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# EIAR Volume 6: Onshore Infrastructure Technical Appendices Appendix 6.5.2-2: O&M Base Onshore Bird Technical Baseline Report

**Kish Offshore Wind Ltd**

RWE SLR GoBe APEM Group

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# Dublin Array Offshore Wind Farm

## Environmental Impact Assessment Report

### Volume 6, Appendix 6.5.2-2: O&M Base Onshore Bird Technical Baseline Report

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# Glossary

| Term | Definition |
|---|---|
| Dublin Array | Dublin Array Offshore Wind Farm.<br>Where the context so provides within the EIAR, references to Dublin Array refer to all geographical areas of the proposed development, i.e. both offshore, onshore and including the proposed O&M Base. |
| iWeBS | is coordinated by BirdWatch Ireland and aims to monitor the numbers and distribution of waterbird populations wintering in the Republic of Ireland. IWeBS sites are mapped into predefined boundaries and many sites are sub-divided into smaller count units, providing finer-scale data. |
| Special Conservation Interest (SCI | refers to the specific species or habitats that are the focus of conservation efforts within that area. SPAs are designated under the European Union's Birds Directive to protect bird species that are considered to be of particular importance, including those listed in Annex I of the directive and regularly occurring migratory species |
| Onshore Export Cable Route | The term used to describe the 7.4 km route of the onshore cables and associated infrastructure between the TJBs and the OSS |
| Onshore Electrical System (OES) | Collective term for all onshore infrastructure from the landfall/TJB to the grid connection point which is likely to be necessary to connect the project to the national grid. |
| Onshore infrastructure | The Onshore Electrical System and the O&M Base. |
| Onshore substation | Part of the OES, the substation is required to facilitate the connection to the existing national electricity transmission system. |
| Operations & Maintenance Base | The location from where the daily operations and normal repairs, replacement of parts and structural components, and other activities needed to preserve the offshore assets will be conducted. |
| Qualifying Interest (QI) | The habitats and species for which each European site is selected are the QI for SACs and special conservation interests (SCI) for SPAs of each site. These are collectively referred to as qualifying interests (QI) in this report. |
| Wetland | An area of land that is saturated with water, either permanently or seasonally, and supports distinct plant and animal communities. |

# Acronyms

| Term | Definition |
|---|---|
| BTO | British Trust of Ornithology |
| DLRCC | Dún Laoghaire Rathdown County Council |
| Dublin Array | Dublin Array Offshore Wind Farm |
| ECR | Export Cable Route |
| EU | European Union |
| ITM | Irish Transverse Mercator |
| IWeBS | Irish Wetland Bird Survey |
| LAT | Lowest Astronomical Tide |
| NPWS | National Parks and Wildlife Service |
| O&M Base | Operation and Maintenance Base |
| OSP | Offshore Substation Platform |
| OSS | Onshore Substation |
| PNA | Potential Nesting Area |
| RWE | RWE Renewables Ireland Ltd |
| SCI | Special Conservation Interest |
| SLR | SLR Environmental Consulting (Ireland) Ltd |
| SPA | Special Protection Area |
| TJB | Transition Joint Bay |
| WTG | wind turbine generators |
| ZoI | Zone of Influence |

# 1 Introduction

1.1.1 SLR Environmental Consulting (Ireland) (SLR) was commissioned by Kish Offshore Wind Limited and Bray Offshore Wind Limited in September 2023 to collate and evaluate existing ornithological data and to carry out breeding bird surveys at the proposed Operations and Maintenance (O&M) Base at Dún Laoghaire Harbour for the Dublin Array Offshore Wind Farm (Dublin Array).

## 1.2 Project overview

1.2.1 Dublin Array is a proposed offshore wind farm located on the Kish and Bray Banks, approximately 10 km off the coast of counties Dublin and Wicklow in Ireland. In summary it will comprise:

- Offshore Wind Farm Infrastructure: comprising between 39 and 50 wind turbine generators (WTGs) with a maximum blade tip height (when a rotor blade is in a vertical orientation) of 309.6 m Lowest Astronomical Tide (LAT); and a minimum blade tip height of 31.6 m LAT; associated offshore infrastructure including turbine foundations, subsea inter array electricity cables connecting the WTGs to an offshore substation platform (OSP) and offshore electricity export cables connecting the OSP to the onshore electrical system. The offshore infrastructure will be located off the coast of the counties of Dublin and Wicklow;

- Onshore Electrical System (OES): comprising the onshore works that are necessary to facilitate the operation of the wind farm. This includes a landfall/transition joint bay (TJB) to be located at Shanganagh; underground electricity transmission cables; an onshore substation (OSS); and underground electricity cable circuits connecting the OSS to the existing EirGrid substation at Carrickmines. The OES will be located in its entirety within the administrative boundary of Dún Laoghaire Rathdown County Council (DLRCC); and

- The Operations and Maintenance (O&M) Base: which will be located at Dún Laoghaire Harbour and will comprise the O&M Base for the proposed wind farm. Once the O&M Base is operational, it will also be used to support the management of the construction of the offshore wind farm. The O&M Base will be located within the administrative boundary of Dún Laoghaire-Rathdown County Council.

1.2.2 A more detailed description of the project is provided within the Volume 2, Chapter 6: Project Description Chapter.

1.2.3 This technical appendix relates to the proposed O&M Base, which forms part of the overall onshore infrastructure works. This will provide the location from where the daily operations and normal repairs, replacement of parts and structural components, and other activities needed to preserve the offshore assets will be conducted.

1.2.4 The O&M Base will be located in the operational Dún Laoghaire harbour, within Dublin Bay. The harbour itself consists largely of artificial, man-made habitats including piers, buildings and harbour walls. However, the area has been previously mapped as Annex I habitat type 'large shallow inlets and bays' (1160) according to the latest Article 17 report[1]. Dún Laoghaire harbour is close to several European Sites designated for their ornithological importance (detailed in Table A2-1in Annex 2), termed 'Special Protection Areas' (SPAs).

## 1.3 Study and report scope

1.3.1 The purpose of this report is to provide baseline ornithological survey data of bird species abundance at and near the Dún Laoghaire harbour. The data will be used to inform the Ecological Impact Assessment (EIA) and Appropriate Assessment (AA) for Dublin Array, the scope was as follows:

- To collate IWeBS data and any other relevant desktop ornithological information from the study area and nearby SPAs;
- To carry out breeding bird surveys at Dún Laoghaire harbour; and
- To produce a report presenting the results of data collation, drawing conclusions where possible.

1 https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17/2019 [Last accessed November 2023].

# 2 Methodology

## 2.1 Study area

2.1.1 Acknowledging the location of all the O&M Base within the confines of Dún Laoghaire Harbour and the limited scale of these activities, the study area used to inform the baselines has been defined on a receptor specific basis taking into account all potential pathways for effect to define a zone of influence (ZoI) that has been used to inform the extent of the study area.

2.1.2 Considering the small scale of the O&M Base, and its current status as an operational harbour, a 500 m buffer around the Dún Laoghaire harbour was used to define the study area (see Figure 1).

## 2.2 IWeBS desktop data

2.2.1 The majority of the Special Conservation Interest (SCI) species for the SPAs within Dublin Bay are those that occur in internationally or nationally important numbers in the non-breeding season. Extensive existing data for these birds are available at the Dublin Bay location from the Irish Wetland Bird Survey (IWeBS), which will provide baseline information for the O&M Base study area.

2.2.2 The IWeBS is coordinated by BirdWatch Ireland and aims to monitor the numbers and distribution of waterbird populations wintering in the Republic of Ireland. IWeBS sites are mapped into predefined boundaries and many sites are sub-divided into smaller count units, providing finer-scale data.

