Ecological Impact Assessment

Deansgrange Cycle Scheme

24 August 2022

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Executive Summary

This Ecological Impact Assessment has been prepared by NM Ecology Ltd on behalf of Dun Laoghaire – Rathdown County Council (the applicant), in relation to the Deansgrange Cycle Scheme. The proposed development will involve a range of modifications to existing roads and paved surfaces that will improve conditions for cyclists and pedestrians. Part of the route will pass through Deansgrange Cemetery. The aim of this report is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, including designated sites, habitats, flora and fauna.

The proposed development site is not within or adjacent to any designated sites. Potential indirect impacts on designated sites were considered within a 5 km radius, and a tenuous surface-water pathway via the Deansgrange Stream was identified to the *Dalkey Coastal Zone and Killiney Hill* pNHA. However, the proposed development will not require any modification of the stream or bridge, and any pollutants that reach the watercourse would be diluted by 5 km of intervening waters, so there will be no impact on the pNHA. A stand-alone *Screening for Appropriate Assessment* report accompanies this application.

Habitats within the proposed development site include buildings and artificial surfaces, dry meadow, amenity grassland, treeline and mixed coniferous woodland. The grassland and woodland habitats within Deansgrange Cemetery are of Local ecological importance. However, impacts on the grassland habitats will be very small in extent, and there will be no impact on trees or woodlands, so overall impacts on these habitats will be negligible.

There are two legally-restricted invasive species within Deansgrange Cemetery: Spanish bluebell and three-cornered leek. An Invasive Species Management Plan has been prepared for the proposed development, which includes measures to prevent the spread of these species prior to, during and following the proposed development.

Deansgrange Cemetery is used as a foraging area by some common bat species. Bat surveys of the Old Gate Lodge and adjacent building were carried out, but no evidence od a bat roost was recorded. It will be necessary to provide lighting along the cycle path for safety reasons, but bat-sensitive lighting techniques have been incorporated into the lighting plan, including the use of a ‘warm’ LED tone, and measures to prevent light-spill outside the cycle path. On this basis, lighting will have a negligible effect on foraging bats.

Subject to the successful implementation of these measures, it can be concluded that the proposed development will not cause any significant negative impacts on designated sites, habitats, legally protected species, or any other features of ecological importance.

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1 Introduction

1.1 Assessment brief

The aim of this Ecological Impact Assessment (EcIA) is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, including designated sites, habitats, flora and fauna. It has been prepared in accordance with the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (2018), which is the primary resources used by members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The purpose of this document is to:

- Provide an objective and transparent assessment of the potential ecological impacts of the proposed development for all interested parties, including planning authorities and the general public
- Facilitate objective and transparent determination of the consequences of the development in terms of national, regional and local policies relevant to ecology
- Propose the steps will be taken to adhere to legal requirements relating to designated sites and legally protected species (CIEEM 2018).

Although the above guidelines provide a framework for EcIA, many processes rely on the professional judgement of an ecologist, including survey design, the valuation of ecological features, and the characterisation of impacts. An outline of the author's experience, training and accreditation is provided in the following section, which support his competency to make such judgements.

1.2 Statement of authority

All surveying and reporting was carried out by Nick Marchant, the principal ecologist of NM Ecology Ltd. He has fifteen years of professional experience, including twelve years as an ecological consultant, one year as a local authority biodiversity officer, and two years managing an NGO in Indonesia. He provides ecological assessments for developments throughout Ireland and Northern Ireland, including wind farms, infrastructural projects (water pipelines, greenways, etc.), and a range of residential and commercial developments.

He has an MSc in Ecosystem Conservation and Landscape Management from NUI Galway and a BSc in Environmental Science from Queens University Belfast. He is a member of the Chartered Institute of Ecology and Environmental Management, and operates in accordance with their code of professional conduct.

2 Methods

2.1 Scoping

An Ecological Impact Assessment involves the following steps:

- Identification of designated sites within an appropriate zone of influence
- A walkover survey incorporating the following elements:
  - Classification and mapping of habitats
  - A search for rare / protected flora, and for problematic non-native plant species (e.g. Japanese Knotweed)
  - A search for field signs of rare or protected fauna (e.g. badgers), and habitat suitability assessments for species that are secretive, nocturnal or seasonal
  - Specialist surveys (e.g. bats) where appropriate
- Valuation of ecological features, review of legal considerations, and selection of important ecological features
- Assessment of impacts on important ecological features and development of appropriate mitigation strategies

2.2 Data collection and walkover survey

A desk-based scoping study was carried out using data from the following sources:

- Plans and specifications for the proposed development
- An *Ecological Survey of Deansgrange Cemetery* carried out by Faith Wilson ecological consultant in 2021 on behalf of Dun Laoghaire - Rathdown County Council
- Bedrock, soil, subsoil, ground water and surface water maps from the Geological Survey of Ireland webmapping service (www.gsi.ie/mapping.htm), the National Biodiversity Data Centre (http://maps.biodiversityireland.ie/), and the Environmental Protection Agency web viewer (http://gis.epa.ie/Envision/)
- Maps and details of designated sites from www.npws.ie
- Biological records from the National Biodiversity Data Centre online mapping service
- The *Dun Laoghaire-Rathdown County Development Plan* 2022 - 2028, and details of permitted or proposed developments from the local authority's online planning records

The following resources were used for the walkover surveys:

- Habitat surveys were carried out in accordance with the *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al 2011), and using the classification system of *A Guide to the Habitats of Ireland* (Fossitt 2000)
- Flora were identified using *Webb's An Irish Flora* (Parnell & Curtis 2012) and *The Vegetation Key to the British Flora* (Poland & Clement 2009). Nomenclature follows the plant crib of the Botanical Society of the British Isles (BSBI 2007). The abundance

and extent of species is described using the DAFOR scale (Dominant, Abundant, Frequent, Occasional, Rare)

- Fauna surveys followed the methods outlined in the *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA 2006), with reference to other species-specific methods as appropriate.

Desktop data from internet resources was accessed between May and August 2022, and a site inspection was carried out on the 12th of August 2022. The survey was carried out within the boundaries of the proposed development site (hereafter referred to as 'the Site'), and adjacent lands were inspected visually within a 10-20 m buffer.

