

Screening Report for Appropriate Assessment of a residential development at St. Kevin's Hospital, Cork

Compiled by OPENFIELD Ecological Services

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Introduction

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.

The main 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. The Birds and Habitats Directives have been transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011-2015. A report into the economic benefits of the Natura 2000 network concluded that "there is a new evidence base that conserving and investing in our biodiversity makes sense for climate challenges, for saving money, for jobs, for food, water and physical security, for cultural identity, health, science and learning, and of course for biodiversity itself" (EU, 2013).

Unlike traditional nature reserves or national parks, Natura 2000 sites are not 'fenced-off' from human activity and are frequently in private ownership. It is the responsibility of the competent national authority to ensure that 'good conservation status' exists for their SPAs and SACs and specifically that Article 6(3) of the Habitats Directive is met. Article 6(3) 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.

Sections 177U and 177V of the Planning and Development Act 2000 sets out the purpose of AA Screening is as follows:

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) 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.

However, where this is not the case, a preliminary screening must first be carried out to determine whether or not a full AA is required. This screening is carried out by the An Bord Pleanála.

The Purpose of this document

This document provides for the screening of a proposed development at the former St. Kevin's Hospital, Cork, and its potential effects in relation to Natura 2000 sites (SACs and SPAs). Under the Planning and Development Act 2000 (as amended), and the Birds and Natural Habitats Regulations 2011, the planning authority cannot grant planning permission where significant effects may arise to a Natura 2000 site. In order to make that decision the development must be screened for AA. This report provides the necessary information to allow An Bord Pleanála to carry out this screening.

Methodology

The methodology for this screening statement is clearly set out in a document prepared for the Environment DG of the European Commission entitled '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 the aforementioned document deals specifically with screening while Annex 2 provides the template for the screening/finding of no significant effects report matrices to be used.

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

Step 1: Management of the Natura 2000 site

This determines whether the project is necessary for the conservation management of the site in question.

Step 2: Description of the Project

This step describes the aspects of the project that may have an impact on the Natura 2000 site.

Step 3: Characteristics of the Natura Site

This process identifies the conservation objectives of the site and determines whether significance effects to Natura 2000 sites will arise as a result of the plan. This is done through a literature survey and consultation with relevant stakeholders – particularly the National Parks and Wildlife Service (NPWS). All potential effects are identified including those that may act alone or in combination with other projects or plans.

Using the precautionary principle, and through consultation and a review of published data, it is normally possible to conclude at this point whether potential impacts are likely. Deficiencies in available data are also highlighted at this stage.

Step 4: Assessment of Significance

Assessing whether an effect is significant must be made in light of the conservation objectives for that SAC or SPA.

A full AA 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 steps are compiled into a screening matrix, 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

The proposed development is described here as per the planning application:

The Land Development Agency intend to apply to An Bord Pleanála (the Board) for permission for a Strategic Housing Development with a total application site area of c. 5.7 ha, on lands located at the Former St. Kevin's Hospital and Grounds, Shanakiel, Cork (A Protected Structure, 'Our Lady's Hospital' RPS Ref. PS620). The development, with a total gross floor area of c 24,344 sq m, will provide 266 no. residential units, a crèche and office enterprise centre. The development will consist of 46 no. town houses (32 no. 3 bedroom units and 14 no. 4 bedroom units) arranged in 11 no. two storey blocks; 54 no. ground floor 2 bedroom duplex apartments and 36 no. 3 bedroom and 18 no. 4 bedroom duplex townhouses above arranged in 7 no. three storey blocks and 52 no. walk-up apartments (11 no. 1 bedroom apartments and 41 no. 2 bedroom apartments) arranged in 3 no. four storey blocks. The development will also include the stabilisation, conversion, renovation and internal reordering (including new structural frame and floors) of the former St. Kevin's Hospital building to provide 60 no. apartments (26 no. 1 bedroom and 34 no. 2 bedroom apartments) a 440 sq m crèche at ground floor level, with ancillary outdoor play area and the conversion of the 630 sq m former chapel building to provide a new Office Enterprise Centre. The proposed development will include 241 no. surface car parking spaces and 563 no. bicycle parking spaces.

