

Assessment of the Potential of Collision Risk for Birds

St. Joseph's House and Adjoining Properties Strategic Housing Development, Dublin 18.

Report Prepared for: Homeland Silverpines Ltd.

Report Prepared by: Ecology Ireland Wildlife Consultants Ltd.

1. Introduction

Homeland Silverpines Ltd. commissioned Dr. Gavin Fennessy of Ecology Ireland Wildlife Consultants Ltd. to consider the potential for bird collision at a proposed strategic housing development “St. Joseph’s House and Adjoining Properties SHD” on the Leopardstown Road in Dublin 18.

Dr Fennessy is a professional ecologist with over 20 years’ of experience in consultancy. He is the Managing Director of Ecology Ireland Ltd. which he established in 2011. Dr Fennessy has a background in Ornithology and carried out Post-Doctoral Research on Bird Strike Hazard, collision risk management and bird avoidance behaviour. Dr Fennessy is a member of the National Bird Strike Committee and has been retained by Dublin Airport Authority to advise on bird hazard management at the airport. Dr Fennessy is additionally a member of the Policy Group of the Irish section of the Chartered Institute of Ecology & Environmental Management.

2. Assessment

2.1 Background to Bird Collision Risk

At the outset it is acknowledged that any above ground structure, including the proposed buildings pose a potential collision risk to birds. However, this risk needs to be explored and understood in relation to the proposed development site and the ecology of the species of interest in this part of Ireland.

There is a distinction between locally commuting birds and long-distance migration flights. Birds, including many wintering waterbirds typically fly at altitudes in excess of 600m above ground level when on migration and should have negligible direct risk of collision with man-made structures. Migration of birds in Ireland in the spring and autumn is concentrated mainly on the coast. In spring small songbirds, mainly flying at night, arrive on the South and East coasts and then spread throughout the country, while migrant birds on passage tend to continue northwards along the East coast. At the same time of year, large numbers of seabirds return from the open seas to coastal cliffs and offshore islands to breed. In autumn, songbirds from Iceland/Greenland, Scotland, Scandinavia etc. arrive in large numbers along the North and North-West coasts and concentrations are again found on the South-East coasts as some bird species depart from the country. Numbers on passage are far greater in autumn than in spring. The largest concentrations of wading birds are found mainly in the larger estuaries all around the coast in spring and autumn, although some species (e.g. Curlew) are found in substantial concentrations at a number of inland sites. The main migratory arrivals in Autumn are on the North and North-West coasts and on the East coast. Swans and Geese are tracked migrating at height of greater than 750m above ground on these coasts in October and November and again from the end of February to the end of April (Irish Aviation Authority, Integrated Aeronautical Information Package).

There is a lack of hard data on collision mortality rates of birds with buildings in Ireland. Much of what is known in relation to such mortality events is related to mass mortality of birds with tall structures in major urban centres in North America. For many reasons, it would be unsafe to extrapolate from events on a different continent, where the scale of the bird migration and the cities in question are

not readily comparable to the current project. Even the estimates of bird mortality with buildings quoted for parts of the world where there is some collected data, are crude relying on many underlying assumptions.

It is known and it is accepted that birds collide with buildings. It is also known that many of these collisions actually take place by day when migratory birds attracted in by the city-lights are disoriented and collide with structures as they seek to navigate the novel surroundings the following morning (<https://www.massaudubon.org/learn/nature-wildlife/birds/bird-window-collisions>). Buildings and indeed any above ground structure (e.g. Pylons, Cables, Wind Turbines) may present a certain collision risk. Some bird collisions with buildings will result in mortality, others will not. Some birds will fall victim to predation post-collision, while stunned. There is obvious difficulty in collating accurate figures of bird mortality with buildings. However, there has been a lack of mass mortality events reported in this country. It is highly unlikely that were such events commonplace that they would go unreported. It is much more likely, as is the case with wind turbines where bird mortality rates are monitored, that birds collide with tall buildings at a relatively low rate. The Bird Migration Atlas (Wernham *et al.* 2002) to which Dr. Fennessy contributed, examined the main reported sources of bird mortality based on returns of bird-rings. For many species, the most significant sources of mortality were associated with cats and cars. Cats alone have been estimated to be responsible for the deaths of up to 4 billion birds annually in the USA (Loss *et al.* 2013).