2.2.3 The scheme has been in operation for over 25 years, having begun in the 1994/95 season. During this period, waterbird counts have been undertaken at some 1,400 wetland sites. These counts are carried out at core sites monthly between September and March inclusive, normally on predetermined dates.

2.2.4 The current method employed during IWeBS core counts at estuarine sites normally entails counting at or near high tide when waterbirds are more concentrated closer to the shoreline or at high tide roosts. A full description of the IWeBS methodology is described in the Counter Manual (BirdWatch Ireland and NPWS, 2009[2]). Such counts form the basis for revisions of all-Ireland population estimates and population trends and are used for a variety of other purposes, including site management plans, statutory site designations and Environmental Impact Assessment Reports.

2.2.5 IWeBS subsites that overlap with the study area and provide baseline information on the study area itself[3] included Dublin Bay East Pier - Bullock Harbour (subsite code: OU472) and Dublin Bay Dun Laoghaire – Seapoint (subsite code: OU460) (see Figure 2).

2 CBS Counter Manual - BirdWatch Ireland [accessed Nov 2023]

3 Note that the subsites extend beyond the 500 m study area and therefore likely over-represent the abundance of species present.

2.2.6 Both subsites form part of the wider Dublin Bay site (site code: 0U404). This IWeBS site encompasses subsites found within both the South Dublin Bay and River Tolka Estuary SPA 004024, and North Bull Ireland SPA 004006[4].

2.2.7 The Conservation Objectives Supporting Document for the South Dublin Bay and River Tolka Estuary SPA[5], sets out that the SPA and North Bull Island SPA are inextricably linked because several of the listed waterbird species use habitats within both SPAs and make regular movements between them.

2.2.8 IWeBS data for South Dublin Coastline (site code: 0U915) provides population estimates for the nearby Dalkey Islands SPA 004172.

2.2.9 IWeBS (Fitzgerald et al., 2021) data also provide estimates of national populations of wintering waterbirds (see Section 3.1)[6].

## 2.3 Post-breeding Tern desktop data

2.3.1 While IWeBS core counts are carried out in winter months, special NPWS surveys for species or habitats poorly covered by core counts are also co-ordinated via BirdWatch Ireland.

2.3.2 Specifically, additional data sources are required for SCI tern species, which are only usually present in Ireland during the breeding season and immediately before migration (termed 'post-breeding'), when they are present in the area in the largest numbers. To this end, data from post-breeding tern monitoring projects within Dublin Bay (e.g.,Burke and Crowe, 2016; Burke et al., 2017; Tierney et al., 2016) are available[7].

2.3.3 The monitoring methodology for these tern counts is described by Burke and Crowe (2016). The methodology followed included an estimation of tern species richness and abundance together with the mapping of flocks. At least two counts were undertaken.

2.3.4 Anecdotal evidence of post-breeding terns located at Irish Transverse Mercator (ITM) coordinates 725297, 728184 was also provided by BirdWatch Ireland. This is located outside the study area (approximately 1.1 km Southeast of Dún Laoghaire harbour). This area was previously surveyed on an annual basis but has not been comprehensively surveyed for post-breeding terns since 2018.

4 I-WeBS (2021). https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88 [accessed November 2023].
5 https://www.npws.ie/sites/default/files/publications/pdf/South%20Dublin%20Bay%20and%20River%20Tolka%20Estuary%20SPA%20(004024)%20Conservation%20objectives%20supporting%20document%20-%20[Version%201].pdf [accessed November 2023].
6 As the post-breeding counts of terns includes birds from other European countries, it was impossible to place these results in an SPA or all-Ireland context as these numbers refer to terns recorded in the breeding season and not immediately prior to migration.
7 There was a lack of available data on the numbers of breeding terns within the study area (reports typically collated tern species as one unit or did not report data at an appropriate spatial scale).

## 2.4 Field survey

2.4.1 While extensive desktop data is available for wintering wildfowl and waders, a dedicated field survey was undertaken to search for breeding birds at the O&M Base. The survey methodology was based upon guidelines from the Bird Survey & Assessment Steering Group (2023). The guidelines state that six breeding bird survey visits should be undertaken unless the proposed development (in this case the proposed O&M Base) will likely have limited impacts, or the site contains habitats of low value for breeding birds, or the habitats present are such that detection of birds is difficult.

2.4.2 A scoping survey was undertaken on 27/04/2023. The absence of densely vegetated habitats meant that detection of birds was not impeded. In addition, the highly artificial nature of the harbour habitats plus continued disturbance suggested that in general, the O&M Base was of lower value habitat for breeding birds.

2.4.3 The exception was the presence of potentially nesting black guillemots Cepphus grylle. Consequently, the survey methodology was tailored to focus on this species, using the 'productivity monitoring method 2 (inaccessible nest sites)' outlined in the Seabird monitoring handbook for Britain and Ireland, Walsh et al. (1995)[8]. Thus, a second visit was carried out in the early morning on the 08/07/2023 to determine which potential nest sites had fish delivered to them, thereby indicating breeding success.

2.4.4 The survey metadata is provided in Table 2-1.

Table 2-1 Survey metadata.

| Date (time) | Survey details | Weather | High | Low |
|---|---|---|---|---|
| 27/04/2023 (09:00 – 12:00) | Scoping survey of O&M Base. Habitats were mapped and sightings of notable bird species were recorded | Temperature (°C) | 10 | 9 |
| | | Wind speed (Beaufort (BFT)) | 3 | 2 |
| | | Cloud cover (oktas) | 8 | 8 |
| | | Precipitation | None | None |
| 08/07/2023 (05:15 – 08:15) | Nesting seabird birds survey | Temperature (°C) | 14 | 14 |
| | | Wind speed (BFT) | 3 | 1 |
| | | Cloud cover (oktas) | 6 | 5 |
| | | Precipitation | None | None |

8 https://data.jncc.gov.uk/data/bf4516ad-ecde-4831-a2cb-d10d89128497/seabird-monitoring-handbook.pdf

2.4.5 Any evidence of breeding terns or other notable birds was also searched for following the BTO's breeding bird survey methodology[9]. An evaluation on their breeding status was determined using the criteria detailed in Table 2-2.

Table 2-2 Criteria used to evaluate breeding status

| Breeding status | Relevant behaviours |
|---|---|
| Confirmed | ▪ Recently fledged or downy young;<br>▪ Adult carrying faecal sac or food for young;<br>▪ Nests containing eggs;<br>▪ Nest with young seen or heard; and<br>▪ Distraction displays/feigning injury |
| Probable | ▪ Pair seen in suitable habitat;<br>▪ Permanent territory (defended over at least two survey visits);<br>▪ Courtship and display;<br>▪ Visiting potential nest site;<br>▪ Agitated behaviour; and<br>▪ Nest building/hole excavation |
| Possible | ▪ Observed in suitable nesting habitat; and<br>▪ Singing male |
| Non-breeding | ▪ Overflying;<br>▪ Migrant;<br>▪ Summering non-breeder; and<br>▪ Observed in unsuitable nesting habitat. |

## 2.5 Data analysis

2.5.1 Guidance by NatureScot (2020) states that a minimum of two years of bird survey data should be included in baseline studies for offshore wind farm planning applications. To this end, recent annual peak counts from the last five[10] seasons (winters of 2018/19 to 2022/23) of IWeBS are presented here for the two nearest IWeBS subsites. The data are representative of current baseline conditions (CIEEM, 2019) at Dún Laoghaire harbour. This procedure follows that of IWeBS reporting itself, minimising annual fluctuations in bird abundance and provides a more robust picture of waterbird abundance.

2.5.2 The spatial extent of these subsites is larger than the 500 m buffer study area; however, there is not any further refined spatial breakdown of the data available. The IWeBS data presented are therefore likely to overestimate the number of birds occurring within the study area and represent a worse-case scenario.

