

Ecological Impact Assessment
of a proposed development at
Bluebell Avenue,
Bluebell Industrial Estate, Dublin 12

Planning Reference: SD21A/0329

Compiled by OPENFIELD Ecological Services

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1 INTRODUCTION

This Ecological Impact Assessment has been prepared by Pádraic Fogarty of OPENFIELD Ecological Services. Pádraic Fogarty has worked for 25 years in the environmental field and in 2007 was awarded an MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EclA) in Ireland. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA).

2 STUDY METHODOLOGY

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Institute of Ecology and Environmental Management (IEEM, 2018).

A site visit was carried out on the 14th of March 2022 in fair weather. The site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

The nomenclature for vascular plants is taken from *The New Flora of the British Isles* (Stace, 2010) and for mosses and liverworts *A Checklist and Census Catalogue of British and Irish Bryophytes* (Hill et al., 2009).

March lies outside the optimal period for general habitat surveys (Smith et al., 2010) but due to the highly modified nature of the development site it was nevertheless possible to classify all habitats on the site to Fossitt level 3. March lies within the season for surveying breeding birds, amphibians and large mammals.

A separate bat survey was carried out by Brian Keeley of Wildlife Surveys Ireland.

3 EXISTING RECEIVING ENVIRONMENT

3.1 Zone of Influence

Best practice guidance suggests that an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995). However, some impacts are not limited to this distance and so sensitive receptors further from the project footprint may need to be considered as this assessment progresses. The development site location is shown in figure 1. Hydrological pathways lead to Dublin Bay and there are a number of protected areas for nature conservation in this area.

There are a number of designations for nature conservation in Ireland including National Park, National Nature Reserve, RAMSAR site, UNESCO Biosphere reserves, Special Protection Areas (SPA – Birds Directive), Special Areas of Conservation (SAC – Habitats Directive); and Natural Heritage Areas. The mechanism for these designations is through national or international legislation. Proposed NHAs (pNHA) are areas that have yet to gain full legislative protection. They are generally protected through the relevant County Development Plan. There is no system in Ireland for the designation of sites at a local, or county level.