2.2 St. Joseph's House and Adjoining Properties SHD

The applicant has supplied detailed site plans and computer-generated imagery showing the nature and extent of the proposed development within the receiving environment. In addition, the applicant has supplied details of the material finish and lighting design of the proposed development. As well as the refurbishment of St. Joseph's House (2-storeys) we understand the project will involve the construction of five blocks of apartments ranging in height from 3-10 storeys.

We have been asked to consider and comment on the prospect of bird collisions with the new buildings especially in the context of any Special Conservation Interest species that may occur locally.

Birds on migration are unlikely to collide with the proposed structures, which are relatively low relative to the typical altitude at which birds migrate and several kilometres inland from the coast in a built-up urban area. The bird populations somewhat more likely to be potentially affected by the presence of any relatively tall building are those that are present locally, commuting between feeding and roosting sites. The proposed SHD site is setback from the coast and major watercourses and is located in an urban centre illuminated at night. The visibility of structures in the urban environment would be expected to reduce the likelihood they would be a source of significant collision mortality with birds, even those moving locally in the hours of darkness.

The distribution of the bird species relates largely to their habitat requirements and general ecology. The SCI species for the local SPA sites are mostly wintering wildfowl and wading bird species that occur widely around the coast. The Screening Stage report in support of the Appropriate Assessment (AA) process for this development shows that there are a total of six SPA sites located within 15km of the application boundary. Of these, the closest sites are South Dublin Bay & River Tolka Estuary SPA (004024; 3.3km) and Dalkey Island SPA (004172; 6.7km). None of these conservation sites are proximate to the proposed development site.

Collision risks with built structures are believed to be highest amongst "heavy wing loading" species such as geese other large and flocking birds. These risks may be increased where birds undertake daily movements during the hours of dusk and dawn commuting between foraging and roost sites.

Most of the high conservation value species spend the majority of their time within the coastal and marine environment, availing of the foraging and roosting sites within the SPA complex. Certain SCI species e.g. Light-bellied Brent Geese, *Branta bernicla hrota*, have increasingly made use of inland sites in Co. Dublin to feed on amenity grassland. They have become adept at navigating in an urban environment and their successful exploitation of inland grazing sites has coincided with a significant and prolonged increase in their population. There is no evidence that they suffer significant losses as a result of collision with vehicles, power lines or structures. Intensive surveys of inland Brent Goose feeding sites in Dublin have been carried out in recent years. These have identified the sites, mostly parkland and playing fields, used with any regularity by foraging Brent Geese (e.g. as described in the NIS prepared in relation to a proposed SHD development near St. Paul's College, Raheny: ABP 305680). The foraging sites identified were concentrated in areas to the centre and north of the urban centre. A few foraging sites were recorded somewhat closer to Leopardstown, with the playing fields of Naomh Olaf CLG situated closest to the proposed development site (c. 1.6km distant). The other inland foraging sites located within 5km of the site include the lands around Blackrock Park/Williamstown Castle (c. 3.2km) and at Kilbogget Park/Cabinteely Football Club (c. 4.0km). None of these sites are located close to the St. Joseph's House and Adjoining Properties SHD and there is no expectation that the development at the site will change the pattern of usage, or in any way significantly alter the collision risk profile of Brent Geese moving to and from preferred inland feeding sites.

As there is, and will not be, any significant amount of foraging or roosting potential on site for such species it is unlikely that many of the SCI species will occur on site. It is possible that more mobile species, may commute across the site, flying through, or over the site, while moving from one area of local resource to another. Such species are adept at navigating around our cities and would be expected to rapidly habituate to the presence of new structures in their environment.

The design of the St. Joseph's House and Adjoining Properties SHD has not included features that would increase the risk of attracting and disorienting birds flying overhead. The lighting is low-level and directional and the materials used in the tall structures do not present the glass-wall high-reflective finish that has been shown to increase collision risk for certain bird species. Given the location and scale of the development and the nature of the receiving environment there is no obvious concern in relation to bird collision risk at the proposed development site.