Bat survey

A bat survey was carried out at dusk on the 13th of August 2022, comprising an emergence survey of the Old Gate Lodge House, and an activity survey along the proposed cycle route within Deansgrange Cemetery. Survey methods were developed using *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Bat Conservation Trust, 3rd edition, 2016). Bats were recorded using an Anabat Walkabout detector (Titley Scientific Inc). Weather conditions at the time of survey were suitable for bats, with warm temperatures (22 – 25 °C) and no wind or rain.

2.3 Valuation of ecological features

Based on the information collected during desktop and walkover surveys, the ecologist assigns an ecological importance to each feature based on its conservation status at different geographical scales (Table 1). For example, a site may be of national ecological importance for a given species if it supports a significant proportion (e.g. 5%) of the total national population of that species.

Table 1: The six-level ecological valuation scheme used in the CIEEM guidelines (2018)

Ecological value	Geographical scale of importance
International	International or European scale
National	The Republic of Ireland or the island of Ireland
Regional	Leinster, and/or the midlands of Ireland
County	Dun Laoghaire – Rathdown area
Local	Deansgrange and surroundings
Negligible	None, the feature is common and widespread

It is accepted that any development will have an impact on the receiving environment, but the significance of the impact will depend on the importance of the ecological features that would be affected. The following is outlined in the CIEEM guidelines: "*one of the key challenges in an EcIA is to decide which ecological features (habitats, species, ecosystems*

and their functions/processes) are important and should be subject to detailed assessment. Such ecological features will be those that are considered to be important and potentially affected by the project. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to impacts from the development, and that will remain viable and sustainable."

For this report we have only assessed impacts on ecological features of Local importance or higher (refer to Table 1), or those that receive legal protection. These features are termed 'important ecological features' and are listed in Section 4.6. Impacts on features of Negligible ecological importance (e.g. amenity grasslands) that do not receive legal protection are not considered to be significant, so they are not included in the impact assessment.

2.4 Ecological Impact Assessment

Potential direct, indirect or cumulative impacts on ecological features can be described in relation to their magnitude, extent, duration, reversibility and timing/frequency, as outlined in the CIEEM (2018) guidelines. Depending on the type of impact and the sensitivities of the important ecological feature, the ecologist may determine that the impact would have a 'significant effect'. The following definitions are provided in the CIEEM guidelines: "*A significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project*". "*For the purpose of EcIA, a 'significant negative effect' is an effect that undermines biodiversity conservation objectives for 'important ecological features', or for biodiversity in general."*. Where significant impacts are identified, measures will be taken to avoid, minimise or compensate for impacts (where possible). Subject to these measures, the EcIA concludes with a summary of residual impacts.

3 Development proposals

3.1 Proposed works

The proposed development will involve a range of modifications to existing roads and paved surfaces that will provide a safe walking and cycling route that meets the current school and commuting demand within the Deansgrange area. It will provide a connection between two of the proposed routes within the Active School Travel project, the "Park to Park" route and the "Mountains to Metals" route. The majority of works will be on existing road surfaces and paved surfaces. Some works will require the removal of narrow strips of grassland on roadside verges and within Deansgrange Cemetery.

The general scope of work is as follows:

- Provision of segregated cycle lanes alongside the carriageway, and a new off-road cycle path through Deansgrange Cemetery

- Junction improvements including traffic signal upgrades / installation
- Remodelling of a number of major junctions

The route of the scheme is shown in Figure 1. Detailed drawings and descriptions can be found elsewhere in the planning documentation.

