are important for a range of breeding seabirds and for this reason the island is also an SPA (site code: 4069). The qualifying interests of the SAC are given in table 13 while the features of interest of the SPA are given in table 14.

**Table 13 – Site qualifying interests for the Lambay Island SAC**

Aspect	Level of Protection	Status
Reefs (1170)	Habitats Directive Annex I	Bad
Vegetated sea cliffs (1230)		Inadequate

Grey seal <i>Halichoerus grypus</i>	Habitats Directive Annex II	Good
Common Seal <i>Phoca vitulina</i>		Good

- **Reefs (1170)** can be intertidal or subtidal features and are characterised by hard or rocky substrates. The main pressures that have been identified by the NPWS are commercial fishing, aquaculture, water pollution and commercial/recreational uses of the marine environment.
- **Vegetated sea cliffs (1230)** These coastal habitats can be composed of hard or soft material which in turn influences the rate at which erosion occurs. Vegetation can be sparse but composed of a variety of specially adapted species.
- **Grey seal (1364)**. The larger of Ireland's two resident seal species can be found in breeding colonies around our coast including on off-shore islands. It is predominantly a marine species but they come ashore in autumn to mate and give birth.
- **Common seal (1365)**. The smaller of Ireland's two resident seal species, common seals breed all around the coast. A predominantly marine species they also 'haul out' at favoured resting sites at low tide.

Specific conservation objectives are provided for this SAC (NPWS, 2013n) and are summarised as:

**Vegetated sea cliffs (code: 1230)**

Habitat areas stable or increasing subject to natural processes; no decline in habitat distribution; No alteration to natural functioning of geomorphological and hydrological processes, including groundwater quality, due to artificial structures; maintain range of sea cliff habitat zonation including transitional zones, subject to natural processes including erosion and succession; maintain vegetation structure, composition.

**Reefs (code: 1170)**

The permanent habitat area and distribution of the habitat are stable or increasing; the biological composition is conserved.

**Grey Seal (code: 0204)**

Species range within the site should not be restricted by artificial barriers to site use; The breeding sites should be maintained in a natural condition; The moult haul-out sites should be maintained in a natural condition; the resting haul-out sites should be maintained in a natural condition; human activities should occur at levels that do not adversely affect the seal population at the site.

**Table 14 – Features of Interest for the Lambay Island SPA (from NPWS)**

Species	National Status
<i>Phalacrocorax carbo</i> Cormorant	Amber (Breeding & Wintering)
<i>Larus argentatus</i> Herring Gull	Amber (Breeding)
<i>Rissa tridactyla</i> Kittiwake	Red (Breeding)
<i>Uria aalge</i> Guillemot	Amber (Breeding)
<i>Alca torda</i> Razorbill	Red (Breeding)
<i>Fulmarus glacialis</i> Fulmar	Amber (Breeding)
<i>Phalacrocorax aristotelis</i> Shag	Amber (Breeding)
<i>Anser anser</i> Greylag Goose	Amber (Wintering)
<i>Larus fuscus</i> Lesser Black-backed Gull	Amber (Breeding)
<i>Fratercula arctica</i> Puffin	Red (Breeding)