The development will also consist of the demolition of 2,901 sq m of former hospital buildings and associated outbuildings (including the demolition of the 1,129 sq m former two storey St. Dymphna's Hospital block; 672 sqm of the rear toilet blocks and contemporary stair cores to the side and rear of the St. Kevin's Hospital building; the 220 sq m two storey former Doctors House; the 50 sq m one storey hospital mortuary building; 480 sq m of shed buildings to the rear of the Chapel; the 151 m retaining wall to the immediate south of the St. Kevin's Hospital building and the partial demolition of the existing 350 sq m link corridor structure, to be replaced with an integrated landscaped amenity area in the footprint of the original structure.) 2 no. new 228 sq m extensions with bridge access are to be provided to the rear of the St. Kevin's Hospital Building and 2 no. 31 sq m new glazed porch extensions to the south.

The development will also include the provision of a play area to the immediate east of St. Kevin's Hospital; private, communal and public open space (including all balconies and terraces at all levels); internal roads and pathways;

pedestrian access points; hard and soft landscaping; boundary treatments including the repair of some existing boundary walls; the provision of new surface water and foul drainage pipes and any associated pipe diversion works; new retaining walls; a new internal access road; changes in level; services provision and related pipework; electric vehicle charging points; attenuation tanks; SUDS; signage; the upgrading of the existing access from Beechtree Avenue; public lighting and all site development and excavation works above and below ground.

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 of the former St. Kevin's Hospital, Cork as previously described. This will involve partial demolition/renovation to existing structures, followed by 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 clearance including partial demolition/renovation of buildings.
- A construction phase using standard building materials.
- Construction will include a new surface water drainage infrastructure and connection to electricity and wastewater networks.
- An operation phase whereby the buildings will be occupied.

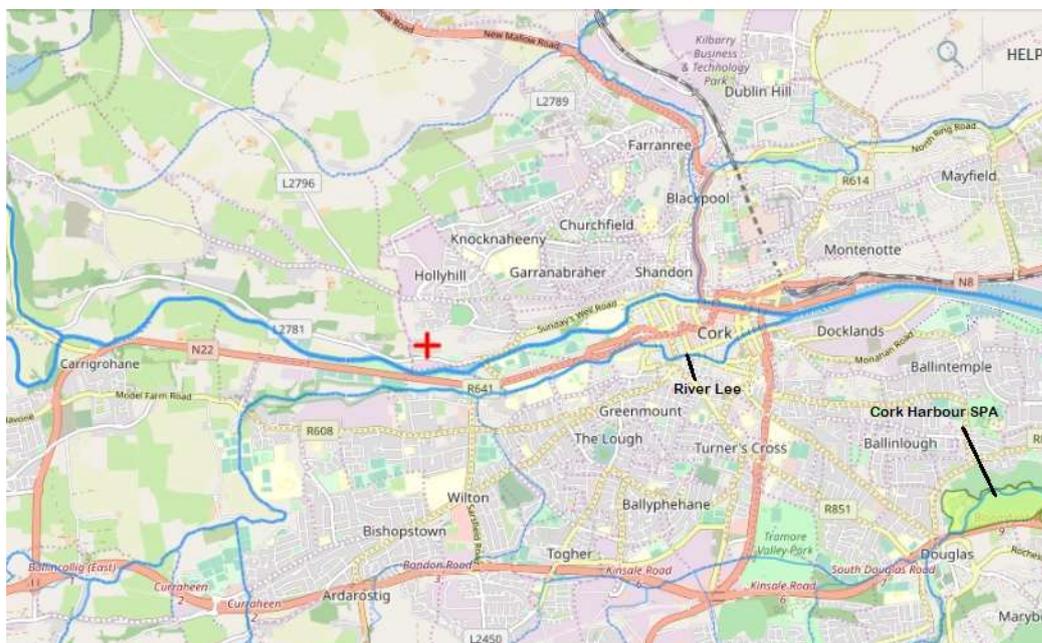


Figure 1 – Site location (red cross) (from www.epa.ie). There are no SACs in this view.