2.5.3 The IWeBS data overlapping with the study area was also considered against the combined South Dublin Bay and River Tolka Estuary SPA x North Bull Island SPA population data (i.e. the 'Dublin Bay' IWeBS site, which comprised several subsites), Dalkey Island SPA population data and the national population estimates for each species.

9 BTO (n.d.) Common bird census instructions. BTO/JNCC/RSPB. https://www.bto.org/sites/default/files/u31/downloads/details/CBC-instructions-g100.pdf [Accessed November 2023].
10 It usually takes 12-18 months before data are available for any given season.

2.5.4 Importance was quantified using the 1% criterion as employed by the IWeBS procedure itself. A population of 1% or more of a national population within the study area indicates it is of national importance[11].

2.5.5 For context, the results from the study area have been expressed as a percentage of the nearby SPA populations and the national population.

2.5.6 The most recently available five-year peak IWeBS counts at the national scale are for the period 2018/19 to 2022/23. Given that this period does not correspond exactly to the latest IWeBS counts for nearby SPAs (2018/19 to 2021/22) or within the study area (2018/19 to 2022/23), it is acknowledged that there are some limitations in the direct comparability of these datasets. As such, a degree of caution is warranted when making comparisons in numbers. However, by comparing the peak counts for each species between the datasets, some context in numbers of birds using the study area can be obtained relative to the most recent national and SPA population estimates.

11 BirdWatch Ireland (2022). Annual Report 2022. https://birdwatchireland.ie/app/uploads/2023/06/Annual-Report-2022.pdf [Accessed November 2023].

# 3 Results

## 3.1 IWeBS desktop data

3.1.1 Abundance within the study area is shown for the last five winter seasons (2018/19 to 2022/23) detailed in Table 3-1. There were 54 species recorded within the study area over the last five winters.

3.1.2 The most abundant species recorded in the study area were dunlin *Calidris alpina*, herring gull *Larus argentatus*, great black-backed gull *Larus marinus*, black-headed gull *Chroicocephalus ridibundus*, oystercatcher *Haematopus ostralegus*, and sanderling *Calidris alba*.

3.1.3 Species recorded in the study area in numbers comprising the largest proportion (>50%) of the combined South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population include common scoter *Melanitta nigra*, great black-backed gull, great northern diver *Gavia immer*, kingfisher *Alcedo atthis*, Mediterranean gull *Ichthyaetus melanocephalus*, moorhen *Gallinula chloropus*, purple sandpiper *Calidris maritima*, red-throated diver *Gavia stellata*, and shag *Phalacrocorax aristotelis*. However, of these species, great northern diver, kingfisher, moorhen, purple sandpiper, and red-throated diver were recorded in the study area in low numbers (i.e. ten or fewer individuals).

3.1.4 Species recorded in the study area in numbers comprising the largest proportion (>50%) of the Dalkey Island SPA population include black-headed gull, common gull *Larus canus*, common scoter, great black-backed gull, greenshank *Tringa nebularia*, grey heron *Ardea cinerea*, herring gull, lesser black-backed gull *Larus fuscus*, light-bellied brent goose *Branta Branta hrota*, Mediterranean gull, oystercatcher *Haemotopus ostralegus*, redshank *Tringa totanus*, red-throated diver, sandwich tern *Thalasseus sandvicensis*, shag and turnstone *Arenaria interpres*. However, of these species, common gull, greenshank, grey heron, lesser black-backed gull, red-throated diver, sandwich tern were recorded in the study area in low numbers (i.e., ten or fewer individuals).

3.1.5 Note that certain species were found to comprise >100% of the relevant SPA populations. This may be because the timescales are different between the data, with the subsites including two additional years of average peak counts.

Table 3-1 Mean annual peak counts of intertidal bird species recorded at the study area[12].

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| Arctic tern | *Sterna paradisaea* | 1 | - | Not recorded in SPA | - | Not recorded in SPA | - | - | - |
| Bar-tailed godwit | *Limosa lapponica* | - | 1958 | Not recorded in study area | - | Not recorded in SPA or study area | 8,628 | 170 | 1,500 |
| **Black-headed gull** | ***Chroicocephalus ridibundus*** | **128.75** | **3,340** | **3.85** | **21.7** | **593.3** | **20,197** | **-** | **-** |
| **Black-tailed godwit** | ***Limosa limosa*** | **30** | **2332.3** | **1.29** | **-** | **Not recorded in SPA** | **19,314** | **200** | **1,100** |
| **Common gull** | ***Larus canus*** | **4** | **338** | **1.18** | **4.3** | **93.0** | **8,032** | **-** | **-** |

12 Results are shown for two subsites Dublin Bay: East Pier – Bullock Harbour (site code OU472) and Dublin Bay: Dun Laoghaire – Seapoint, over the last five winters. Results are in the context of mean annual peak counts for South Dublin Bay SPA and North Bull Island SPA and the all-Ireland population for each species. The mean annual peak counts are also expressed as a percentage of the mean annual peak counts for the two SPAs (five-year mean) combined. Note that birds highlighted as bold comprise populations >1% of the combined SPA population and/or >1% of the national population.
13 This includes the sum of the two mean averages for each of the two subsites: Dun Laoghaire - Seapoint & East Pier - Bullock Harbour (BirdWatch Ireland, 2023a)
14 Note that data for winter 2021/22 and 2022/23 was not available (BirdWatch Ireland, 2023b).
15 Note that data for winter 2021/22 2022/23 was not available (BirdWatch Ireland, 2023c).
16 Taken as the peak count from Tables 3a and 3b from Fitzgerald et al., (2021).
17 Taken from IWeBS site summary table for OU404 Dublin Bay. https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88 [Accessed November 2023].

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| **Common scoter** | ***Melanitta nigra*** | **24** | **17** | **141.18** | **3** | **800** | **7,377** | **110** | **7,500** |
| **Common tern** | ***Sterna hirundo*** | **1** | **38** | **2.63** | **-** | Not recorded in SPA | **-** | **-** | **-** |
| **Cormorant** | ***Phalacrocorax carbo*** | **24.5** | **138** | **17.75** | **149** | **16.45** | **2,987** | **110** | **1,200** |
| Curlew | *Numenius arquata* | 2.5 | 923.5 | 0.27 | - | Not recorded in SPA | 14,994 | 350 | 7,600 |
| Curlew sandpiper | *Calidris ferruginea* | - | 1 | Not recorded in study area | 1 | Not recorded in study area | - | - | - |
| **Dunlin** | ***Calidris alpina*** | **2885** | **7434.3** | **38.8** | **-** | Not recorded in SPA | **34,135** | **460** | **13,300** |
| Golden plover | *Pluvialis apricaria* | - | 1114.3 | Not recorded in study area | - | Not recorded in SPA or study area | 70,726 | 920 | 9,300 |
| Goldeneye | *Bucephala clangula* | - | 2 | Not recorded in study area | - | Not recorded in SPA or study area | 805 | 40 | 11,400 |

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| **Great black-backed gull** | ***Larus marinus*** | **127.5** | **127.5** | **100** | **64** | **199.2** | **1,780** | **-** | **-** |
| **Great crested grebe** | ***Podiceps cristatus*** | **33.5** | **197.5** | **16.96** | **-** | Not recorded in SPA | **879** | **30** | **6,300** |
| **Great northern diver** | ***Gavia immer*** | **1** | **1.3** | **76.9** | **-** | Not recorded in SPA | **812** | **20** | **50** |
| **Greenshank** | ***Tringa nebularia*** | **3.5** | **39.3** | **8.9** | **1** | **350** | **649** | **20** | **3,300** |
| **Grey heron** | ***Ardea cinerea*** | **5.25** | **38** | **13.8** | **1.3** | **403.8** | **759** | **25** | **5,000** |
| Grey plover | *Pluvialis squatarola* | - | 366.3 | Not recorded in study area | - | Not recorded in SPA or study area | 2,633 | 30 | 2,000 |
| **Herring gull** | ***Larus argentatus*** | **149.9** | **539.5** | **27.8** | **225.7** | **66.4** | **14,060** | **-** | **-** |
| Iceland gull | *Larus glaucoides* | - | 1 | Not recorded in study area | - | Not recorded in SPA or study area | 22 | - | - |