- **Razorbill.** This member of the auk family breeds exclusively at suitable coastal sites, where there are rocky cliffs to provide protection from predators. Indications are that populations at Irish colonies are stable.
- **Greylag Goose.** Wintering Greylag Geese are very scattered in Ireland and occur on both coastal in inland sites. Their population has expanded greatly in their more northerly ranges (Iceland and Scotland) and this has coincided with losses elsewhere.
- **Puffin.** This unmistakable auk spends the winter far out to sea, only coming to shore in the summer to breed. Colonies are scattered around the coasts and the birds face an uncertain future due to the scale of industrial fishing combined with climate change.
- **Lesser Black-backed Gull.** The wintering range of this distinctive gull has expanded in Ireland by 55% since the early 1980s while breeding colonies have similarly increased.
- **Shag.** Nearly half of the global population of this seabird is to be found around Ireland and Britain. Its population has shown great fluctuation since counts began although the reasons for this are largely unknown. It is to be found around the Irish coast throughout the year.
- **Cormorant.** Wintering populations of this large, fish-eating bird have increased in Ireland since the early 1980s. Breeding also occurs widely along the coast and inland waterways. It is amber-listed due to a moderate decline in numbers.
- **Kittiwake.** These vocal seagulls spend most of their time at sea, returning to favoured coastal sites for breeding. Nesting is on suitable rocky cliffs around the Irish coast. These Irish colonies are considered stable.
- **Guillemot.** This member of the auk family is found only near land during the breeding season. They nest on suitable rocky outcrops and cliffs where there is protection from predators. The population at four of Ireland's largest colonies is estimated to have increased by 22% over the past decade.

Generic conservation objectives only are available for this SPA (NPWS, 2022c).

### Data collected to carry out the assessment

Site surveys have shown that habitats on the site are not associated with qualifying interests of any Natura 2000 site. No species which are qualifying interests of Natura 2000 were recorded during extensive site surveys from 2020 to 2022.

There are no management plans for the Natura 2000 sites in Baldoyle Bay however some work has been done to determine the site-specific trends or threats to their conservation status.

#### *Baldoyle Bay*

Table 15 shows the most recent bird count data from Baldoyle Bay and these show that while numbers fluctuate from one year to the next, positive or negative trends are not clear. These data are likely to mask variations between species present and as table 2 shows there are a number of species here that are of high and medium conservation concern (red and amber lists). However a link between water quality and bird numbers cannot be established. In fact, the discharge of nutrient effluent from artificial fertilisers and poorly treated sewage can promote primary production that in turn provides food for wintering and resident birds in bays and estuaries (Nairn & O'Halloran eds., 2012).

**Table 15 – Mean count of bird species (qualifying interests) for Baldoyle Bay SPA from the Irish Wetland Birds Survey (IWeBS) from 2013 - 2020<sup>6</sup>**

Species	Long-term trend <sup>7</sup>	Mean
Light-bellied Brent Goose	Intermediate decline	506
Ringed Plover	-	25
Bar-tailed Godwit	Large decline	67
Golden Plover	Large decline	1020
Grey Plover	Large decline	13
Shelduck	Stable or increasing	143

The status of features of interest in the Baldoyle Bay SPA were assessed (NPWS, 2012c). Of those species with unfavourable status in the SPA, Ringed Plover and Bar-tailed Godwit have exhibited losses at Baldoyle Bay while the national population remains stable or has increased. It is therefore reasonable to assume that local factors are leading to declines. The NPWS list a number of factors that may be contributing to this including human disturbance (walkers with or without dogs) and nutrient enrichment (pollution). The latter effect is exhibited by algal mats, typically Sea-lettuce *Ulva* sp. which covers the

<sup>6</sup> <https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88>

<sup>7</sup> I-WeBS Trends Report 1994/95 – 2019/20

sediment surface at low tide. This is good for those species which feed on Sea-lettuce but bad for those which cannot reach their favoured prey under the mats.

Water quality in Baldoyle Bay (Mayne Estuary; code: IE\_EA\_080\_0100) was assessed by the EPA as 'intermediate' for the 2018-2020 reporting period. The ecological status of Baldoyle Bay under the Water Framework Directive is under review. The principle river feeding into the Baldoyle Bay is the River Mayne (code: IE\_EA\_09M030500) and this is 'poor status. According to the sub-catchment report on [www.catchments.ie](http://www.catchments.ie) the principle pressure on the transitional water is "anthropogenic pressure" while the principle pressure on the River Mayne is "urban run-off". Although the exact cause of this is unknown, this may arise from misconnections whereby effluent from homes is discharging straight to the environment rather than the foul sewer. Unattenuated surface run-off may also be a contributing factor.