The site is not located within or directly adjacent to any Natura 2000 site (SAC or SPA). This part of Cork City is a built-up residential zone and is predominantly composed of artificial surfaces although parks and gardens do provide some semi-natural habitat. Mapping from the Environmental Protection Agency (EPA) shows that the River Lee flows a short distance to the south (approximately 85m). The Lee at this point is just above the tidally influenced

portion of the river and characterised by quay walls and other embankments as it flows through the city.

The lands were surveyed for this study on November 19th 2019 and May 25th 2020 and were found to be a combination of modified habitats including **buildings and artificial surfaces – BL3** which covers extensive areas of the site. These are surrounded by expanses of **dry meadow – GS2** which is grazed by horses. There is Ragwort *Senecio jacobaea*, Nettle *Urtica dioica* and grasses. Lines of **stone walls – BL1** are associated with Ivy *Hedera helix*, Red Valerian *Centranthus ruber*, Common Polypody *Polypodium vulgare* and Traveller's-joy *Clematis vitalba*. There are areas of **recolonising bare ground – ED3** with Canadian Fleabane *Conyza canadiensis*, Butterfly-bush *Buddleja davidii*, Weld *Reseda lutea*, and Teasel *Dipsacus folonum*.

Scattered trees can be found throughout and include specimens of Ash *Fraxinus excelsior*, Sycamore *Acer pseudoplatanus*, Scots Pine *Pinus sylvestris* and Apple *Malus sylvestris*. To the north of the site, on a steep embankment, there is a small patch of **broadleaved woodland – WD1**. This is mostly Sycamore and Ivy with some Hawthorn *Crataegus monogyna*, Gorse *Ulex europaeus*, Brambles *Rubus fruticosus agg.*, Honeysuckle *Lonicera periclymenum* and at least one Oak *Quercus sp.*

There are no water courses on, or immediately adjacent to the site boundary.

In a number of locations there are stands of Japanese Knotweed *Fallopia japonica* (which is an alien invasive species). One of these is large. Spanish Bluebell *Hyacinthoides hispanica* and Three-cornered Garlic *Allium triquetrum* were also noted during site assessments carried out by Invasive Plant Solutions. These plants are listed in SI No. 477 of 2011 as alien invasive.

There are no habitats which are examples of those listed in Annex II of the Habitats Directive and no habitat suitable for protected species of plants. The lands are not suitable for regularly occurring populations of wintering/wetland/wading birds which may be associated with the Cork Harbour SPA.

The lands are adjacent to other areas of buildings and hard surfaces as well as roads. The wider area is a part of the urban environment of Cork City and so is dominated by artificial land uses. There are presently no surface water attenuation measures in place and rain enters the combined foul sewer.

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

A new surface water drainage system will be constructed for this site. It is proposed that this will discharge to the combined sewer. An attenuation tank will be installed to retain rain volumes from a 1 in 20 year storm event. Additional SUDS measures include a rain gardens, permeable paving and grasscrete and these measures will result in an enhancement to the character of surface water run-off. These are standard measures which are included in all development

projects and are not included here to reduce or avoid any effect to a Natura 2000 site.



Figure 2 – Site location and habitats (aerial photo from www.google.com)

Foul wastewater from the proposed development will be sent to the wastewater treatment plant for Cork at Little Island. This plant is licenced by the EPA to discharge treated effluent into Cork Harbour (licence no.: D0033-01). The most recent available Annual Environmental Report (AER) for this plant, prepared by Irish Water for the 2018 calendar year, indicates that the discharge was not compliant with the emission limit values (15 exceedences were recorded for COD and total phosphorous). The report states however that no observable impact to ambient water quality or Water Framework Directive status is occurring. The treatment capacity is 413,200 P.E. (population equivalent) and the AER states that capacity is not expected to be exceeded in the next three years.

There are no other discharges from this development. Fresh water supply for the building will be via a mains supply. This originates from extraction points along the River Lee.

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

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 project
- The location and nature of Natura 2000 sites
- Pathways between the development and the Natura 2000 network

There is no prescribed radius to determine which Natura 2000 sites should be studied and this depends upon the zone of influence of the project. A 15km radius is sometimes used and this is shown in figure 4. It has already been stated that the site is not located within or directly adjacent to any Natura 2000 site. Hydrological pathways lead to two such areas: the **Cork Harbour SPA (site code: 4030)** and the **Great Island Channel SAC (1058)**. These areas lie downstream of the development and receive treated effluent from the municipal wastewater treatment plant and so are within the zone of influence. These are considered to be the only Natura 2000 sites within the zone of influence of the development as pathways do not exist to other areas.