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| **Kingfisher** | ***Alcedo atthis*** | **1** | **2** | **50** | **-** | Not recorded in SPA | **23** | **-** | **-** |
| Kittiwake | *Rissa tridactyla* | - | 40 | Not recorded in study area | 11 | Not recorded study area | - | - | - |
| Knot | *Calidris canutus* | - | 6384.3 | Not recorded in study area | 3 | Not recorded study area | 13,613 | 160 | 5,300 |
| Lapwing | *Vanellus vanellus* | - | 217 | Not recorded in study area | - | Not recorded in SPA or study area | 42,514 | 850 | 72,300 |
| **Lesser black-backed gull** | ***Larus fuscus*** | **4** | **53.5** | **7.48** | **2** | **200** | **3,644** | **-** | **-** |
| **Light bellied brent goose** | ***Branta bernicla hrota*** | **28** | **3578.3** | **0.78** | **18.7** | **149.7** | **16,191** | **350** | **400** |
| **Little egret** | ***Egretta garzetta*** | **2** | **99.5** | **2.01** | **-** | Not recorded in SPA | **808** | **20** | **1,100** |
| **Little grebe** | ***Tachybaptus ruficollis*** | **1** | **4.5** | **22.2** | **-** | Not recorded in SPA | **1,242** | **20** | **4,700** |

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| Long-tailed duck | *Clangula hyemalis* | - | 1 | Not recorded in study area | - | Not recorded in SPA or study area | 52 | - | - |
| **Mallard** | ***Anas platyrhynchos*** | **4** | **133** | **3.01** | **-** | Not recorded in SPA | **8,098** | **280** | **53,000** |
| **Mediterranean gull** | ***Ichthyaetus melanocephalus*** | **40** | **14.8** | **270.3** | **1.5** | **2666.7** | **181** | **-** | **-** |
| **Moorhen** | ***Gallinula chloropus*** | **3** | **3.3** | **90.9** | **-** | Not recorded in SPA | **398** | **-** | **-** |
| Mute swan | *Cygnus olor* | - | 14.8 | Not recorded in study area | - | Not recorded in SPA or study area | 3,839 | 90 | 100 |
| **Oystercatcher** | ***Haematopus ostralegus*** | **50.6** | **2883** | **1.76** | **34** | **148.8** | **29,797** | **610** | **8,200** |
| Pintail | *Anas acuta* | - | 244 | Not recorded in study area | - | Not recorded in SPA or study area | 1,450 | 20 | 600 |

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| **Purple sandpiper** | ***Calidris maritima*** | **2.7** | **1** | **270** | **-** | Not recorded in SPA | **68** | **20** | **110** |
| **Red-breasted merganser** | ***Mergus serrator*** | **3** | **52.3** | **5.74** | **-** | Not recorded in SPA | **942** | **25** | **860** |
| **Redshank** | ***Tringa totanus*** | **12.5** | **2350.5** | **0.53** | **2** | **625** | **11,885** | **240** | **2400** |
| **Red-throated diver** | ***Gavia stellata*** | **2** | **3.3** | **60.6** | **1** | **200** | **258** | **20** | **3,000** |
| **Ringed plover** | ***Charadrius hiaticula*** | **24** | **158.5** | **15.14** | **-** | Not recorded in SPA | **3,743** | **120** | **540** |
| **Sanderling** | ***Calidris alba*** | **100** | **593.3** | **16.85** | **-** | Not recorded in SPA | **2454** | **85** | **2,000** |
| **Sandwich tern** | ***Thalasseus sandvicensis*** | **6** | **24.5** | **24.5** | **4.5** | **133.3** | **256** | **-** | **-** |
| **Shag** | ***Phalacrocorax aristotelis*** | **16.75** | **10.8** | **155.1** | **27.3** | **61.4** | **1,120** | **-** | **-** |
| Shelduck | *Tadorna tadorna* | - | 1769.5 | Not recorded in study area | 4 | Not recorded in study area | 6,515 | 100 | 2,500 |

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| Shoveler | *Spatula clypeata* | - | 117.8 | Not recorded in study area | - | Not recorded in SPA or study area | 2,767 | 20 | 650 |
| Snipe | *Gallinago gallinago* | - | 18.3 | Not recorded in study area | - | Not recorded in SPA or study area | 550 | - | - |
| Teal | *Anas crecca* | - | 1384.8 | Not recorded in study area | - | Not recorded in SPA or study area | 23,671 | 360 | 5,000 |
| **Turnstone** | ***Arenaria interpres*** | **33.8** | **313.5** | **10.78** | **8.3** | **407.2** | **1,612** | **95** | **1,400** |
| Water rail | *Rallus aquaticus* | - | - | Not recorded in study area | - | Not recorded in SPA or study area | 43 | - | - |
| Whimbrel | *Numenius phaeopus* | - | 1.7 | Not recorded in study area | - | Not recorded in SPA or study area | 100 | - | - |
| Whooper swan | *Cygnus cygnus* | - | 6 | Not recorded in study area | - | Not recorded in | 4,873 | 150 | 340 |

| Common name | Scientific name | Mean annual count at study area over last five winters 2018/19 – 2022/23[13] | Mean annual peak count for South Dublin Bay and River Tolka Estuary SPA & North bull Island SPA over last available three winters (2018/19 – 2020/21[14]) | % of study area population relative to South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA population | Mean annual peak count for Dalkey Island SPA over last available three winters (2018/19 – 2020/21[15]) | % of study area population relative to Dalkey Island SPA population | All-Ireland population peak count[16] | 1% population[17] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | National | International |
| | | | | | | SPA or study area | | | |
| Wigeon | *Mareca penelope* | - | 1286.8 | Not recorded in study area | - | Not recorded in SPA or study area | 41,504 | 560 | 14,000 |
| Yellow-legged gull | *Larus michahellis* | 1 | - | Not recorded in SPA | - | Not recorded in SPA | - | - | - |

## 3.2 Post-breeding Tern desktop data

3.2.1 Evidence of breeding and post-breeding terns was provided by BirdWatch Ireland at ITM coordinates 725297, 728184 (see Table 3-2 for details), located outside the study area. Whilst it is not known whether terns still use this location post-2018, common tern was recorded within the study area during field surveys. Therefore, any terns breeding in this known location could use the study area for foraging.

3.2.2 Regarding the BirdWatch Ireland data, common tern, Arctic tern, and sandwich tern were all recorded, with common tern and sandwich tern recorded more consistently between surveys. Note that one survey did not differentiate between the three species. Where species were differentiated, sandwich tern had the largest peak count across all visits (with 40), followed by 10 for common tern, two for Arctic tern and presence confirmed but no peak count given for roseate tern.

Table 3-2 Breeding tern data 2017/18 provided by BirdWatch Ireland

| Date | Total tern peak count | Common/ Arctic/ Roseate tern | Common tern | Arctic tern | Sandwich tern | Roseate tern |
|---|---|---|---|---|---|---|
| 21/08/2018 | 24 | N/A | 22 | N/A | 2 | N/A |
| 09/08/2018 | 195 | 185 | Yes | Yes | 10 | Yes |
| 17/08/2017 | 43 | N/A | 1 | 2 | 40 | N/A |
| 31/08/2017 | 11 | N/A | 10 | N/A | 1 | N/A |
| 30/08/2017 | 8 | N/A | 1 | N/A | 7 | N/A |
| 19/08/2017 | 32 | N/A | N/A | N/A | 32 | N/A |

## 3.3 Field survey

3.3.1 A total of 13 bird species were recorded by field surveys and of these, five are SCI species for nearby SPAs. Table 3-3 provides a summary of birds considered to be breeding/non-breeding at the Site, with full details of the field survey results provided in Table A3-2 and Table A3-3, in Annex 3. Key findings are discussed further below.