### *Dublin Bay*

In 2020 the NPWS published a report entitled 'The monitoring and assessment of six EU Habitats Directive Annex I Marine Habitats' (Scally & Hewett, 2020). This report specifically assessed the status of the habitat: mudflats and sandflats not covered by seawater at low tide (1140) which is a qualifying interest of the North Dublin Bay SAC and the South Dublin Bay SAC. Table 22 of this report assessed the status of this habitat within both SACs as 'favourable'.

In June 2018 Irish Water applied for (and subsequently received) planning permission for works to the Ringsend Wastewater Treatment (WwTP) facility. As part of this application an Environmental Impact Assessment Report (EIAR) was submitted. Sections 5 and 6 of this EIAR related to Marine Biodiversity and Terrestrial Biodiversity respectively and each contained a section on the 'do-nothing scenario'. These review the effects to biodiversity in Dublin Bay in the absence of the upgrade works and so are relevant to this assessment. Extracts from these sections include:

*"If the Proposed WwTP Component is not constructed, the nutrient and suspended solid loads from the plant into Dublin Bay will continue at the same levels and the impact of these loadings should maintain the same level of effects on marine biodiversity. [...]"*

***If the status quo is maintained there will be little or no change in the majority of the intertidal faunal assemblages found in Dublin Bay which would likely continue to be relatively diverse and rich across the bay [our emphasis]. Previous studies suggest that the outer and south bays are largely unaffected by the nutrient inputs from the WwTP at Ringsend and from the Liffey and Tolka rivers. Therefore, the sandy communities found in those areas will likely remain dominated by the same assemblage of Nephtys, tellinids and other pollution-sensitive species, albeit subjected to natural spatial and seasonal variations.***

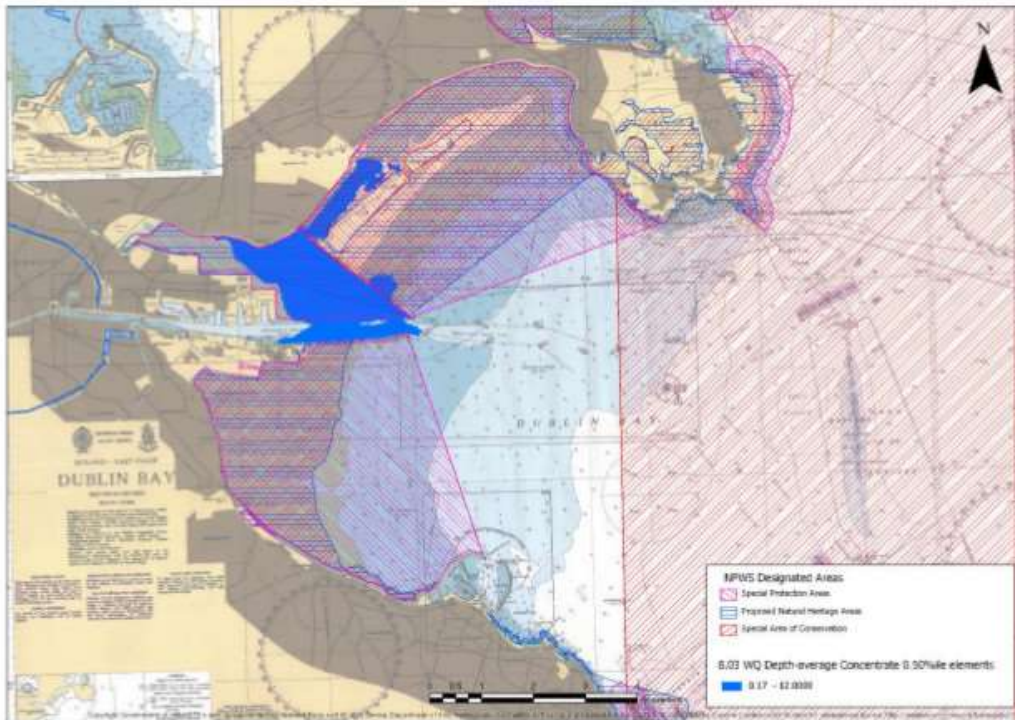
*However, the areas in the Tolka Estuary and North Bull Island channel will continue to be affected by the cumulative nutrient loads from the river Liffey and*