Extraction points along the River Lee, from which drinking water supply for this development will originate, are not within or upstream of any freshwater SAC or SPA.

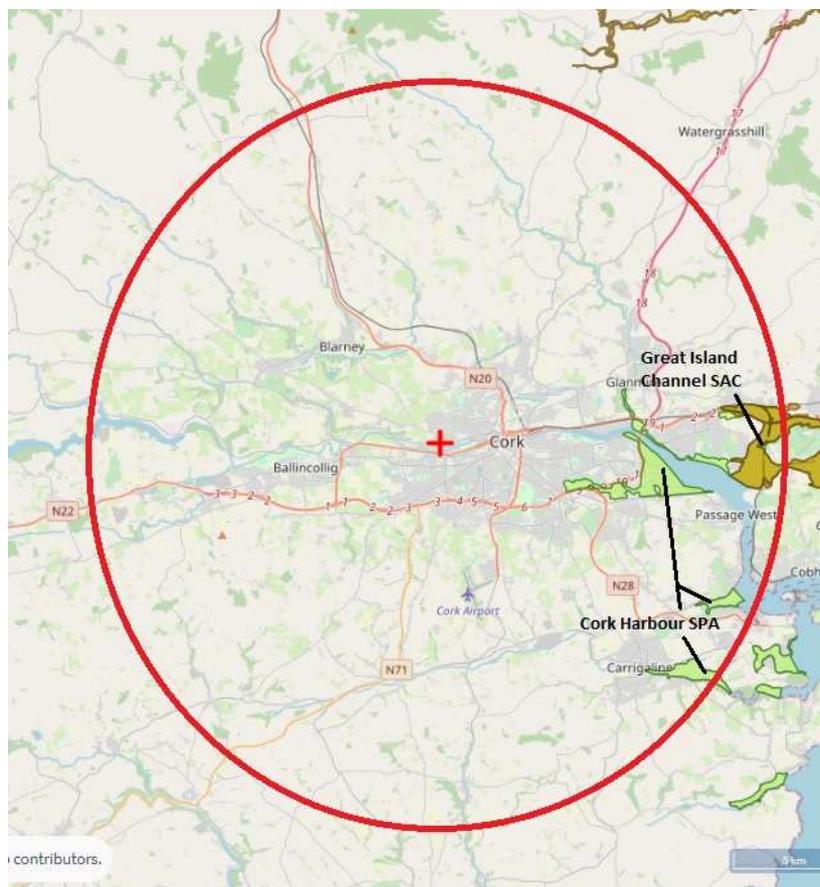


Figure 4 – Approximate 15km radius from the development site showing Natura 2000 sites (from www.epa.ie).

Great Island Channel SAC (site code: 1058)

The Great Island Channel stretches from Little Island to Midelton and is a part of the Cork Harbour marine area. It included the estuaries of two rivers, the Owennacurra and Dungourney. The sheltered conditions to be found here promote the settlement of sediment and so there are extensive areas of exposed sand and mud (NPWS, 2019). These form the basis for the SAC's two qualifying interests (i.e. the reasons why this area is of European importance). These are detailed in table 1. The status given is that of the habitat at a national level and not necessarily that within the Great Island Channel SAC.

Table 1 – Qualifying interests for the Great Island Channel SAC (from NPWS)

Code	Habitats	National Status
1140	Mudflats and sandflats not covered by seawater at low tide	Inadequate
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	Inadequate

- **Tidal mudflats (1140).** This is an intertidal habitat characterised by fine silt and sediment. Most of the area in Ireland is of favourable status however water quality and fishing activity, including aquaculture, are negatively affecting some areas.
- **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.