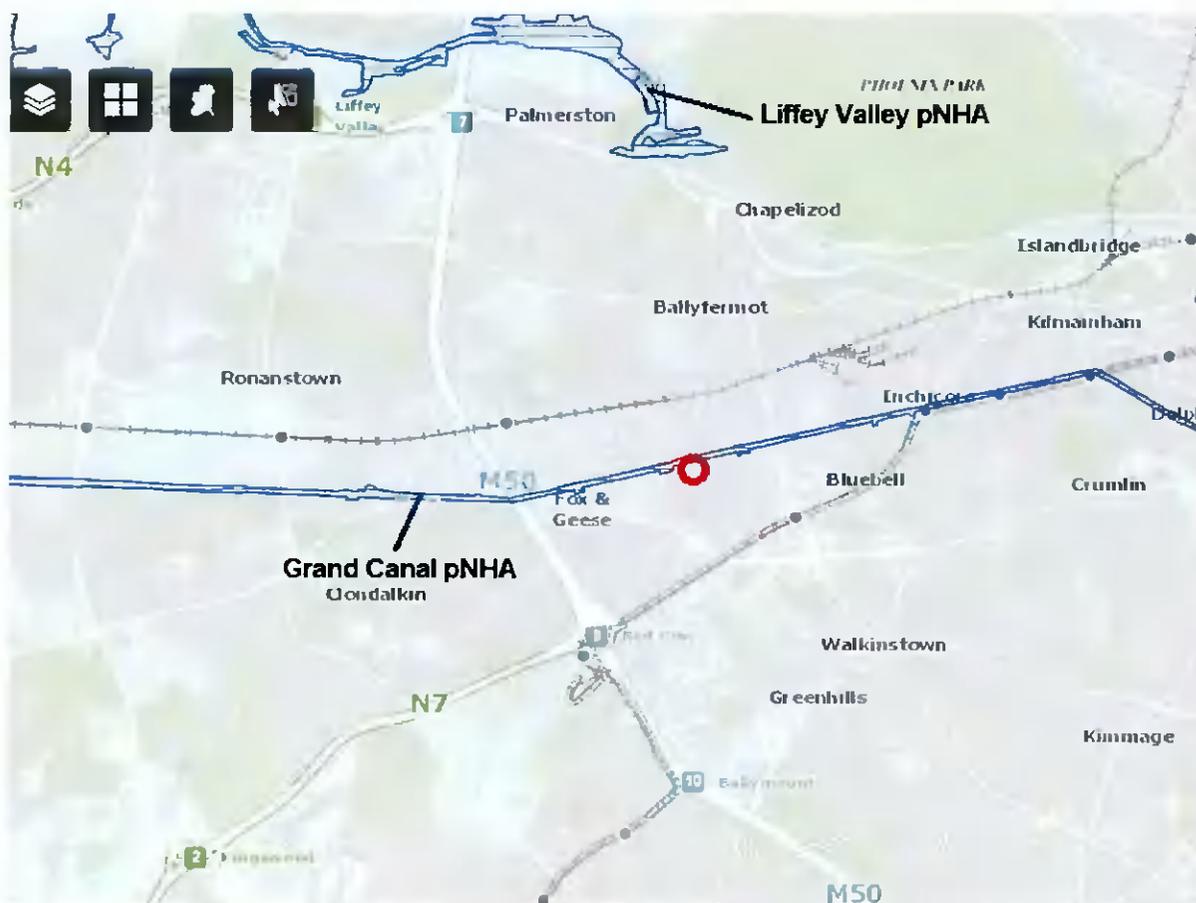


Figure 1 – Location of proposed site (red cross) showing nearby areas of nature conservation value (www.npws.ie).

The following areas were found to be located within the zone of influence of the application site:

Grand Canal pNHA (site code: 2104): The Grand Canal was constructed in the 18th century and links Dublin to the River Shannon. It is a nationally valuable wildlife corridor and is home to a wide range of plants and animals, many of conservation value, including the Otter *Lutra lutra*.

Liffey Valley pNHA (site code: 0128): The steeply-sloped and wooded valley of the River Liffey between Leixlip and Chapelizod is the extent of this pNHA. The River Liffey holds a population of Atlantic Salmon while woodland areas provide a semblance of semi-natural habitats along with rare or threatened plant species (NPWS, unknown year).

South Dublin Bay SAC/pNHA (side code: 0210; c.850m from the development site) is concentrated on the intertidal area of Sandymount Strand. It has one qualifying interest (i.e. feature which qualifies the area as being of international importance) which is mudflats and sandflats not covered by seawater at low tide.

North Dublin Bay SAC/pNHA (site code: 0206); 6.3km from the development site) is focused on the sand spit on the North Bull island.

South Dublin Bay and Tolka Estuary SPA (side code: 4024; c.850m from the development site) is largely coincident with the SAC boundary with the exception of the Tolka Estuary.

The **North Bull Island SPA** (site code: 0206; c.4.7km from the development site) is largely coincident with the North Dublin Bay SAC with the exception of the terrestrial portion of Bull Island. Table 1 lists the features of interest for these SPAs.

Dublin Bay is recognised as an internationally important site for water birds as it supports over 20,000 individuals. Table 2 shows the most recent count data available (Crowe et al., 2011).

Table 1 – Features of interest for both the South Dublin Bay and Tolka Estuary SPA and the North Bull Island SPA in Dublin Bay (EU code in square parenthesis)

Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]
Grey Plover (<i>Pluvialis squatarola</i>) [A140]
Knot (<i>Calidris canutus</i>) [A143]

Sanderling (<i>Calidris alba</i>) [A144]
Dunlin (<i>Calidris alpina</i>) [A149]
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]
Redshank (<i>Tringa totanus</i>) [A162]
Black-headed Gull (<i>Croicocephalus ridibundus</i>) [A179]
Roseate Tern (<i>Sterna dougallii</i>) [A192]
Common Tern (<i>Sterna hirundo</i>) [A193]
Arctic Tern (<i>Sterna paradisaea</i>) [A194]
Wetlands & Waterbirds [A999]

The NPWS web site (www.npws.ie) contains a mapping tool that indicates historic records of legally protected species within a selected Ordnance Survey (OS) 10km grid square. The subject site is located within the square O13 and six species of protected flowering plant are highlighted. These species are detailed in Table 3. It must be noted that this list cannot be seen as exhaustive as suitable habitat may be available for other important and protected species.