3.3.2 Black guillemots were confirmed to be breeding within the underside of Carlisle Pier within the study area, located at approximate ITM coordinates 724617, 728820, ca. 190 m from the development footprint. A peak count of 10 birds was recorded during the survey (see Figure 3).

3.3.3 Herring gull were confirmed to be breeding on the roof of the existing building immediately adjacent to the proposed O&M building at approximate ITM coordinates 724466, 728895 (see Figure 3). Two chicks were observed begging for food from an adult bird. This was the only species confirmed breeding that is also an SCI for nearby SPAs.

3.3.4 House martin *Delichon urbicum*, house sparrow *Passer domesticus* and starling *Sturnus vulgaris* were assessed as possibly breeding within the study area due to their presence in suitable nesting habitat. A remaining eight species were recorded as non-breeding within the study area.

3.3.5 Other relevant ornithological observations included large numbers (c. 500 individuals) of starlings roosting on structures at the end of St Michael's pier, c. 200 m from Dún Laoghaire harbour.

Table 3-3 Breeding status for birds identified on the site/within the study area

| Species | Breeding Status[18] | Justification | SCI From Nearby SPA |
|---|---|---|---|
| **Black guillemot** | **Confirmed breeding** | **Repeated returning to nest sites with food, and begging chicks heard** | **No** |
| Common guillemot *Uria aalge* | Non-breeding | Only single individuals observed foraging recorded during surveys | Yes – Ireland's Eye SPA 004117 |
| Common tern | Non-breeding | Foraging within harbour waters. No breeding behaviours observed | Yes - South Dublin Bay and River Tolka Estuary SPA |
| Cormorant | Non-breeding | Likely use the coastal structures and buildings for roosting, but no evidence of nesting behaviours observed | Yes – Ireland's Eye SPA |
| Gannet *Morus bassanus* | Non-breeding | Flyover | No |
| Grey heron | Non-breeding | Flyover | No |
| Goldfinch *Carduelis carduelis* | Non-breeding | Sighting made within habitat of negligible nesting value. No breeding behaviours observed | No |
| **Herring gull** | **Confirmed breeding** | **Chicks observed on the roof of existing building begging for food from adult birds** | **Yes – Ireland's Eye SPA** |
| House martin | Possible breeding | Historical nesting observed. None found to be in use at the time of the surveys | No |
| House sparrow | Possible breeding | Multiple birds heard in suitable nesting habitat | No |
| Linnet *Linaria cannabina* | Non-breeding | Incidental sighting within habitat of negligible nesting value. No breeding behaviours observed | No |
| Oystercatcher | Non-breeding | Flyover | Yes - South Dublin Bay and River Tolka Estuary SPA; North Bull Island SPA |

18 Species confirmed breeding are shown in bold

| Species | Breeding Status[18] | Justification | SCI From Nearby SPA |
|---|---|---|---|
| Starling | Possible breeding | Breeding unconfirmed on the Site. Whilst significant numbers of roosting starlings were observed on coastal structures, it is unlikely that suitable nesting features within the Site could support a breeding population of this size. The presence of small numbers of breeding starling cannot be discounted | No |

# 4 Discussion and conclusions

## 4.1 Desktop data

### Internationally important birds

4.1.1 No species have been recorded by IWeBS within the study area in internationally important numbers.

### Nationally important birds

4.1.2 A total of three species were recorded by IWeBS within the study area in internationally important numbers: dunlin, great crested grebe and sanderling. There is a potential overestimation of the study site population this arises in consideration that the IWeBS subsites used comprised of larger areas than the study area. The data sets for the study site and national populations are not directly comparable due to differences in timescales used for data collection.

### SPA populations

4.1.3 Bird populations within the study area are discussed in the context of relevant SPA populations below.

4.1.4 While many species found in the study area were not recorded in nationally important numbers, they are likely to form part of nationally and internationally important populations within the overall Dublin Bay area, spanning multiple SPAs.

4.1.5 Note that a degree of caution is required when comparing the numbers of individual birds recorded in the study area versus the populations nearby SPAs is difficult, because it does not account for the density of birds. Ideally, the number of birds per length of foreshore should be calculated for each spatial unit. Unfortunately, IWeBS data are not spatially explicit enough to undertake this procedure.

#### South Dublin Bay and River Tolka Estuary SPA/North Bull Island SPA

4.1.6 In total, 28 bird species had populations within the study area that comprised important parts of the combined South Dublin Bay and River Tolka Estuary SPA x North Bull Island SPA populations including: black-headed gull, black-tailed godwit, common gull, common scoter, common tern, cormorant, dunlin, great black-backed gull, great crested grebe, greenshank, grey heron, herring gull, kingfisher, lesser black-backed gull, little egret, little grebe, mallard, Mediterranean gull, moorhen, oystercatcher, purple sandpiper, red-breasted merganser, red-throated diver, ringed plover, sanderling, sandwich tern, shag, and turnstone.

### Dalkey Island SPA

4.1.7 In total, 18 bird species had populations within the study area that comprised important parts of the Dalkey Island SPA population including: black-headed gull, common gull, common scoter, cormorant, cormorant, great black-backed gull, greenshank, grey heron, herring gull, lesser black-backed gull, light-bellied brent goose, Mediterranean gull, oystercatcher, redshank, red-throated diver, sandwich terns, shag, and turnstone.

## 4.2 Field survey

4.2.1 Dedicated field surveys showed that black guillemot are using Carlisle Pier which is adjacent to St. Michaels pier where it's proposed to construct the proposed O&M Base, for breeding and the surrounding marine habitats for foraging (see Figure 3). The peak count of black guillemot was 10 birds, suggesting that potentially 10 nesting pairs may be present (Walsh et al., 1995). Black guillemot were not recorded using St Michael's Pier for nesting or breeding.

4.2.2 Black guillemot are not considered an SCI species for any nearby SPAs. However, they are amber-listed[19] according to the Birds of Conservation Concern in Ireland (BoCCI4) assessment.

4.2.3 Herring gull chicks were recorded on the roof of the existing building adjacent to the proposed O&M Base, indicating that gulls do use the roof for nesting and breeding.

4.2.4 Herring gull are an SCI species for Ireland's Eye SPA and are amber-listed[19].

4.2.5 The existing buildings at the site/location of the proposed O&M Base were found to support historical nest sites for house martin. Whilst the nests were inactive during the survey, house martin were recorded in the area on both survey dates. Therefore, their use of the Site for breeding purposes cannot be fully discounted, they may return to breed at this location in the future.

4.2.6 House martin are not considered an SCI species for nearby SPAs; however, they are an amber-listed species[19].

4.2.7 St Michael's Pier was also found to support significant numbers of roosting starling with ca. 500 birds recorded roosting on the structure at the end of the pier. Starlings are not considered an SCI species for nearby SPAs; however, they are an amber-listed species[16].

4.2.8 Starlings will opportunistically use artificial structures with crevices and entrance holes for nesting purposes. These features do exist within the study area. potential breeding locations are limited in number in the study area, and it is considered unlikely that a breeding colony of ca. 500 birds could be supported. Therefore, it is assessed that while starlings could possibly breed in the study area, its likely to only be in low numbers.

4.2.9 Numerous house sparrow were heard within ornamental shrub habitats within the study area. House sparrows are not considered an SCI species for nearby SPAs; however, they are an amber-listed species[19]. Given the limited vegetation within the study area, it is anticipated that house sparrow likely use these isolated vegetated habitats for breeding purposes.