Cork Harbour SPA (site code: 4030)

The estuaries of the Lee, along with other rivers flowing into Cork Harbour provide a source of nutrients that promotes considerable productivity on surfaces that are exposed at low tide. This in turn provides a food source and place of shelter for bird populations, both resident and overwintering flocks. SPAs are designated for their internationally important species (listed on Annex I of the Birds Directive) or population sizes (>1% of the global population or >20,000 individuals). Most recent available data indicate that a mean of 25,125 birds utilised the area during the winters from 2006-11 (Crowe et al., 2012). This includes internationally important numbers of Black-tailed godwit *Limosa limosa* and nationally important numbers Shelduck *Tadorna tadorna*, Wigeon *Anas penelope*, Teal *A. crecca*, Mallard *A. platyrhynchos*, Shoveler *Anas clypeata*, Red-breasted Merganser *Mergus serrator*, Little Grebe *Tachybaptus ruficollis*, Great-crested Grebe *Podiceps cristatus*, Cormorant *Phalacrocorax carbo*, Oystercatcher *Haematopus ostralegus*, Golden plover *Pluvialis apricaria*, Lapwing *Vanellus vanellus*, Dunlin *Charadrius alpina*, Bar-tailed godwit *L. lapponica*, Curlew *Numenius arquata*, Greenshank *Tringa nebularia* Redshank *T. totanus*, and Turnstone *Arenaria interpres*.

Table 2 – Features of interest for the Cork Harbour SPA

Species		Status ¹
Pintail	<i>Anas acuta</i>	Red (Wintering)
Shoveler	<i>Anas clypeata</i>	Red (Wintering)
Golden plover	<i>Pluvialis apricaria</i>	Red (Breeding & Wintering)
Grey Plover	<i>Pluvialis squatarola</i>	Amber (Wintering)
Lapwing	<i>Vanellus vanellus</i>	Red (Breeding & Wintering)
Dunlin	<i>Calidris alpina</i>	Red (Breeding & Wintering)
Bar-tailed Godwit	<i>Limosa lapponica</i>	Amber (Wintering)
Black-tailed Godwit	<i>Limosa limosa</i>	Amber (Wintering)
Redshank	<i>Tringa totanus</i>	Red (Breeding & Wintering)
Black-headed Gull	<i>Croicocephalus ridibundus</i>	Red (Breeding)
Common Gull	<i>Laurus canus</i>	Amber (Breeding)
Lesser Black-backed Gull	<i>L. fuscus</i>	Amber (Breeding)
Shelduck	<i>Tadorna tadorna</i>	Amber (Breeding & Wintering)
Wigeon	<i>Anas penelope</i>	Red (Wintering)
Teal	<i>Anas crecca</i>	Amber (Breeding & Wintering)
Cormorant	<i>Phalacrocorax carbo</i>	Amber (Breeding & Wintering)
Great-crested Grebe	<i>Podiceps cristatus</i>	Amber (Breeding & Wintering)
Little Grebe	<i>Tachybaptus ruficollis</i>	Amber (Breeding & Wintering)
Grey Heron	<i>Ardea cinerea</i>	Green (Breeding & Wintering)
Curlew	<i>Numenius arquata</i>	Red (Breeding & Wintering)
Red-breasted Merganser	<i>Mergus serrator</i>	Green (Breeding & Wintering)
Oystercatcher	<i>Haematopus ostralegus</i>	Amber (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.
- **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.
- **Wigeon.** There is a small unconfirmed breeding population of this duck in Ireland but the bulk of the population arrives to winter in coastal and inland wetlands. Changes in its wintering population have been attributed to climate change.

¹ Colhoun & Cummins, 2013. *Birds of Conservation Concern in Ireland 2014-2019*

- **Grey Heron.** A distinctive birds of coastal and inland wetlands Heron numbers have rise substantially in recent decades.
- **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-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.
- **Oystercatcher.** Predominantly coastal in habit Oystercatchers are resident birds whose numbers continue to expand in Ireland.
- **Common Gull.** Breeding sites for this gull in Ireland are confined to coastal locations, and mostly in the north and west. Their population is boosted by winter arrivals but again, there is a distinct coastal bias in their distribution.
- **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.
- **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 inland 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.
- **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.
- **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.
- **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.
- **Little Grebe.** A small, diving birds that frequents freshwater and coastal wetlands throughout the country. Numbers are believed to be increasing.
- **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.
- **Lapwing.** Although still one of the most widespread of the breeding waders Lapwing populations have declined by over 50% in the past 40 years. This has been driven by changes in agricultural practices and possibly increased predation.