Table 3 – Known records for protected species within the O13 10km square

Species	Habitat	Current status
<i>Groenlandia densa</i> Opposite-leaved Pondweed	Rivers, canals and estuarine mud	Current
<i>Galeopsis angustifolia</i> Red Hemp-nettle	Calcareous gravels	Record pre-1970
<i>Hordeum secalinum</i> Meadow Barley	Upper parts of brackish marshes, chiefly near the sea	
<i>Puccinellia fasciculata</i> Borrer's salt-marsh grass	Muddy inlets on the coast	
<i>Hypericum hirsutum</i> Hairy St. John's-wort	Woods and shady places	Current
<i>Viola hirta</i> Hairy Violet	Sand dunes, grasslands, limestone rocks	

In summary it can be seen that of the six species only three records remain current. Opposite-leaved Pondweed was recorded as being 'common in the Grand Canal' in the *Flora of County Dublin* (Doogue et al., 1998). This source elaborates that the plant was "scattered along the Grand Canal at Dolphin's Barn from Portobello to Charlemont Bridge, and between Drimnagh and Kilmainham." Hairy Violet is

recorded from “Calcareous grassland at the Magazine Fort in the Phoenix Park” while Hairy St. John’s-wort is recorded from “the River Liffey at Knockmaroon.”

Water quality in rivers is monitored on an on-going basis by the Environmental Protection Agency (EPA). The proposed development site is located within the Liffey river system. Natural hydrological pathways have been severely disrupted in this area due to sealing of soil and the installation of networks of sewers. Nevertheless, maps from the EPA show no natural water courses in the immediate vicinity of the site. The River Camac can be found c.580m to the south-west, where it is culverted under John F. Kennedy Avenue. The nearest open stretch of this river is at the Kilmore Road, c. 660m to the east. The direction of flow of is towards the north and east, where it enters the River Liffey in Dublin City Centre. The River Camac has been assessed as ‘poor’ status under the Water Framework Directive reporting period 2013-2018.

It meets the Liffey at the Liffey Estuary Upper, a transitional water body which is ‘good status’ at this point. The transitional waters of the Lower Liffey Estuary and the coastal waters of Dublin Bay are also ‘good’. These data are taken from the ENVision mapping tool on www.epa.ie.

Directly to the north of the development site can be found the Grand Canal, an artificial water body, and this is assigned ‘good ecological potential’ under the WFD.

3.2 Plans or policies relating to natural heritage

Convention on Biological Diversity (CBD): The protection of biodiversity is enshrined in the CBD to which Ireland is a signatory. As part of its commitment to this international treaty Ireland, as part of a wider European Union initiative, was committed to the halt in loss of biodiversity by the year 2010. 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 2017 the Irish Government incorporated the goals set out in this strategy, along with its commitments to conservation biodiversity under national and EU law, in the third national biodiversity action plan (Dept. of Culture, Heritage and the Gaeltacht, 2017). A forth plan is in preparation.

Dublin City Biodiversity Action Plan 2015 – 2020: This plan was adopted in 2015 and identifies four themes: Strengthen the knowledge base for the conservation and management of biodiversity, and protect species and habitats of conservation value within Dublin City, Strengthen the effectiveness of regional collaboration for biodiversity conservation in the greater Dublin region, Enhance opportunities for biodiversity conservation through green infrastructure, and promote ecosystem services in appropriate locations throughout the City and Develop greater awareness and understanding of biodiversity, and identify opportunities for engagement with communities and interest groups. A draft Biodiversity Action Plan 2021-2025 was opened for public consultation in June 2021.

Dublin City Development Plan 2016 – 2022: It consists of a number of themes, including: climate change; green infrastructure, open space, and recreation; and culture and heritage.

River Basin Management Plan (RBMP) 2018-2021 : Under the Water Framework Directive (Directive 2000/60/EC) all Irish waters must achieve 'good ecological status' by 2015 or, with exemptions, by 2027 at the latest. The EPA website has assessed Dublin Bay as being of 'moderate' status. A third RBMP will be published later in 2022.