19 Gilbert, G., Stanbury, A. and Lewis, L., 2021. Birds of Conservation Concern in Ireland 4: 2020-2026.

4.2.10 In addition, the surrounding marine and terrestrial habitats were found to support a range of other amber-listed birds, which are considered likely to use the study area for foraging and roosting purposes including: common guillemot, common tern, gannet, and great cormorant.

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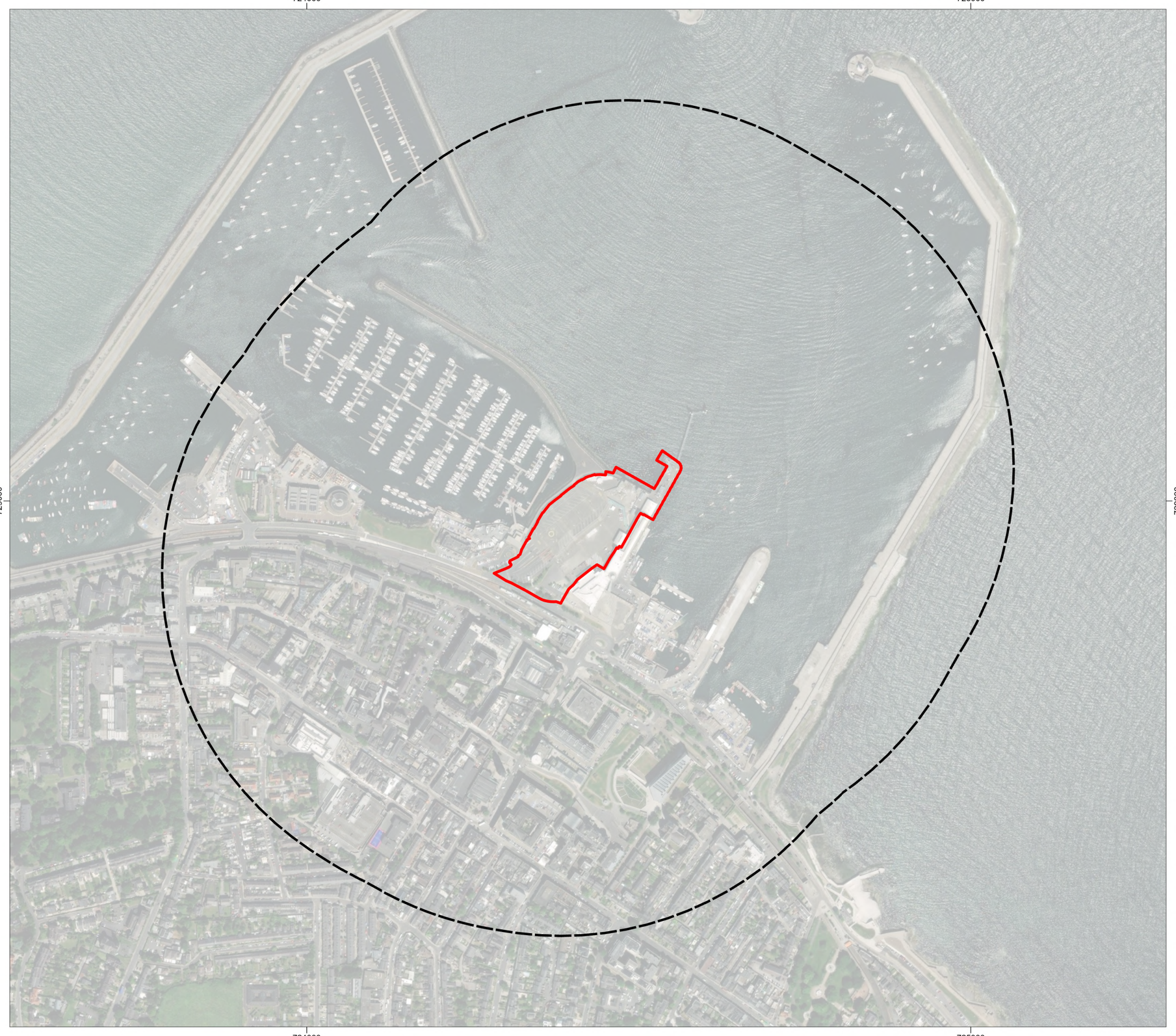



Operations and Maintenace Planning Boundary (O&M Base)

O&M Base 500m Study Area

DRAWING STATUS

**PUBLIC**

DISCLAIMER



MAP NOTES / DATA SOURCES:

Maxar, Microsoft, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS ©Ordnance Survey Ireland 2023 © Tailte Eireann. (CYSL50270365) Not to be used for Navigation.
Irish National Soils Map, 1:250,000k, V1b(2014) Teagasc, Cranfield University.Jointly funded by the EPA STRIVE Research Programme 2007-2013 and Teagasc

PROJECT TITLE

**Dublin Array**

DRAWING TITLE

**O&M Base Onshore Birds: Study Area**

DRAWING NUMBER: **Figure 1**

PAGE NUMBER: **1 of 1**

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| 02 | 2025-02-17 | PUBLIC | JK | AB | AE |
| | | | | | |
| | | | | | |
| | | | | | |

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0 125 250 375 500 Feet

N GRID NORTH

SCALE 1:6,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

SLR

Dublin Array Generation for generations

Kish Offshore Wind Limited - Bray Offshore Wind Limited



Operations and Maintenace Planning Boundary (O&M Base)

O&M Base 500m Study Area

Irish Wetland Bird Survey Boundary (2027)

DRAWING STATUS

**PUBLIC**

DISCLAIMER



MAP NOTES / DATA SOURCES:



PROJECT TITLE

**Dublin Array**

DRAWING TITLE

**O&M Base Onshore Birds:IWeBS Subsites**

DRAWING NUMBER: **Figure 2**

PAGE NUMBER: **1 of 1**

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| 02 | 2025-02-17 | PUBLIC | JK | AB | AE |