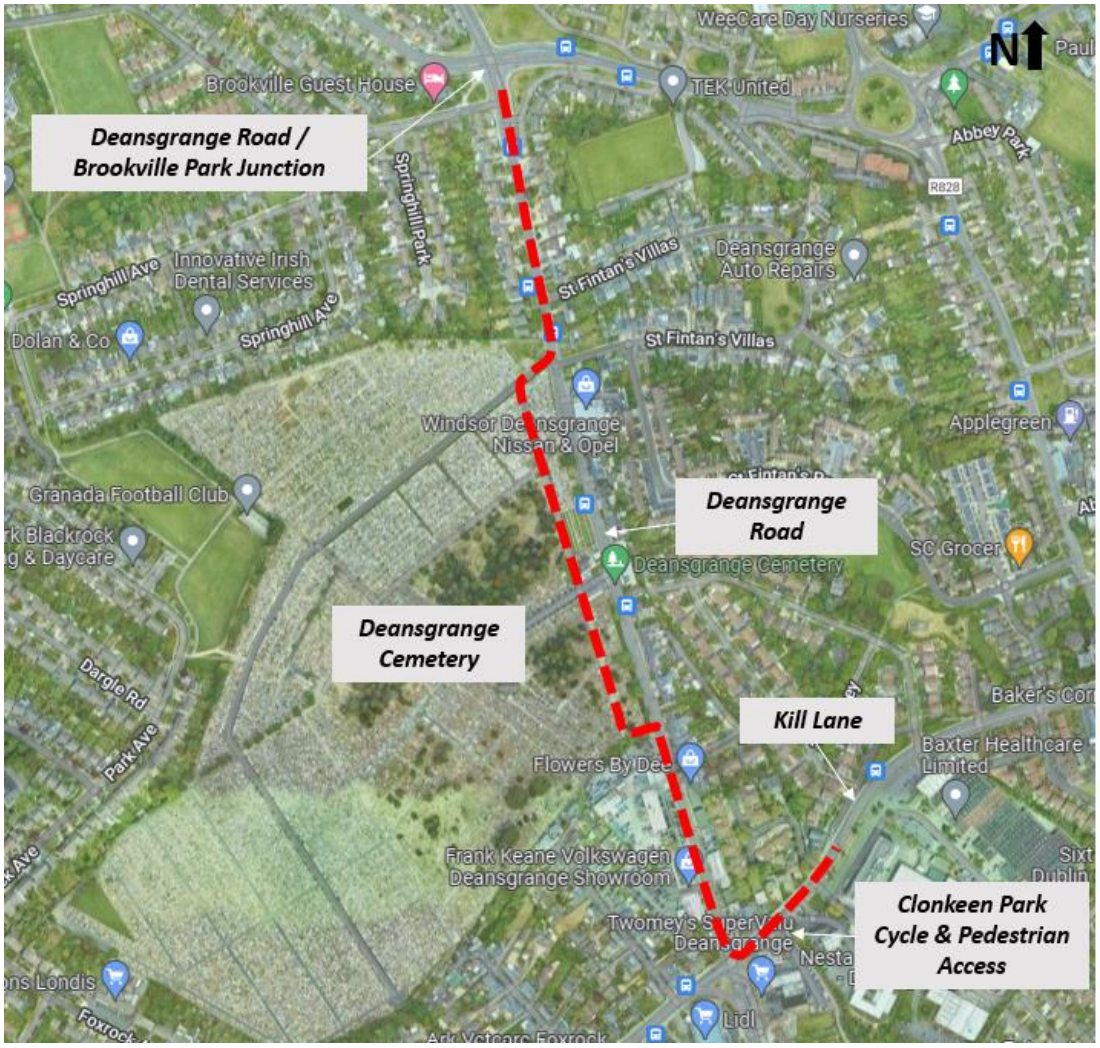

Figure 1: Extent of proposed scheme

3.2 Other developments in the area (potential in-combination effects)

The existing public roads, paved surfaces and roadside verges are not specifically zoned for development under the *Dun Laoghaire – Rathdown County Development Plan* 2016 – 2022. Other areas adjoining the scheme are zoned for existing residential, commercial uses (e.g. neighbourhood centre, employment) and open space (Deansgrange Cemetery). It is a mature, settled area that is unlikely to be under development pressure in the short to medium term.

Planning applications in the vicinity of the proposed development were reviewed on the online database of Dun Laoghaire-Rathdown County Council. There have been several applications for small-scale works such as changes-of-use, installation of signage or residential extensions; none of these applications are considered likely to cause in-combination effects.

A mixed-use development comprising 151 apartments and a number of commercial units was granted permission alongside Deansgrange Road in 2020 under the Strategic Housing Development scheme (planning reference ABP30733220). It was accompanied by a Screening for Appropriate Assessment report prepared by Openfield Ecological Services Ltd, which concluded that the proposed development posed no risk of effects on any Natura 2000 sites.

4 The Receiving Environment

4.1 Environmental setting

Site location and surroundings

The proposed development site (hereafter referred to as the Site) covers a linear route of approx. 1km between the Deansgrange Road / Brookville Park junction and Kill Lane (refer to Figure 1). Part of the route will pass through Deansgrange Cemetery. The route will be located almost entirely on existing public roads and paved surfaces, with some additional works on amenity grasslands.

The surrounding area is characterised by suburban housing estates and Deansgrange Cemetery. There are also some commercial premises, sports facilities, a church (Kill o' the Grange Anglican Church) and a school (Kill o' The Grange National School).

Geology and soils

The underlying bedrock is granite, which is a poor aquifer. Subsoils and soils are made ground.

Hydrology

Rivers and streams on the EPA database were reviewed in the vicinity of the proposed development.

The northern end of the Site crosses a culverted section of the Monkstown Stream (also known as the Stradbrook Stream). It appears to be a small, highly-modified watercourse that has been culverted for almost all of its length, with only a small above-ground section in the vicinity of Dalguise House and Richmond House in Monkstown. As the proposed development will take place on existing roads and paved surfaces, and will not involve any

modification of the culverted stream beneath the road, the Monkstown stream is not considered to be of relevance to this assessment.

The southern end of the Site crosses the Deansgrange Stream in the vicinity of Kill o' the Grange church. The stream appears to originate at Kill Lane, as there is no evidence of a river to the north of the road. It should be noted that the proposed development will not involve any modification of the stream or its banks, as the cycle and pedestrian facilities will be on existing roads and pavements that cross above the stream.

The Deansgrange Stream flows south-east and meets the coast of Dublin Bay at Ballybrack / Shankill, approximately 5 km downstream of the Site. Under the Water Framework Directive Status Assessments 2013-2018, the Deansgrange Stream is of Poor status, and the coastal waters at the mouth of the stream are of High Status.

4.2 Designated sites

The Site is not located within or adjacent to any designated sites. Potential indirect impacts were considered within a potential zone of influence of 5km[1]. Their locations are shown in Figure 1, and details are provided in Table 2.

[1] For the purposes of this assessment we considered indirect impacts on designated sites within a potential zone of influence of 5km. This distance is considered to be proportionate to the moderate scale of the proposed development and its suburban setting.

Figure 2	Designated sites
Project	Deansgrange Cycle Scheme
Applicant	DLRCC
Date	16 Aug 2022