3.3 Site Survey

Aerial photography from the OSI and historic mapping shows that this area has been within the built fabric of Dublin for many decades. It lies close to busy transport links within an area of extensive urban and residential development.

3.3.1 Flora

The development site is predominantly composed of **buildings and artificial surfaces – BL3** which includes yard areas, and boundary walls. Vegetation in this area is ruderal in nature and includes Ivy *Hedera helix* on walls, Sowthistle *Sonchus sp.* and Ragwort *Senecio jacobaea*. There are no trees and the boundary with the Grand Canal is marked by a concrete wall.

The Grand Canal towpath lies directly north of the development boundary. This is characterised by a hedgerow with Alder *Alnus glutinosa*, Hawthorn *Crataegus monogyna*, Brambles *Rubus fruticosus agg.*, Ivy and Elm *Ulmus glabra*. This hedgerow is north of the wall which forms the development site boundary and will not be affected in any way as part of this application.

There are no plants growing on the site which are alien invasive species as listed on SI No. 477 of 2011.

These are highly modified habitats with very low biodiversity value. There are no water courses, bodies of open water or habitats which could be described as wetlands.

3.3.2 Fauna

The site survey included incidental sightings or proxy signs (prints, scats etc.) of faunal activity, while the presence of certain species can be concluded where there is suitable habitat within the known range of that species. Table 1 details those mammals that are protected under national or international legislation in Ireland. Cells are greyed out where suitable habitat is not present or species are outside the range of the study area.

Table 1 – Protected mammals in Ireland and their known status within the O13 10km grid square¹. Those that are greyed out indicate either that there are no records of the species from the National Biodiversity Data Centre.

Species	Level of Protection	Habitat ²	
Otter <i>Lutra lutra</i>	Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000	Rivers and wetlands	
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>		Disused, undisturbed old buildings, caves and mines	
Grey seal <i>Halichoerus grypus</i>	Annex II & V Habitats Directive; Wildlife (Amendment) Act, 2000	Coastal habitats	
Common seal <i>Phocaena phocaena</i>			
Whiskered bat <i>Myotis mystacinus</i>	Annex IV Habitats Directive; Wildlife (Amendment) Act, 2000	Gardens, parks and riparian habitats	
Natterer's bat <i>Myotis nattereri</i>		Woodland	
Leisler's bat <i>Nyctalus leisleri</i>		Open areas roosting in attics	
Brown long-eared bat <i>Plecotus auritus</i>		Woodland	
Common pipistrelle <i>Pipistrellus pipistrellus</i>		Farmland, woodland and urban areas	
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		Rivers, lakes & riparian woodland	
Daubenton's bat <i>Myotis daubentonii</i>		Woodlands and bridges associated with open water	
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>		Parkland, mixed and pine forests, riparian habitats	
Irish hare <i>Lepus timidus hibernicus</i>		Annex V Habitats Directive; Wildlife (Amendment) Act, 2000	Wide range of habitats
Pine Marten <i>Martes martes</i>			Broad-leaved and coniferous forest
Hedgehog <i>Erinaceus europaeus</i>	Wildlife (Amendment) Act, 2000	Woodlands and hedgerows	
Pygmy shrew <i>Sorex minutus</i>		Woodlands, heathland, and wetlands	
Red squirrel <i>Sciurus vulgaris</i>		Woodlands	

¹ From the National Biodiversity Data Centre, excludes marine cetaceans

² Harris & Yalden, 2008

Irish stoat <i>Mustela erminea hibernica</i>		Wide range of habitats
Badger <i>Meles meles</i>		Farmland, woodland and urban areas
Red deer <i>Cervus elaphus</i>		Woodland and open moorland
Fallow deer <i>Dama dama</i>		Mixed woodland but feeding in open habitat
Sika deer <i>Cervus nippon</i>		Coniferous woodland and adjacent heaths

Relatively few mammals are recorded from this 10km and development site presents very few opportunities for these species. There was no evidence of Badger or deer activity and there are no Badger setts. There is no suitable habitat for these species. There is no suitable habitat for Otter. There was no evidence that Irish Hare is present while habitat is not available for Pine Marten or Red Squirrel.