Whether significant effects are likely to occur to either the SAC or SPA must be measured against their 'conservation objectives'. Specific conservation objectives have been set for both areas (NPWS, 2014a & b). For the SPA each species is given the following objectives:

1. Population trend: long term population trend stable or increasing
2. Distribution: no significant decrease in the range, timing or intensity of use [...] other than that occurring from natural patterns of variation.

For the SAC the objectives relate to habitat area and distribution, as well as (in the case of the Atlantic salt-meadows qualifying interest) physical and vegetation structure.

Mudflats (code 1140)

Permanent habitat area stable or increasing (estimated at 723 hectares); Conserve the following community type in a natural condition: Mixed sediment to sandy mud with polychaetes and oligochaetes community complex.

Atlantic Salt Meadows (1330)

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*.

Data collected to carry out the assessment

Aerial photography shows that habitats on the site are not associated with either intertidal habitats or species listed in table 2.

The aforementioned SAC and SPA are entirely dependent upon the daily tidal movements that wash seawater through the islands and channels of the harbour. The habitats which are qualifying interests of the SAC (salt marsh and exposed mudflats) rely for their integrity upon the continual forces of erosion and deposition provided by this water movement. The nutrients that arrive from the input of rivers such as the Lee provide the conditions that make the aforementioned habitats among the most productive on Earth (Little, 2000). The abundance of small invertebrates living in the sand and mud in turn provide a wealthy food source for resident and visiting birdlife. Specific data on the status of non-breeding bird numbers in Cork Harbour is available (NPWS, 2014). In total nine species: Pintail, Shoveler, Red-breasted Merganser, Cormorant, Grey Plover, Lapwing, Black-headed Gull, Common Gull and Lesser Black-backed Gull are assessed as 'highly unfavourable'. Six species: Shelduck, Wigeon, Great-crested Grebe, Dunlin, Curlew and Redshank are assessed as 'unfavourable'. Three species: Teal, Grey Heron and Oystercatcher are assessed as '(intermediate) unfavourable', while only four species: Little Grebe, Golden Plover, Black-tailed Godwit and Bar-tailed Godwit were assessed as 'favourable'. Of those species assessed as unfavourable the following species were found to be declining in Cork Harbour against a background of stable or increasing populations nationally: Shelduck, Pintail, Shoveler, Red-breasted Merganser, Cormorant and Redshank. This suggests that one or more of the conditions in Cork Harbour are responsible for these declines. The NPWS has examined the activities at Cork Harbour that may be impacting upon wetland bird numbers. These include: habitat loss, modification and adjacent land use; water quality; fisheries and aquaculture; recreational activity and others. However the document stops short of determining whether declines in specific species are associated with particular activities. It does highlight however the loss of habitat, on-going issues with water quality and the effects of disturbance from walkers (without without dogs) and other activities in the intertidal zone. It may be that effects to waterbird populations have arisen as a result of one or all of these effects acting in combination.

Water quality data are available from the Environmental Protection Agency (EPA) and water bodies are assessed under the EU's Water Framework Directive (WFD). The waters in the tidal and freshwater portions of the River Lee in Cork City are assessed as 'moderate' under the 2013-2018 reporting period. This indicates 'unsatisfactory' status in these water bodies, largely due to excessive nutrient input. The main wastewater treatment plant for Cork is located on Little Island and in this vicinity water quality is also 'moderate'. Coastal water in the harbour (beyond Fort Davis) meanwhile is 'good status'.

The relationship between moderate pollution and populations of wading birds is dependent upon the bird species and the site in question. Water quality is not listed as a conservation objective for either SPA or SAC. There is some

evidence that elevated levels of nutrients are benefiting wintering bird populations by fuelling primary production (Nairn & O'Halloran, eds, 2012). Research from Lough Neagh in Northern Ireland suggests that improvements to water quality there have resulted in dramatic declines in the populations of wintering ducks (Tomankova et al., 2013). However excessive pollution can lead to mats of the green alga *Ulva sp.* that disadvantage certain bird species but provide a food source for others. It is not known whether this effect is to be found in Cork Harbour. Overall bird counts from BirdWatch Ireland show a mean of 25,125 individuals using the harbour during the winters from 2006-2011 (the most recent data available (Crowe et al., 2012). This compares to a mean of 28,014 for the years from 1997-2002 (Boland & Crowe, 2005). In the main it suggests that total numbers are stable however this clearly masks variations between species.