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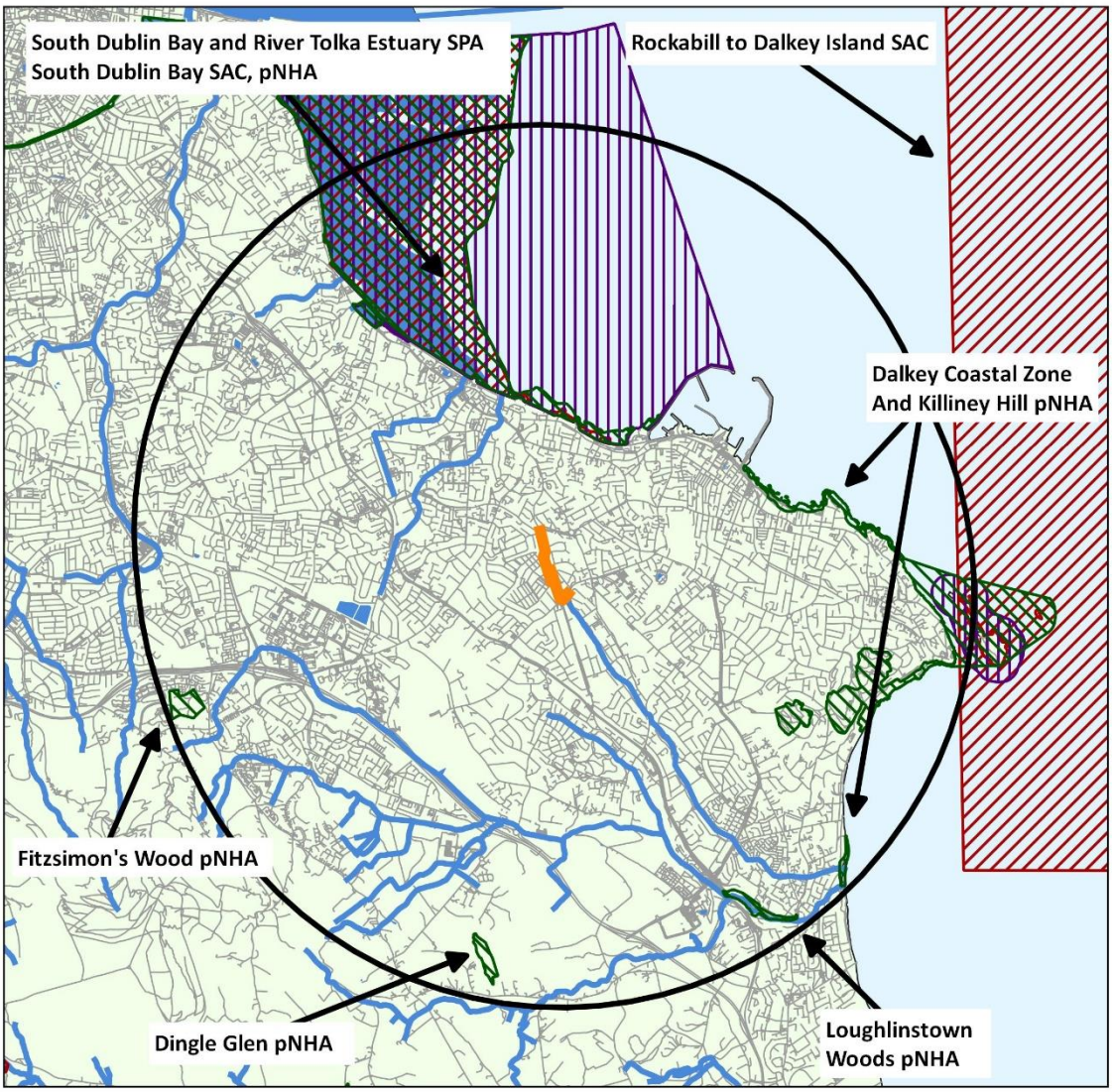
Site location
- Route of proposed scheme
- Buffer zone (5km)
- Roads
- Watercourses

Designated sites
- Special Areas of Conservation
- Special Protection Areas
- Proposed Natural Heritage Areas



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0 1 2 3 4 5 km

Table 2: Designated sites within 5 km of the proposed development site

Site Name	Distance	Qualifying Interests
South Dublin Bay and River Tolka Estuary SPA (site code 4024)	1.3 km north	**Key habitats:** coastal wetlands **Special conservation interests:** light-bellied brent goose, oystercatcher, ringed plover, grey plover, knot, sanderling, dunlin, bar-tailed godwit, redshank, black-headed gull (wintering populations), arctic tern, roseate tern (passage), and common tern (breeding and passage)
South Dublin Bay SAC, pNHA (210)	1.3 km north	**Annex I habitats:** inter-tidal mudflats / sandflats **Annex II species:** none
Dalkey Coastal Zone And Killiney Hill pNHA (1206)	2.6 km east	**Reasons for designation:** coastal habitats and islands around Dalkey head, of importance for marine invertebrates, nesting birds and rare flora
Loughlinstown Woods pNHA (1211)	4.1 km south-east	**Reasons for designation:** broadleaved woodland and heath in a dry valley
Dingle Glen pNHA (1207)	4.2 km south	**Reasons for designation:** broadleaved woodland woodland on the northern bank of the Shanganagh River
Fitzsimon's Wood pNHA (1753)	4.5 km west	**Reasons for designation:** broadleaved woodland and heath
Dalkey Islands SPA (4172)	4.5 km east	**Key habitats:** offshore islands, rocky shores **Special conservation interests:** breeding populations of common tern, roseate tern and Arctic tern
Rockabill to Dalkey Islands SAC (3000)	4.8 km east	**Annex I habitats:** reefs **Annex II species:** harbour porpoise

Potential pathways for indirect impacts on designated sites

Indirect impacts can occur if there is a viable pathway between the source (the Site) and the receptor (the habitats and species for which a site has been designated). The most common pathway for impacts is surface water, e.g. if a pollutant is washed into a river and carried downstream into a designated site. Other potential pathways are groundwater, air (e.g. airborne dust or sound waves), or land (e.g. flow of liquids, vibration). The zone of effect for hydrological impacts can be several kilometres, but for air and land it is rarely more than one hundred metres. An appraisal of potential pathways to Natura 2000 sites is provided below.

The *South Dublin Bay* SAC and the *South Dublin Bay and River Tolka Estuary* SPA are both located approx. 1.3 km north of the Site. There is substantial overlap between these Natura 2000 sites, so they are considered here in combination. The SAC has been designated to protect extensive sandflats and mudflats that are exposed at low tide, and the SPA has been designated to protect a range of overwintering birds that feed and roost in these tidal

habitats, as well as tern species that breed in the area during summer months. There are no watercourses linking the Site with either the SAC or SPA. Groundwater would not provide a feasible pathway due to the filtration provided by 1.3 km of intervening soils. Pathways via land and air can be ruled out due to the distances involved.

The *Dalkey Coastal Zone And Killiney Hill* pNHA overlaps with most of the SPA and SAC described in the previous paragraph, but it also includes some wetland habitat at the mouth of the Deansgrange Stream. The Deansgrange Stream provides a tenuous surface-water pathway between the Site and the pNHA via approx. 5 km of intervening watercourse. Pathways via groundwater, land and air can be ruled out due to the distances involved.

Three other pNHAs – *Loughlinstown Woods* pNHA, *Dingle Glen* pNHA, *Fitzsimon's Wood* pNHA – are woodland sites located approx. 4 – 4.5 km from the Site, so they can be considered in combination. None have any surface water pathways linking them to the Site, and all other pathways can be ruled out due to distance.

The *Dalkey Islands* SPA and *Rockabill to Dalkey Island* SAC are located 4.5 and 4.8 km (respectively) from the eastern end of the Site. The SPA has been designated to protect breeding populations of common tern, roseate tern and Arctic tern on the Dalkey Islands, and the SAC to protect offshore reefs and harbour porpoise between Rockabill Lighthouse and the Dalkey Islands. Although there could theoretically be a surface water pathway between the Site and coastal waters via the Deansgrange Stream and coastal waters (see Figure 2), the coastal waters of Dublin Bay would dilute any waterborne pollutants to negligible levels before they could reach the SAC or SPA. Therefore, surface water pathways to both sites can be ruled out. Pathways via groundwater, land and air can be ruled out due to the distances involved.