Small mammals such as the Irish Stoat, Hedgehog and Pygmy Shrew are considered widespread in the Irish countryside, including on disused land in urban areas (Lysaght & Marnell, 2016). No direct evidence of any mammal was recorded although Fox *Vulpes vulpes* and Rabbit *Oryctolagus cuniculus* are common in Dublin along with Brown Rat *Rattus norvegicus*, House Mouse *Mus domesticus* and Field Mouse *Apodemus sylvaticus*. These species are not protected.

Features on the site are of very low suitability for roosting bats with little natural vegetation to provide foraging resources. A dedicated bat survey was carried out by Brian Keeley in June 2022 which found no evidence for roosting bats on the site. No foraging activity was noted but three species were commuting: Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat.

March lies within the optimal season for surveying breeding birds. The purpose of the survey was to identify all birds which were nesting or displaying nesting behaviour (singing/holding territory, carrying nesting or feeding material). No birds were noted from the site and there are minimal suitable nesting opportunities even for common birds.

There are no suitable habitats for amphibians or fish.

Most habitats, even highly altered ones, are likely to harbour a wide diversity of invertebrates. In Ireland only one insect is protected by law, the Marsh Fritillary butterfly *Euphydryas aurinia*, and this is not to be found on urban sites. Other protected invertebrates are confined to freshwater and wetland habitats and so are not present on this site.

3.4 Overall Evaluation of the Context, Character, Significance and Sensitivity of the Proposed Development Site

In summary, it has been seen that the development site is artificial land within a built-up area adjacent to the Grand Canal. There are no examples of habitats listed on Annex I of the Habitats Directive or records of rare or protected plants. There are no species listed as alien invasive as per SI 477 of 2011. There are no habitats of biodiversity value and features are of limited value even for common and widespread species.

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). From this an evaluation of the various habitats and ecological features on the site has been made and this is shown in table 4.

Table 4 Evaluation of the importance of habitats and species on the proposed development site

Buildings and artificial surfaces – BL3	Negligible ecological value
Grand Canal pNHA	National biodiversity value



Figure 2 – Site boundary

4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The project is for a development comprising 189sq.m of warehouse space and 89sq.m of ancillary office space. No works are planned to the boundary wall and there will be no interference with any trees or vegetation along the Grand Canal towpath.