Tolka and the effluent from the Ringsend WwTP. These areas will likely continue to be colonised by opportunistic taxa tolerant of organic enrichment. There is a possibility that an increase in the nutrient outputs from the plant due to the operational overload and storm water discharges could result in a decline in the biodiversity of these communities as a result of low oxygen availability caused by increased organic enrichment. Considering the existing situation, it is possible that through the future oversupply of DIN to the area impacted by the existing outfall, benthic production could be adversely impacted due to hypoxic or even anoxic conditions. An increase in the cover of opportunistic macroalgae could lead to further deterioration in the lagoons in the North Bull as they add to the organic load on the benthos and further increase the BOD. These events, although localised, could deteriorate the biological status for Dublin Bay as a whole. **Nonetheless, it is unlikely, as existing historical data suggests that pollution in Dublin Bay has had little or no effect on the composition and richness of the benthic macroinvertebrate fauna** [our emphasis]. Although a localised decline could occur, it is not envisaged to be to a scale that could pose a threat to the shellfish, fish, bird or marine mammal populations that occur in the area. (section 5.7.1) [...]

**If there is no change to the treatment process at Ringsend WwTP then the terrestrial environment adjacent to the site will remain largely unchanged** [our emphasis]. [...]

If the Proposed WwTP Component is not implemented, there will be little or no change in the majority of the intertidal faunal assemblages found in Dublin Bay which would likely continue to be relatively diverse and rich across the bay [...]. The sandy communities found in South Dublin Bay will likely remain dominated by the same assemblage of the polychaete worm *Nephtys caeca*, Cockle *Cerastoderma edula*, tellinids and other pollution-sensitive species, albeit subjected to natural spatial and seasonal variations. **Bird populations in these areas will be unaffected by the discharge from the WwTP** [our emphasis].

If the Proposed WwTP Component is not implemented, there is a possibility that an increase in the nutrient outputs from the plant due to operational overload and storm water discharges could result in a decline in the biodiversity of invertebrate communities in the Tolka Estuary and North Bull Island channel as a result of low oxygen availability caused by increased organic enrichment. An increase in the cover of opportunistic macroalgae could lead to further deterioration in the lagoons in the North Bull as they add to the organic load on the benthos and further increase the BOD. These events, although localised, could deteriorate the biological status for Dublin Bay as a whole. **It is unlikely that they would have any significant impact on the waterbird populations that forage on invertebrates in Dublin Bay** [our emphasis] (section 6.5.1)."



**Figure 5-16: Extent of the Zone of Influence (in blue) of the effluent from the Proposed WwTP Component on the predicted modelled output for Winter depth averages 50%ile for Dissolved Inorganic Nitrogen (DIN)**

**Figure 5 – Extract from the EIA prepared by Irish Water (2018) showing the zone of influence of the Ringsend WWTP outfall pipe.**

A graphic from the EIA prepared by Irish Water in 2018 showed the zone of influence of the discharge from the Ringsend WwTP and this indicated that effects from the discharge do not extend to the south side of the bay. This is reproduced in figure 5.

### Pathway Analysis

There is a direct, surface, hydrological pathway from the development site to Baldoyle Bay SAC/SPA via the River Mayne. There is an indirect hydrological pathway through the foul sewer to Natura 2000 sites in Dublin Bay via the Ringsend WWTP.