In summary, a potential surface water pathway was identified between the Site and the *Dalkey Coastal Zone And Killiney Hill* pNHA; potential impacts will be considered in the impact assessment in Section 5. No pathways were identified to any of the other designated sites in Table 1.

A stand-alone *Screening for Appropriate Assessment* report accompanies this application.

4.3 Habitats and flora

4.3.1 Phase 1 habitat survey

Habitats within the proposed development site were classified using *A Guide to Habitats in Ireland* (Fossitt 2000). A habitat map is not provided, because the distribution of habitats can clearly be discerned from aerial photography, and from the descriptions provided below.

Buildings and artificial surfaces (BL3)

With the exception of Deansgrange Cemetery, the remainder of the proposed development will be located on existing roads and pavements (artificial surfaces) along Deansgrange Road. These surfaces have no vegetation, and are of Negligible ecological importance.

Within Deansgrange Cemetery, the majority of the new cycle path will be located on an existing footpath that is surfaced with asphalt. Only a small section at the south-eastern corner of the cemetery will be constructed on a vegetated area (see 'dry meadow' habitat below).

Outside the footprint of the proposed development, the graves within Deansgrange Cemetery are classified here as 'artificial surfaces'. Most have a stone border and headstone. Some graves are surfaced with gravel, crushed glass or occasionally a concrete slab. Many have been planted with non-native ornamental plants, e.g. lavender *Lavandula angustifolia*, roses *Rosa* spp., onions / garlics *Allium* spp.

Many graves have been colonised by native / naturalised ruderal species. Field horsetail *Equisetum arvense* is widespread, and locally-dominant in some areas. This species is problematic for the cemetery's management personnel, as it spreads rapidly throughout the site, and is undesirable in appearance. However, it is a native species so it is not considered problematic from an ecological perspective.

Other native / naturalised species that have colonised graves include (ordered by abundance): broad-leaved willowherb *Epilobium montanum*, American willowherb *Epilobium ciliatum*, ivy *Hedera hibernica*, Yorkshire-fog *Holcus lanatus*, Canadian Fleabane *Conyza canadensis*, creeping bent *Agrostis stolonifera*, fern-grass *Catapodium rigidum*, dandelion *Taraxacum officinale*, yarrow *Achillea millefolium*, butterfly-bush *Buddleja davidii* and squirreltail fescue *Vulpia bromoides*.

All of these species are common and widespread in the surrounding area, and the habitat is of Negligible ecological importance.

Dry meadow (GS2)

The south-eastern corner of Deansgrange Cemetery is not intensively managed, and has developed into a dry meadow. It has a broad range of native flowers and grasses, and is up to 1 m in height, so dry meadow is considered to be the most appropriate classification. The presence of unusual species such as wild carrot and field scabious, and the abundance of oxeye daisy, suggest that the area may have been seeded with a flower mix at some stage.

Oxeye daisy *Leucanthemum vulgare* and yarrow *Achillea millefolium* are abundant in most areas, while locally-abundant species include ribwort plantain *Plantago lanceolata*, winter heliotrope *Petasites fragrans*, creeping thistle *Cirsium arvense*, nettle *Urtica dioica*, common

bird's-foot-trefoil *Lotus corniculatus* and red campion *Silene dioica*. Frequent species include Yorkshire-fog, red fescue *Festuca rubra*, crested dog's-tail *Cynosurus cristatus* and greater plantain *Plantago major*. Occasional species include wild carrot *Daucus carota*, common knapweed *Centaurea nigra*, broadleaved dock *Rumex obtusifolius*, bramble *Rubus fruticosus*, wood avens *Geum urbanum* and cock's-foot *Dacylis glomerata*. Rare species (inc the context of the DAFOR scale) include field scabious *Knautia arvensis*, hemp-agrimony *Eupatorium cannabinum*, dense-flowered mullein *Verbascum* cf *densiflorum* and teasel *Dipsacus fullonum*.

There are some sycamores *Acer pseudoplatanus* along the eastern boundary of the Site (see 'treelines' below). Underneath these trees, the dry meadow has a different species composition. Ivy is dominant, while wood avens, creeping buttercup *Ranunculus repens*, and Spanish bluebell *Hyacinthoides* cf *hispanica* are frequent. Occasional species include false oat-grass *Arrhenatherum elatius*, holly *Ilex aquifolium* (seedlings < 30 cm tall), Lords-and-Ladies *Arum maculatum* and bittersweet *Solanum dulcamara*.

There is also a small patch of dry meadow alongside the wall at the northern entrance to the cemetery. It has some bare earth and signs of recent disturbance. Ivy and cleavers *Galium aparine* are abundant, while common poppy *Papaver rhoeas*, red fescue, perennial rye-grass *Lolium perenne*, fern-grass, nipplewort *Lapsana communis* and field horsetail are frequent. Occasional species include smooth sow-thistle *Sonchus oleraceus*, creeping thistle, hedge mustard *Sisymbrium officinale*, wood avens, dandelion, common orache *Atriplex patula*, wall barley *Hordeum murinum*, and Canadian fleabane.

The dry meadow at the Site has a relatively high species diversity, and a high cover of flowering species. It is unclear whether this is due to the considerable age of the cemetery, the sowing of flower seed, the management of the habitat (i.e. annual cutting) or a combination of these factors. All areas of this habitat are considered to be of Local importance.

<u>Amenity grassland (GA2)</u>

Near the northern entrance to the cemetery are some patches of amenity grassland. This habitat classification has been selected based primarily on the management of the habitat: at the time of survey it had been mowed to a very short sward. However, the species composition is more typically of a neutral / dry meadow than an amenity grassland, suggesting that it had previously been allowed to grow longer.

Abundant species include field horsetail, perennial rye-grass, black medick *Medicago lupulina* and creeping thistle, and dandelion is frequent. Occasional species include creeping cinquefoil *Potentilla reptans*, Yorkshire-fog, wall barley, red clover *Trifolium pratense* and scarlet pimpernel *Anagallis arvensis*.