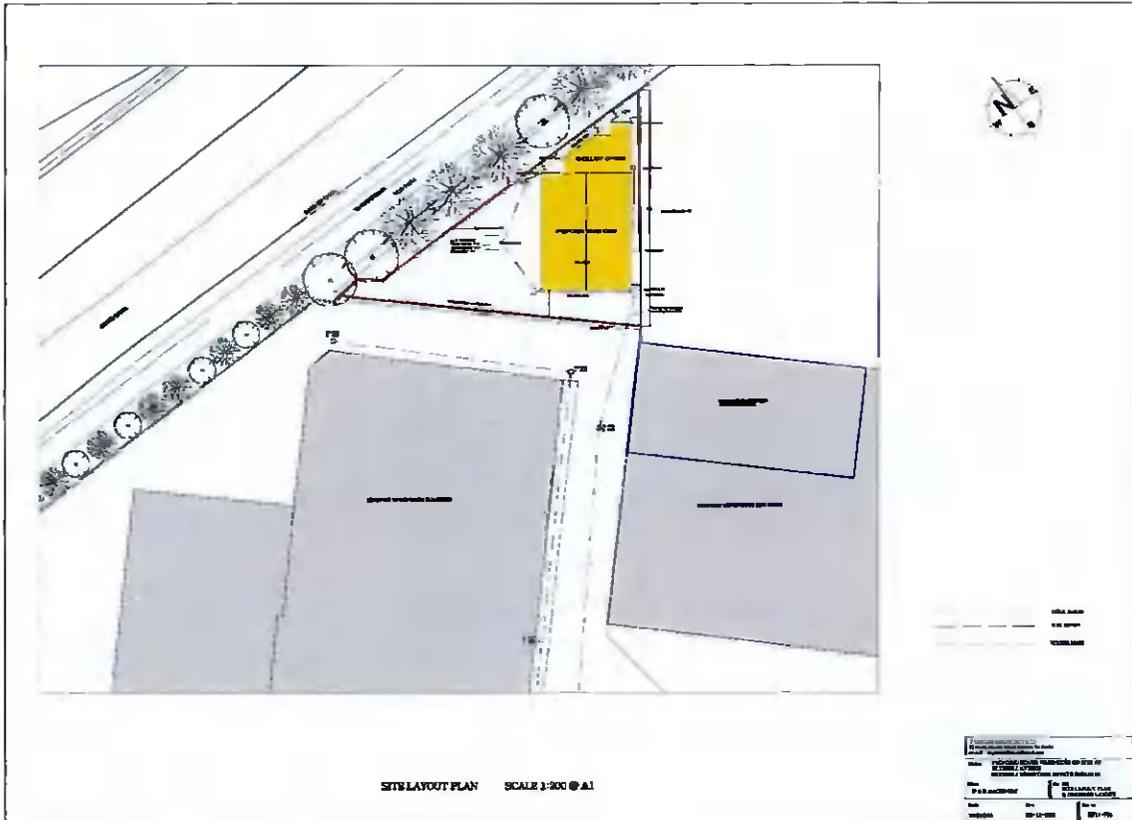


Figure 3 – Development overview

5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

This section provides a description of the potential impacts that the proposed development may have on biodiversity in the absence of mitigation. Methodology for determining the significance of an impact has been published by the NRA. This is based on the valuation of the ecological feature in question (table 4) and the scale of the predicted impact. In this way, it is possible to assign an impact significance in a transparent and objective way. Table 5 summaries the nature of the predicted impacts.

5.1 Construction Phase

The following potential impacts are likely to occur during the construction phase in the absence of mitigation:

1. The removal of artificial surfaces of negligible biodiversity value. The impact of this loss to local plant and animal species is negligible. New planting will take place as part of the landscaping strategy and which will provide some new habitats for urban wildlife. The overall impact to biodiversity will be neutral.
2. The direct mortality of species during demolition. This impact is most acute during the bird breeding season which can be assumed to last from March to August inclusive. The risk of this impact is extremely low due to the lack of suitable nesting habitat. No bats are roosting on the site. No negative impacts to bats can arise from this development during construction. This impact is neutral.
3. Pollution of water courses through the ingress of silt, oils and other toxic substances. There is no pathway for construction run-off to enter the Grand Canal. There is no sensitive fisheries habitat adjacent to the site boundary, however silt can nevertheless be carried to the local water courses via the public surface sewer system. The Liffey system holds populations of Brown Trout *Salmo trutta* and Atlantic Salmon *S. salar* and these species are highly sensitive to pollutants (Hendry & Craig-Hine, 2003). Although there is a lack of direct pathways to these water courses, best practice mitigation measures should be employed. The risk to water quality during construction is, at worst, minor negative.

Operation Phase

The following potential impacts are likely to occur during the operation phase in the absence of mitigation:

4. Pollution of water from foul wastewater arising from the development. Wastewater will be sent to the municipal treatment plant at Ringsend. Upgrade works are needed as the plant is not currently meeting its requirements under the Urban Wastewater Treatment Directive. Pollution effects are most acute in freshwater systems where the capacity for dilution is low and the consequent risk of eutrophication is high. The Ringsend WWTP discharges into Dublin Bay which is currently classified as

'unpolluted' by the EPA despite long-running compliance issues at the plant. A separate screening report for Appropriate Assessment specifically examines the impacts of this project on Natura 2000 sites in Dublin Bay and found that no significant effects are likely to arise to these areas. Irish Water is to undertake upgrading works on a phased basis and that compliance issues will comprehensively addressed.

5. Pollution of water from surface water run-off. The Greater Dublin Strategic Drainage Study (2005) identified issues of urban expansion leading to an increased risk of flooding in the city and a deterioration of water quality. This arises where soil and natural vegetation, which is permeable to rainwater and slows its flow, is replaced with impermeable hard surfaces.

Currently there is no attenuation of surface water and this percolates to ground or discharges to the existing public surface water sewer. SuDS measures are included in the project design to maintain the quality and quantity of run-off at a 'greenfield' rate. The surface water run-off from the development will be attenuated using a soakpit. As such, there will be an improvement to the run-off characteristics from the site.