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0 125 250 375 500 Feet

GRID NORTH

SCALE 1:6,000 PLOT SIZE A3

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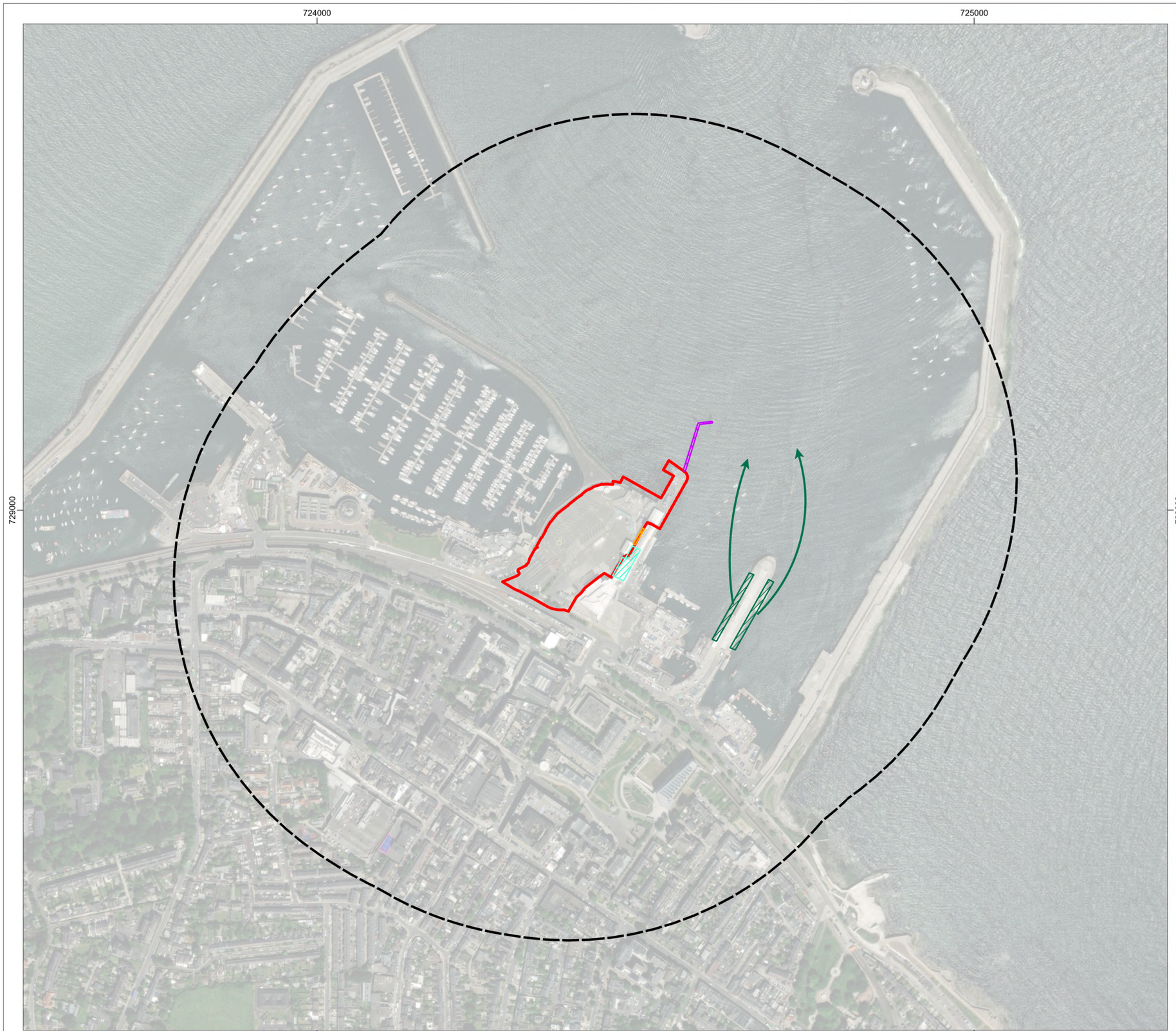
PRJ IRENET95 Irish Transverse Mercator

SLR

Dublin Array
Generation for generations

Kish Offshore Wind Limited - Bray Offshore Wind Limited





- Operations and Maintenace Planning Boundary (O&M Base)
- O&M Base 500m Study Area
- Black Guillemot Flightlines
- Black Guillemot Nesting Area
- House Marten Nesting
- Herring Gull Nesting Area
- Starling Roosting Area

DRAWING STATUS

**PUBLIC**

DISCLAIMER



MAP NOTES / DATA SOURCES:



PROJECT TITLE

**Dublin Array**

DRAWING TITLE

**O&M Base Onshore Birds:Survey Results**

DRAWING NUMBER: **Figure 3**

PAGE NUMBER: **1 of 1**

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| 02 | 2025-02-17 | PUBLIC | JK | AB | AE |

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0 125 250 375 500 Feet

N GRID NORTH

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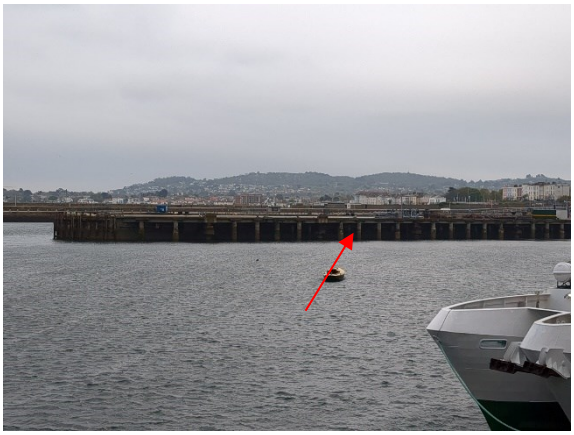
DATUM IRENET95 VERTICAL REF. OSNVLAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

SLR

Dublin Array
Generation for generations
Kish Offshore Wind Limited - Bray Offshore Wind Limited

# Annex 1 Site Photographs

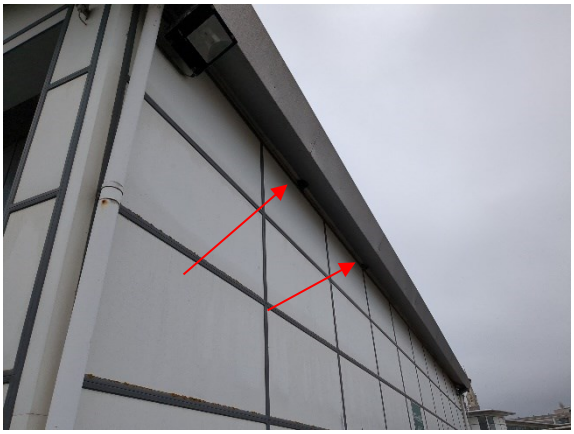


Photograph 1 Carlisle pier, with the PNA access points show underneath

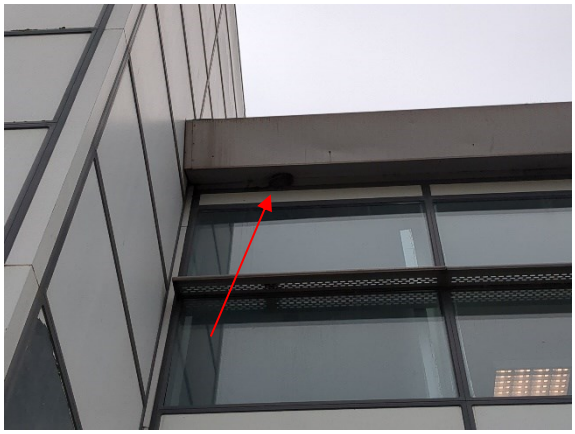
Photograph 2 Ledges underneath the overhang provides potential nesting opportunities


Photograph 3 Offsite amenity grassland/ornamental shrub where incidental sightings of linnet and goldfinch were recorded

Photograph 4 Ornamental shrub supporting house sparrow



Photograph 5 Two historical inactive house martin nesting locations on existing buildings (observed 27/04/2023)



Photograph 6 Historical inactive house martin nesting locations on existing buildings (observed 27/04/2023)

Photograph 7 Structure at end of St. Michael's pier, supported roosting starlings

Photograph 8 Existing building on top of which herring gull chicks were recorded as present

# Annex 2 Special protection areas

Table A2-1 Designated sites for ornithological importance within 15 km of the O&M base.

| Site name | Site code | Distance to O&M base (km) | Qualifying interests (population type)[20] |
|---|---|---|---|
| South Dublin Bay and River Tolka Estuary SPA | 004024 | 0.7 | Birds<br>▪ A046 light-bellied brent goose (w)<br>▪ A130 oystercatcher (w)<br>▪ A137 ringed plover (w)<br>▪ A141 grey plover (w)<br>▪ A143 knot (w)<br>▪ A144 sanderling (w)<br>▪ A149 dunlin (w)<br>▪ A157 bar-tailed godwit (w)<br>▪ A162 redshank (w)<br>▪ A179 black-headed gull (w)<br>▪ A192 roseate tern *Sterna dougallii* (c)<br>▪ A193 common tern (c)<br>▪ A194 arctic tern (c)<br>Habitats<br>▪ Wetlands |
| Dalkey Island SPA | 004172 | 3.1 | ▪ Birds<br>▪ A192 roseate tern (c/r)<br>▪ A193 common tern (c/r)<br>▪ A194 Arctic tern (c/r) |
| North Bull Island SPA | 004006 | 5.4 | Birds<br>▪ A046 light-bellied brent goose (w)<br>▪ A048 shelduck (w)<br>▪ A052 teal (w)<br>▪ A054 pintail (w)<br>▪ A056 shoveler *Anas clypeata* (w)<br>▪ A130 oystercatcher (w)<br>▪ A140 golden plover (w)<br>▪ A141 grey plover (w)<br>▪ A143 knot (w)<br>▪ A144 sanderling (w)<br>▪ A149 dunlin (w)<br>▪ A156 black-tailed godwit *Limosa limosa* (w)<br>▪ A157 bar-tailed godwit (w)<br>▪ A160 curlew Numenius arquata (w)<br>▪ A162 redshank (w)<br>▪ A169 turnstone Arenaria interpres (w)<br>▪ A179 black-headed gull (w)<br>Habitats<br>▪ Wetlands |