A narrow strip of amenity grassland is also located to the west of the northern entrance. It has abundant red fescue, yarrow and ribwort plantain, and frequent common bird's-foot-trefoil and perennial rye-grass. Occasional species include squirreltail fescue and dove's-foot crane's-bill *Geranium molle*.

This habitat has an unusual species composition for an amenity grassland, and therefore is of Local importance.

Mixed coniferous woodland (WD3)

There are patches of coniferous woodland to the west of the proposed route in Deansgrange Cemetery, and scattered among graves elsewhere in the cemetery. The most common species is yew *Taxus baccata*, while Leyland cypress *Cuprocyparis leylandii* and western red-cedar *Thuja plicata* are frequent. Ivy is dominant in the ground layer and in the canopy of many trees. Other than ivy, the ground flora is impoverished, with only occasional bramble, holly seedlings and herb-Robert *Geranium robertianum*. Some disturbed areas have ruderal vegetation, as discussed elsewhere in the report.

Yew woodland is uncommon in Dublin, and therefore of Local importance.

Treelines (WL2)

There are lines of mature trees in places along the western side of Deansgrange Road. These trees are not in a contiguous line, but are of similar species and ages, and are loosely arranged in a linear arrangement.

The first line of trees is along the western side of Deansgrange Road (also referred to in places as 'Grange Ter' road) between the Deansgrange Road / New Road crossroads and the northeastern corner of Deansgrange Cemetery. The public footpath is set back about 5 m from the road edge, and the intervening space consists of amenity grassland and mature trees, divided into rectangular sections (approx 5m x 10 m) by the driveways of properties. There are mature trees every 15 – 20 m alongside the road, most of which are small-leaved lime *Tilia cordata*, with a smaller number of horse-chestnut *Aesculus hippocastanum* and pear *Pyrus* sp. The understorey is species-poor amenity grassland, which is regularly mowed in most places.

A second line of trees occurs along the eastern and southern edges of Deansgrange Cemetery. The majority of these trees are sycamore, but there is also a sessile oak *Quercus petraea* at the southern end of the proposed cycle route within the cemetery. The ground flora in these areas is dry meadow, as described above.

Some of these trees are of considerable age, and they form a coherent line along parts of Deansgrange Road, so they are considered to be of Local importance.

4.3.2 Rare or protected flora

No rare or protected plants were encountered during field surveys.

4.3.3 Invasive plant species

Spanish bluebell *Hyacinthoides hispanica*

Small patches of bluebell were found under trees on the eastern boundary of Deansgrange Cemetery. The survey was carried out in August, which is outside the flowering period of bluebells (typically April and May), so it was difficult to identify them with certainty. However, they had broad leaves and upright stems, so they are considered likely to be Spanish bluebells. Surveys by Faith Wilson in 2021 recorded Spanish bluebells elsewhere in the cemetery. This species is listed on the third schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011*), which means that it is an offence to cause it to spread.

Three-cornered leek *Allium triquetrum*

No three-cornered leek was recorded during the site inspection. However, the growing season for this species is from January to June, after which it dies back and degrades. Therefore, at the time of the site visit in August 2022 this species could not have been detectable.

Several patches of this species were recorded by Faith Wilson in the spring of 2021, including several locations near the northern entrance of the cemetery. It is not known whether these patches of three-cornered leek have subsequently been treated with herbicide, but on a precautionary basis it will be assumed that they are still present in the locations identified by Faith Wilson in 2021.

4.4 Protected fauna

4.4.1 Birds

Some birds were observed during the survey: woodpigeon, magpie, wren, robin, jackdaw and blackbird. A buzzard was observed in flight above the cemetery, and it is possible that it nests within the cemetery. It is expected that other common countryside birds will use the site, including corvids, finches, tits and other common passerines. It is also expected that some of the species above will nest in the trees and shrubs within the site.

Deansgrange Cemetery contains a range of habitats for birds, so it is considered to be of Local importance. In addition, all birds receive protection under the *Wildlife Act* 1976 (as amended).

4.4.2 Terrestrial mammals

A fox was observed on two occasions at dusk (during the bat survey). Faith Wilson recorded a fox den in the historical section of the cemetery in 2021. This species is common and widespread, and does not receive any legal protection in Ireland, so the Site is of Negligible importance for it.

No other terrestrial mammals were observed during field surveys, nor any characteristic field signs of protected species (e.g. badger setts). There are desktop records of a number of protected mammal species in the surrounding 10 km square (O22), including otter, badger, red deer, red squirrel, hedgehog and pygmy shrew. The suitability of the Site for these species is discussed below.

Otters are primarily associated with aquatic habitats, and it is possible that they may forage along sections of the Deansgrange Stream. However, the proposed development will not involve any modification of watercourses. No otter holts or other field signs of the species were recorded. On this basis, the Site is considered to be of Negligible importance for otters.

Badgers are common in suburban areas, and they may feed within, or pass through, Deansgrange Cemetery on occasion. However, no field signs of badgers were recorded in the vicinity of the proposed development in 2022, nor in the remainder of the cemetery by Faith Wilson in 2021. Therefore, the Site is of Negligible importance for badgers.

Red deer and red squirrels are primarily associated with woodland habitats. The treelines within the Site and the small patch of yew woodland could theoretically be suitable for these species, but the habitats are too small and fragmented to be of importance for this species. Therefore, the Site is considered to be of Negligible importance.

The dry meadow and woodland vegetation could provide habitat for small mammals such as hedgehog and pygmy shrew. Both species are protected under the *Wildlife Act* 1976 (as amended). These species are secretive and/or nocturnal, and they do not have characteristic field signs, so it is very difficult to establish their presence during walkover surveys. Therefore, on a precautionary basis it will be assumed that one or more of these species will be present, and they are considered to be Important Ecological Features. Nonetheless, it is unlikely that either species would use the Site in significant numbers, so it would be of no more than Local importance.

4.4.3 Bats

<u>Habitat suitability for foraging bats</u>

Six bat species have been recorded in the surrounding 10km square (O22): common pipistrelle, soprano pipistrelle, Leisler's bat, Daubenton's bat, Natterer's bat and brown long-eared bat. All of these species are common and widespread in Ireland, and thus are listed as

'least concern' on the Irish red list of terrestrial mammals (Marnell et al 2019). They forage in a range of habitats, particularly woodland, freshwater habitats and linear vegetation.