The ecological status of the River Mayne and Baldoyle Bay are both failing to meet required standards under the Water Framework Directive. This is believed to be due to urban run-off. Beyond the Bay, the status of the Irish Sea (water body code: IE\_EA\_070\_0000) is 'good', indicating that pressures on water status do not extend beyond the Bay.

Sampling of water quality in Dublin Bay (and presented in the Annual Environmental Report for the WWTP) indicates that the discharge from the wastewater treatment plant is having an observable effect in the 'near field' of the discharge. This includes the inner Liffey Estuary and the Tolka Estuary, but not the coastal waters of Dublin Bay. This indicates that potential effects arising



from the treatment plant are confined to these areas, and that the zone of influence does not extend to the coastal waters or the Irish Sea.

There are consequently pathways to a number of Natura 2000 sites. There are hydrological links to the Baldoyle Bay SAC (site code: 0199) and SPA (site code: 4016), South Dublin Bay and River Tolka Estuary SPA (site code: 4024), the South Dublin Bay SAC (site code: 0210), the North Bull Island SPA (site code: 4006) and the North Dublin Bay SAC (site code: 0206).

There are no direct or indirect, surface or hydrological pathways to any other Natura 2000 site either within the 15km that was examined for this study or beyond that radius.

### **The Assessment of Significance of Effects**

*Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.*

In order for an effect to occur there must be a pathway between the source (the development site) and the receptor (the SAC or SPA). Where a pathway does not exist an impact cannot occur.

#### **Habitat Loss**

The proposed development is not located within, or adjacent to, any SAC or SPA. No habitat loss can occur inside any Natura 2000 site.

No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

#### **Habitat Disturbance/Ex situ impacts**

The site is c.3km from the boundary of the Baldoyle Bay SAC/SPA, and c.3.7km to the North Bull Island SPA (the nearest Natura 2000 sites to the development site). Because of this significant distance separating these areas there is no pathway for direct loss or disturbance of habitats within any Natura 2000 site or other semi-natural habitats that may act as ecological corridors for important species associated with the qualifying interests or features of interest.

Wetland birds are known to feed on amenity grassland areas which are located at various points around Dublin City. No such areas are known from the Belmayne/Clongriffin area. The nearest such known areas are located in Portmarnock (~3km to the north-east) and Baldoyle (~3.5km to the south-east) (Scott Cawley, 2017).

The development lands were surveyed for this study and the habitats were found to be not suitable for wetland/wading/wintering birds associated with coastal Natura 2000 sites. Winter surveys (January 2021 and February 2022) found no records of any such species on the development lands.

This development cannot result in any ex-situ impacts. No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

### **Hydrological Impacts - wastewater**

As stated in the Description of the project, all foul effluent (waste water) from the project will be sent to the Ringsend wastewater treatment plant which discharges to the Lower Liffey Estuary. The Ringsend plant is licenced to discharge treated effluent by the EPA (licence number D0034-01) and is managed by Irish Water. It treats effluent for a population equivalent (P.E.) on average of 1.65 million however weekly averages can spike at around 2.36 million. This variation is due to storm water inflows during periods of wet weather as this is not separated from the foul network for much of the older quarters of the city, including at the subject site. The Annual Environmental Report for 2020, the most recent available, indicated that there were a number of exceedences of the emission limit values set under the Urban Wastewater Treatment Directive and these can be traced to pulse inflows arising from wet weather. In April 2019 Irish Water was granted planning permission to upgrade the Ringsend plant.

While the issues at Ringsend wastewater treatment plant are being dealt with in the medium term evidence suggests that some nutrient enrichment is benefiting wintering birds for which SPAs have been designated in Dublin Bay (Nairn & O'Hallaran eds, 2012). Additional loading to this plant arising from the operation of this project is not significant as evidence suggests that pollution through nutrient input is not affecting the conservation objectives of the South Dublin Bay and River Tolka Estuary SPA.