6. Artificial light

According to the bat report:

Lighting of the warehouse at night would affect the feeding and commuting of light sensitive bat species. While none of the bat species noted are very sensitive to light, all bat species avoid direct illumination in particular of roost sites. Other species known to feed along the Grand Canal include Daubenton's bat, brown long-eared bat and Natterer's bat (and Nathusius pipistrelle in urban Dublin). These are more sensitive to light and will avoid illuminated areas. In addition to these species, there is one record of a whiskered bat from the late 1980s (personal record of bat specialist for Dublin Bat Group) from a factory window in Bluebell and there is potential for this species given the right conditions and habitat (in the event of major changes to the Bluebell area such as "City Edge").

7. No direct impacts are predicted to occur to the status of the Grand Canal pNHA as there will be no effect to vegetation or water quality. The potential for indirect impacts arising from artificial light are dealt with above. There is no pathway to the Liffey Valley pNHA and so no effect can arise to this area.

Impacts to Natura 2000 sites (SACs or SPAs) in Dublin Bay are not predicted to occur, principally due to the separation distance between the site and these areas. A full assessment of potential effects to these areas is contained within a separate Screening Report for Appropriate Assessment. There are no effects that can occur to any site that is designated for nature conservation.

Table 5: Significance level of likely impacts in the absence of mitigation

Impact		Significance
Construction phase		
1	Loss of habitat	Neutral
2	Mortality to animals during construction (birds)	Neutral
3	Pollution of water during construction phase	Minor negative
4	Wastewater pollution	Neutral
5	Surface water pollution	Neutral
6	Artificial lighting	Moderate negative
7	Protected areas	Neutral

Overall it can be seen that one potential moderate negative impact is predicted to occur as a result of this project in the absence of mitigation.

5.2 Cumulative impacts

A number of the identified impacts can also act cumulatively with other impacts from similar developments in this area of Dublin. These primarily arise through the additional loading to the Ringsend Wastewater Treatment Plant. It is considered that this effect is not significant due to the planned upgrading works that will bring it in line with the requirement of the Urban Wastewater Treatment Directive.

In this instance, the incorporation of SUDS attenuation measures will result in a positive effect to surface water quality.

6 AVOIDANCE, REMEDIAL AND MITIGATION MEASURES

This report has identified two moderate negative impacts and therefore mitigation is needed to reduce the severity of these potential effects. In addition, there are two potentially minor negative impacts which can be mitigated so measures are included here.

6.1 Mitigation Measures Proposed

The following mitigation measures are proposed for the development

Construction Phase

1: Artificial lighting

The bat report assessed lighting from the development and recommends the following mitigation measures:

Lighting

- 1. Lighting shall be motion activated only. The sensor shall respond to movement below 2.5 metres to avoid being activated repeatedly by bats and birds. This will limit untargeted activations to foxes or cats and targeted activations to humans or vehicles entering the site.*
- 2. No ornamental illumination shall be installed. Activation shall be managed to avoid movements along the Grand Canal (this may become an issue if the wall is replaced by fencing in the future).*
- 3. Lighting levels shall be checked within the site by a bat specialist following construction.*

As an enhancement measure it recommends:

Three BTD-1 Bat Boxes shall be erected on the warehouse away from lighting and open doors. The locations proposed are the south-east, east and north-west external wall of the warehouse.

3: Pollution during construction

Any loss of sediment from the site should be avoided. Any surface water leaving the site must first pass through a silt trap or detention basin. Dangerous or toxic substances, such as oils, fuels etc., should be stored in bunded areas only. These recommendations are in accordance with guidance from Inland Fisheries Ireland (2016).

With this mitigation in place no negative effects to water quality downstream are likely to occur.

7 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

This section allows for a qualitative description of the resultant specific direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions which the proposed development may have, assuming all mitigation measures are fully and successfully applied.

No long-term negative impacts to biodiversity are predicted to arise from this development.

No negative impacts to bats are likely to arise.

8 MONITORING

Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant. Monitoring will be required throughout the construction phase to ensure that pollution prevention measures are implemented.

9 REFERENCES

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