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.

The proposed development is not located within, or adjacent to, any SAC or SPA.

Habitat loss

The site is approximately 5.2km from the boundary of the Cork Harbour SPA and nearly 13km to the boundary of the Great Island Chanel SAC as the crow flies. Following hydrological pathways this distance is even greater. Because of the distance separating these areas there is no pathway for loss or disturbance of habitats in any Natura 2000 site or other semi-natural habitats that may act as ecological corridors for important species associated with the qualifying interests of Natura 2000 sites.

Habitat disturbance/Ex-situ impacts

This development cannot increase disturbance effects to birds in Cork Harbour from amenity uses given its distance from these sensitive areas.

The development lands do not provide suitable habitat for wintering/wading or wetlands birds which may be associated with the Cork Harbour SPA. No ex-situ impacts can arise.

Hydrological pathways

There is a pathway from the site via surface and wastewater water flows to Cork Harbour via the city's main wastewater treatment plant.

Pollution from wastewater during operation

There is no evidence that discharges from the wastewater treatment plant are negatively affecting habitats or birds using the area. The plant has sufficient capacity to treat the expected additional loading from the development without affecting its performance. The effect of this project on Natura 2000 sites is therefore not significant.

Pollution from surface water during operation

New surface water attenuation measures are designed so that there will be a net enhancement to the quantity and quality of surface water leaving the site. These are standard measures which are included in all development projects and are not included here to reduce or avoid any effect to a Natura 2000 site. They are not mitigation in an AA context. No significant effects can occur to the SAC or SPA arising from this source.

Pollution during construction

During the site clearance and construction phases some sediment may become entrained in rain run-off. However this is cannot result in significant effects to Natura 2000 sites given its temporary nature, the substantial distance to Natura 2000 sites, and given that large quantities of sediment are deposited in estuaries as part of their natural functioning. No significant effects to Natura 2000 sites can arise from this source.

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 and the lack of natural vegetation in the vicinity of the site, this is not considered significant.

Invasive Species

Although invasive species have been identified from this site, there is no pathway for these to reach Natura 2000 sites. Invasive species are to be treated in accordance with best practice however this is not mitigation in an AA context as it is not intended to avoid or reduce any effect to a Natura 2000 site.

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

Implementation of the WFD will result in continued improvements to water quality in Cork Harbour and along the River Lee. Environmental water quality can be impacted by the effects of surface water run-off from areas of hard standing. These impacts are particularly pronounced in urban areas and can include pollution from particulate matter and hydrocarbon residues, and downstream erosion from accelerated flows during flood events. The latter

impact is unlikely to occur in this part of Cork since the estuary has long been defined by sea walls and other defences.

There can be no negative impact to surface water quality leaving the site due to the attenuation measures which are planned.

The Cork Harbour is a very large area, mostly intertidal or marine in nature, that stretches from the outskirts of Cork city to the mouth of the harbour over 10km to the south-east. The SAC and SPA boundaries do not encompass all of this area but are concentrated on shallow estuaries and channels, and intertidal zones where there is exposed sediment for at least part of the day. The NPWS has highlighted the pressures on these areas from habitat loss, water quality, aquaculture and disturbance. The latter is particularly associated with walkers or bait diggers and their dogs (while disturbance from boating or shipping traffic is not highlighted as a significant pressure). All of these effects can act in combination with each other and may be responsible for the unfavourable status of many species within the SPA.

There are no projects which can act in combination with this development which can give rise to significant effect to Natura 2000 sites within the zone of influence.

Conclusion and Finding of No Significant Effects

This project has been screened for AA under the appropriate methodology. It has found that significant effects are not likely to arise, either alone or in combination with other plans or projects to any SAC or SPA. No mitigation measures are relied upon in arriving at this assessment. This conclusion is based upon the best available scientific evidence.

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