No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

### **Hydrological Impacts – surface water during operation**

As stated above (Description of the project) all surface water from the project will be attenuated, treated and discharged to the Mayne River. The conversion of much of the development land from arable crops to built development will remove a source of nutrient and sediment pollution and so is likely to result in an enhancement of surface run-off quality. Furthermore, the integration of SUDS into the project design will ensure that no changes will occur to the quantity or quality of surface water run-off when compared to a 'green field' rate. These are standard measures which are included in all development projects and are not included here to avoid or reduce an effect to any Natura 2000 site. Nevertheless, in the absence of SUDS measures, pollution from surface run-off could act in combination with other pollution sources in the catchment of the River Mayne, thereby perpetuating poor water status in Baldoyle Bay. Although there are no water quality conservation objectives for Natura 2000 sites in Baldoyle Bay, a precautionary approach dictates that pollution could affect aquatic life upon which species and habitats in the SAC and SPA depend.

Therefore, it is concluded that significant effects to Nature 2000 sites in Baldoyle Bay from this source cannot be ruled out.

### **Hydrological Impacts – surface water during construction**

During the construction phase there will be extensive earth works and some sediment may enter the River Mayne, entrained in rain run-off. This will include a link road which will cross the river.

While sediment can be detrimental to the ecological quality in rivers, the same is not normally the case for estuaries and tidally influenced habitats, which rely on vast quantities of sediment for their functioning.

Nevertheless, extensive works are planned which will continue for a number of years. Construction pollution, including sediment, could affect biological communities in intertidal habitats such as mudflats. Any effect to these communities could have knock-on effects to birds which rely on them for food.

Using a precautionary approach therefore, the potential for large quantities of silt to be washed downstream means that significant effects to the Baldoyle Bay SAC and SPA cannot be ruled out. Due to the enormous dilution effect of the Irish Sea beyond Baldoyle Bay, there is no significant effects are likely to occur to any other Natura 2000 site from this source.

### **Dust**

During the construction phase it can be expected that some dust emission will occur. It is difficult to quantify this but is likely to be localised and temporary in nature. Dust deposition can impact upon ecosystems through blocking the stomata of leaves, thus retarding plant growth. Research has found however that this impact is localised in nature and typically occurs where there are significant dust emissions (Bell & Treeshow, 2002). Given the distance to Natura 2000 sites, this is not considered significant.

No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

### **Amenity disturbance**

The development is not likely to affect amenity use at Natura 2000 sites due to the nature and location of the development.

No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

### **Abstraction**

The source of abstraction along the River Liffey (Leixlip) is not associated with any Natura 2000 site. There are no downstream Natura 2000 sites which are affected by this abstraction point.

No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

### **Invasive Species**

Giant Hogweed has historically been recorded from the banks of the River Mayne within the development site area. Although this has been subject to

control measures since 2018, it is believed that recolonisation may be occurring due to a seed source upstream of the development site. Without continued mitigation measures, and should Giant Hogweed become re-established on these lands, a new seed source could emerge which could then be washed downstream to the Baldoyle Bay SAC/SPA.

For this reason significant effects to the Baldoyle Bay SAC/SPA cannot be ruled out from this source.

*Are there other projects or plans that together with the project or plan being assessed could affect the site?*

Individual impacts from one-off developments or plans may not in themselves be significant. However, these may become significant when combined with similar, multiple impacts elsewhere. These are sometimes known as cumulative impacts but in AA terminology are referred to as 'in combination' effects.

The catchment of the Mayne River has been substantially transformed in the past 15-20 years from farmland to built development. The area downstream of the Belcamp site is currently a combination of open park spaces, with significant built development including residential and retail uses which stretches as far as the coastal zone.

Upstream there are still areas of open grassland before the Mayne's headwaters at Dublin airport, where the river is affected by extensive areas of paving for runways, car parks etc.