Faith Wilson carried out a bat survey of the whole of Deansgrange Cemetery in July 2021. The results were reported as follows:

> *"The detector survey recorded three species of bats foraging in the grounds of Deansgrange Cemetery. Leisler's bat was the first recorded species flying from the west of the cemetery over the mortuary chapel and foraging over the property for some time before heading east. This bat is unlikely to have been roosting in the property but would be availing of foraging habitat in the grounds.*
>
> *Common and soprano pipistrelles (c. six in total) were recorded foraging along the south eastern boundary of the cemetery."*

NM Ecology Ltd carried out a bat survey in the east of Deansgrange Cemetery in August 2022. Two species were recorded feeding in the area: Leisler's bats and common pipistrelles. Leisler's bats were observed feeding in open air above the cemetery, flying at a height of approx. 20 – 50 m. They were not interacting with any trees or other features within the cemetery. Common pipistelles were observed feeding around trees and shrubs within the cemetery, typically between 5 and 10 m above ground level. Activity levels of both species were relatively low, with passes roughly every five minutes within the survey area.

The relatively low levels of bat activity may be explained, in part, by light spill from streetlights along Deansgrange Road. Bats typically favour feeding habitats with little or no artificial lighting, most likely as a strategy to avoid predation. Light spill was strongest within approx. 10 m of the eastern boundary of the cemetery, and of a lower intensity within approx. 30 m of the boundary, but beyond 30 m of the boundary the cemetery was in near total darkness.

<u>Potential roost features</u>

There are two potential roost features in the relevant section of Deansgrange Cemetery – the Old Gate Lodge and the adjacent 'Tranquil Tea Rooms' building – both of which are located beside the eastern entrance. These buildings are described in greater detail below. Outside of Deansgrange Cemetery the route is lined by buildings on both sides, but these buildings are considered unsuitable for bats because of the levels of artificial lighting, and because all of the buildings are of modern construction and well maintained.

The Old Gate Lodge is a single-storey structure with dormer attic. It was formerly used as accommodation for the gatekeeper of the cemetery, but is now used as an office by the cemetery management staff and Dun Laoghaire – Rathdown County Council. On the National Inventory of Architectural Heritage (registration number 60230113) it is reported to have been constructed in 1898, and renovated in 2010. It has a steep pitched roof of natural slate,

with an unusual support structure of exposed wooden beams. The original gutters have been replaced with modern plastic gutters. The structure is in good condition, and appears to have been sealed and painted in 2010. Some gaps were observed around ridge tiles on the southern side of the building, as well as some narrow crevices between ridge tiles. Based on the current condition of the structure, it was considered to have low suitability for roosting bats.

The adjacent structure is a single-storey rectangular building. It's original purpose was described as a 'waiting room', but it is now used by the 'Tranquil Tea Rooms' café and public toilets. On the National Inventory of Architectural Heritage (registration number 60230112) it is reported to have been constructed in 1908, and renovated in 2010. It has a pitched roof of slate, and some visible wooden support structures. The structure is in good condition, and appears to have been sealed and painted in 2010. No crevices were observed around the exterior of the structure, and it is considered to have low suitability for bats.

There are a number of mature trees along Deansgrange Road, including along the eastern and south-eastern boundaries of Deansgrange Cemetery. However, no crevices or cavities were observed in any of these trees, and all are indirectly illuminated by streetlights on Deansgrange Road. Therefore, none of the trees are considered suitable for roosting bats.

Emergence survey

An emergence survey was carried out in August 2022. The focus of the survey was the Old Gate Lodge, but it also covered the adjacent structure. Weather conditions were ideal for bats, with air temperatures of 22 - 25 ^{o}C, clear skies and no wind.

No bats were observed emerging from the buildings, or flying in close proximity to the buildings, at any time during the survey. Activity levels were relatively low, with occasional Leisler's bat activity high above the Site, and a single pass by a common pipistrelle approx. 40 minutes after sunset. The eastern sides of each building were indirectly illuminated by streetlights on Deansgrange Road.

Based on the results of the survey, which was carried out in ideal survey conditions and at an ideal time of year, we conclude that the buildings are not used by roosting bats.

Evaluation

In summary, the section of the Site within Deansgrange Cemetery is used as a foraging area by Leisler's bats and common pipistrelle bats, while soprano pipistrelles are also known to be active within the cemetery. Activity levels were relatively low, potentially influenced by light spill from streetlights on Deansgrange Road. There was no sign that bats roost in the Old Gate Lodge or adjacent building. On this basis, the section of the Site within Deansgrange Cemetery is of Local importance for bats. The remainder of the route is of Negligible importance for bats.

4.4.4 Fish and other aquatic fauna

The proposed route will cross sections of the Monkstown and Deansgrange Streams. Neither watercourse will be modified as part of the proposed development.

The Monkstown Stream is a highly-modified watercourse that has been culverted along most of its length, and now functions as a storm drain / surface water sewer. It is not considered suitable for any fish or other aquatic fauna.

The Deansgrange Stream is very different in character, as the majority of the watercourse is open (i.e. not culverted) and flows through parks and other green areas. Brown trout are known to occur in the lower sections of the watercourse, but the upper sections are too shallow for mature fish. It is noted that the river soaks through sand at Hackettsland Bay Beach, which provides a physical barrier to the movement of fish between the river and coastal waters. This would prevent migratory species such as salmon, sea trout or lamprey from accessing the stream.

In summary, aquatic fauna in the Monkstown stream is considered to be of Negligible importance, but of Local importance in the Deansgreange Stream.

4.4.5 Reptiles and amphibians

No reptiles or amphibians were observed during the site survey. There are no wetland features (e.g. ponds) suitable for frogs and newts, so the Site is of Negligible importance for these taxa.

4.4.6 Terrestrial invertebrates

No rare or protected invertebrates are known to occur in the Site.

4.5 Potential limitations and information gaps

The site inspection was carried out in the ideal survey season for most flora and fauna, so the assessment is not considered to have any information gaps.

4.6 Identification of important ecological features

Table 3 provides a summary of all ecological features identified on the site, including their importance and legal status. For the purposes of this impact assessment, any features that are of Local ecological importance, or that receive legal protection, are considered to be ‘important ecological features’, and will be addressed in the impact assessment.