20 (c): Concentration; (r): Reproducing; (w): Wintering

| Site name | Site code | Distance to O&M base (km) | Qualifying interests (population type)[20] |
|---|---|---|---|
| Howth Head Coast SPA | 004113 | 8.8 | Birds<br>▪ A188 kittiwake (r) |
| Baldoyle Bay SPA | 004016 | 10.6 | Birds<br>▪ A046 light-bellied brent goose (w)<br>▪ A048 shelduck (w)<br>▪ A137 ringed Plover (w)<br>▪ A140 golden Plover (w)<br>▪ A141 grey Plover(w)<br>▪ A157 bar-tailed godwit (w)<br>Habitats<br>▪ Wetlands |
| Ireland's Eye SPA | 004117 | 11.9 | Birds<br>▪ A017 cormorant (r)<br>▪ A184 herring Gull (N/A)<br>▪ A188 kittiwake (r/w)<br>▪ A199 guillemot *Uria aalge* (r/w)<br>▪ A200 razorbill *Alca torda* (r/w) |
| Wicklow Mountains SPA | 004040 | 12.2 | Birds<br>▪ A098 merlin Falco columbarius<br>▪ 103 peregrine Falco peregrinus |

# Annex 3 Field survey results

5.1.1 Table A3-2 details the birds recorded on the O&M Base on 27/04/2023.

Table A3-2 Survey results 27/04/2023

| Time | Species | Peak count | Details |
|---|---|---|---|
| 08:49 | Black guillemot | 2 | On water close to Carlisle Pier<br>Potential nesting areas (PNA) recorded on underneath of concrete overhang of structure (see Photographs 1 & 2) |
| 08:51 | Gannet | 1 | Flyover |
| 08:52 | Guillemot | 1 | On water |
| 08:53 | Cormorant | 9 | On the structure located at the end of St. Michael's pier |
| 09:00 | Black guillemot | 2 | On water |
| 09:00 | Black guillemot | 3 | On water, then appeared to land in the PNA |
| 10:03 | Linnet | 4 | Perched on tree within offsite amenity area (see Photograph 3) |
| 10:08 | Starling | 4 | Foraging on grassland |
| 10:09 | Goldfinch | 2 | Recorded within offsite amenity area (see Photograph 3) |
| 10:09 | Linnet | 1 | Flyover |
| 10:09 | House sparrow | N/A | Heard calling within ornamental shrub (see Photograph 4). Several birds heard. |
| N/A | House martin | N/A | Historical nest sites recorded on aspects of the existing buildings (see Photographs 5 & 6). |

5.1.2 Table A3-3 details the results of the nesting seabird survey undertaken on the O&M Base on 11/07/2023.

Table A3-3 Survey results 11/07/2023

| Time | Species | Count (peak count) | Notes (flight arrow reference number[21]) |
|---|---|---|---|
| 05:00 | Starling | Ca. 500 | Using the structure at the end of St. Michael's pier for roosting (see Photograph 7) |
| 05:15 | Black guillemot / Oystercatcher | 1 | Flying out to sea from DLH (1) |
| 05:20 | Black guillemot | 7 | 6 x on water and 1 x recorded on a ledge underneath the overhang on the pier (i.e., the potential nesting area (PNA)) (2) |
| 05:25 | Black guillemot | 3 | Returning from sea and landing in the PNA (1) |
| 05:25 | Oystercatcher | 1 | Flyover |

21 Note that the same flight line reference numbers have been used where similar flight patterns were recorded.

| Time | Species | Count (peak count) | Notes (flight arrow reference number[21]) |
|---|---|---|---|
| 05:27 | Black guillemot | 2 | 2 x returning on the far side of PNA (1) |
| 05:29 | Common tern | 3 | Returning from sea with food to the PNA (1) |
| 05:32 | Black guillemot | 1 | 1 x returning & landing in the PNA (3) |
| 05:34 | Black guillemot | 1 | 1 x attempted to land in the PNA (2) |
| 05:36 | Black guillemot | 3 | 1 x return from sea to the PNA (1); 2 x leaving the PNA and headed to sea (5) |
| 05:43 | Common tern | 8 | Foraging over eastern pier |
| 05:43 | Black guillemot | 3 | 2 x leaving PNA to sea (1) / 1 x return to PNA (3) |
| 05:55 | Cormorant | 3 | Perched on end of St. Michael's Pier |
| 05:57 | Black guillemot | 3 | 2 x leaving PNA to sea (1) / 1 x return to PNA (3) |
| 05:59 | Black guillemot | 4 | 2 x return from sea to the PNA (3) / 2 x observed within PNA on horizontal beams / Potential begging heard |
| 06:04 | Black guillemot | 1 | 1 x return from sea to the PNA (4) |
| 06:09 | Black guillemot | 1 | 1 x leaving PNA to sea (3) |
| 06:10 | Black guillemot | 3 | 3 x on water and 1 x return to PNA (2) |
| 06:35 | Black guillemot | 1 | Leaving PNA (1) |
| 06:38 | Black guillemot | 1 | 1 return to PNA with food. Begging heard shortly after return (3) |
| 06:40 | Black guillemot | 1 | Possibly the same bird as above left the PNA (1) |
| 06:42 | Black guillemot | 1 | 1 x return to PNA with food. Begging heard shortly after return (3) |
| 06:45 | Black guillemot | 3 | 2 x return to PNA with food (3)/1 x left PNA to sea (1) |
| 06:48 | Herring gull | 3 | Chicks recorded on the roof of the existing building, begging at adult birds (see Photograph 8) |
| 06:51 | Black guillemot | 2 | 2 x return to PNA with food (3) |
| 06:53 | Black guillemot | 1 | Leaving PNA (5) |
| 06:56 | Black guillemot | 1 | Return with food (3) |
| 06:57 | Black guillemot | 2 | Return to PNA (3) |
| 07:01 | Black guillemot | 1 | Leaving PNA (1) |
| 07:08 | Black guillemot | 1 | Return to PNA (3) |
| 07:10 | Black guillemot | 2 | Landed on water (6) |
| 07:11 | Black guillemot | 3 | Return to PNA (3) |

| Time | Species | Count (peak count) | Notes (flight arrow reference number[21]) |
|---|---|---|---|
| 07:18 | Black guillemot | 6 | 6 x on water before 2 x returned to PNA (2) |
| 07:18 | Black guillemot | 4 | Left PNA (2) |
| 07:26 | Grey heron | 1 | Flyover south |
| 07:28 | Black guillemot | 1 | Return to PNA (3) |
| 07:31 | Black guillemot | 1 | Return to PNA (4) |
| 07:33 | Black guillemot | 3 | 2 x return to PNA (3)/1 x return to PNA (4) |
| 07:37 | Black guillemot | 9 | On water (2) |
| 07:38 | Black guillemot | 1 | Return to PNA (3) |
| 07:43 | Black guillemot | 2 | Return to PNA with food (3) |
| 07:50 | Black guillemot | 2 | Return to PNA (3) |
| 07:56 | Guillemot | 1 | On water (7) |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