The cumulative effects of this type of urban growth can arise from replacing permeable ground with hard surfaces. This can result in increased risk of flooding and deterioration of water quality, primarily from the run-off of particulate matter and hydrocarbon residues (Mason, 1996). To combat this effect the Greater Dublin Strategic Drainage Study was published in 2005. This aims to ensure that new developments integrate sustainable drainage systems (SUDS) to maintain natural, or 'green field' rates of surface water run-off while also improving water quality in rivers. This development is fully compliant with these SUDS principles.

The first River Basin Management Plan (RBMP) was published under the EU's Water Framework Directive in 2010. This set out to attain 'good ecological status' of all water bodies by 2027 at the latest. It included a 'programme of measures' that was to address point or diffuse pressures on water quality. The Mayne River is currently assessed as 'poor' while Baldoyle Bay is 'eutrophic'. Under the second RBMP 2018-2021 the Mayne River is identified as one of 190 'priority areas for action'. A third RBMP is in preparation.

This project can be seen in combination with continued suburban style development in Clongriffin (and indeed across the Dublin region). This is planned for under relevant development plans, particularly the Dublin City Development Plan 2016-2022 and the Fingal County Development Plan 2017-

2023. The relevant planning authority has carried out an AA for these plans and concluded that their implementation would not result in adverse effects to the integrity of Natura 2000 sites.

The current development proposal is part of a wider development of the lands associated with Belcamp House. Table 16 details the recent planning history including completed and on-going development both on the Belcamp lands and in the locality.

Table 16 Synopsis of planning permissions in neighbouring areas

Reg. Ref.	Location	Description	Decision
Reg.Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to Belcamp hall for residential use. Equivalent no units : 25	Permission
Reg.ABP Ref. PL06F.248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units. Equivalent no units : 175	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanala Ref. No. PL06F.245710) Equivalent no units : 13	Permission
F18A/0554	Adjacent to Champions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units : 4	Permission
Reg.Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), Equivalent no units : 0	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units : 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units : 49	Permission
Reg. Ref F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units : 78	Permission
F21A/0390	The former Champions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. .Equivalent no units : 1	Permission
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units : 77	Permission
ABP Ref. PL06F.248052.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units : 45	Permission

Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units : 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares Equivalent no units : 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units : 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units : 0	Permission
ABP- 307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units : 191	Permission
		<b>Overall equivalent no units : 1136</b>	

In the event that this project is under construction at the same time as other projects there is a possibility that construction pollutants entering waterways leading to Baldoyle Bay SAC and SPA could act in combination to result in negative effects to invertebrate communities in the SAC and, by extension, birds which are qualifying interests of the SPA.

The growth of population in the Dublin area is placing pressure on wastewater treatment infrastructure and plans are underway to increase capacity at Ringsend. Current compliance issues are not resulting in significant effects to Natura 2000 sites in Dublin Bay.

In the absence of SUDS measures, and despite the fact that SUDS are standard for all development projects, pollution from surface run-off could act in combination with other similar sources from throughout the Mayne catchment to contribute to poor water status. Poor status can be assumed to negatively impact upon species and habitats in Natura 2000 sites in Baldoyle Bay.

## Conclusion

On the basis of the screening exercise carried out above, it can be concluded, on the basis of the best scientific knowledge available, that the possibility of any significant effects on European Sites, other than Baldoyle Bay SAC and Baldoyle Bay SPA, whether arising from the project itself or in combination with other plans and projects, can be excluded.

Direct hydrological pathways exist to Baldoyle Bay; significant effects cannot be ruled out to the following areas:

- Baldoyle Bay SAC and Baldoyle Bay SPA

The potential for large quantities of sediment to be washed into the Bay, due to the proximity of works to the Mayne River, as well as the potential for the spread of Giant Hogweed, an alien invasive species, and surface water run-off in the absence of SUDS means that significant effects to habitats within the SAC, and species within the SPA, cannot be ruled out at this stage.

Significant effects are not likely to occur to any other Natura 2000 site.

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