Table 3: Important ecological features within the Site

Ecological feature	Valuation	Legal status*	Important feature?
Dalkey Coastal Zone And Killiney Hill pNHA	National	WA	Yes
All other designated sites	International	HR, WA	No
Buildings and artificial surfaces (BL3)	Negligible	-	No
Dry meadow (FW2)	Local	-	Yes
Amenity grassland (GA2)	Local	-	Yes
Treelines (WL2)	Local	-	Yes
Mixed coniferous woodland (WD3)	Local	-	Yes
Rare and protected flora	Negligible	-	No
Spanish bluebell	Negligible	HR	Yes
Three-cornered leek	Negligible	HR	Yes
Birds	Local	WA	Yes
Hedgehog, pygmy shrew	Local	WA	Yes
All other terrestrial mammals	Negligible	-	No
Bats (foraging habitat)	Local	HR, WA	Yes
Bats (roosting habitat)	Negligible	HR, WA	No
Fish and other aquatic fauna	Local	WA	Yes
Reptiles and amphibians	Negligible	-	No
Invertebrates	Negligible	-	No

** HR – EC (Birds and Natural Habitats) Regulations 2011; WA – Wildlife Act 1976*

In summary, the following important ecological features were identified: *Dalkey Coastal Zone And Killiney Hill* pNHA, grassland habitats (dry meadow, amenity grassland), woodland habitats (treelines, mixed coniferous woodland), invasive species (Spanish bluebell, three-cornered leek), birds, small mammals (hedgehog, pygmy shrew), foraging bats, fish and other aquatic fauna. Potential impacts are considered in Section 5.

5 Predicted Impacts of the Proposed Development

5.1 Dalkey Coastal Zone And Killiney Hill pNHA

The *Dalkey Coastal Zone And Killiney Hill* pNHA is a large designated site that covers a range of habitats and species around Dalkey head. It includes a patch of wetland habitat at the mouth of the Deansgrange Stream, which is approx. 5 km downstream of the Site.

Proposed works in the vicinity of the stream are shown in the figure titled 'Road Layout Sheet 1' that accompanies the application. It will include some small-scale modification of pavements and junction crossing points, and painting of road and pavement surfaces. There will be no modification of the stream or bridge. The proposed works are small in scale, and will take place on existing hard surfaces. If small quantities of pollutants (e.g. concrete dust) reached the watercourse, they would be diluted by 5 km of intervening watercourse before reaching the pNHA.

On this basis, we conclude that there will be no risk of impacts on the pNHA or the wetland features at the mouth of the Deansgrange Stream.

5.2 Grassland habitats

Dry meadow and amenity grassland of Local importance was recorded in Deansgrange Cemetery adjacent to the proposed development. That majority of these habitats are outside the footprint of the proposed development and will not be affected. There will be some localised direct impacts at the following locations:

- Removal of small patches of dry meadow and amenity grassland at the northern entrance of Deansgrange Cemetery, to accommodate a new entrance and off-road cycle track
- Removal of a patch of dry meadow in the south-east of Deansgrange Cemetery to make a new site entrance and link to the cycle path

These areas are small in extent, measuring approx. 20 m^2 in each case. These are small fractions of the habitat in each case, so the direct impacts on amenity grassland and dry meadow will be negligible in each case.

5.3 Treeline and woodland habitats

Treeline and mixed coniferous woodland of Local importance was recorded in Deansgrange Cemetery adjacent to the proposed development. None were in the footprint of the development, and no trees will be felled for the project, so there will be no impact on these habitats.

5.4 Spanish bluebell and three-cornered garlic

These species are known to occur in the east of Deansgrange Cemetery. The field survey by NM Ecology Ltd was undertaken outside the growing season for these species, so it was not possible to accurately record their distribution. However, surveys by Faith Wilson in 2021 recorded patches of both species in dry meadow and amenity grassland habitats adjacent to the proposed development.

Construction work in the vicinity of these plants may cause them to spread. This would constitute an offence under the *European Communities (Birds and Natural Habitats) Regulations 2011*), and may have a localised ecological impact.

It is noted that Faith Wilson's *Ecological Assessment of Deansgrange Cemetery* in 2021 proposed a system of herbicide control for both species. It is not known whether the treatment programme commenced in 2022, or if it will be implemented in subsequent years. However, on a precautionary approach we will develop a stand-alone management plan for these species that will be independent of any measures implemented by cemetery staff.

5.5 Disturbance of nesting birds / breeding mammals

The treelines and scrub may provide habitat for nesting birds and breeding mammals (notably hedgehog and pygmy shrew). However, as none of this habitat will be removed, there will be no risk of impact on birds or mammals.

Hedgehogs and pygmy shrew may occasionally use dry meadow habitat as cover, but they are highly unlikely to breed or hibernate in this habitat due to the lack of protection from predators.

5.6 Bats

Deansgrange Cemetery is a locally-important foraging area for a range of common bat species, including Leisler's bat, common pipistrelle and soprano pipistrelle. These species typically favour habitats that have no artificial lighting.

Lighting will be required along the cycle path to ensure the safety of users at night, notably during mid-winter months when the sun sets before 5 pm. If lighting was of high intensity, projected horizontally or directed at any trees, it could potentially displace bats from their foraging habitat within the quarry.

5.7 Fish and aquatic fauna in the Deansgrange Stream

As noted in Section 5.1, the proposed works near Deansgrange Stream are small in scale, and will take place on existing hard surfaces. If small quantities of pollutants (e.g. concrete dust) reached the watercourse, they would be diluted before reaching the lower sections of the stream in which brown trout are present.

On this basis, we conclude that there will be no risk of impacts on fish or aquatic fauna in the Deansgrange Stream.

6 Proposed mitigation measures

6.1 Management of Spanish bluebell and three-cornered garlic

Patches of these species will be controlled prior to, during and following the construction of the proposed development. Detailed proposals have been outlined in the accompanying Invasive Species Management Plan, including:

- Herbicide treatment of both species prior to construction
- Bio-security measures to prevent the spread of these species during construction
- Follow-up monitoring and spot-treatment

It is assumed that these measures will be implemented by the construction contractor. However, if cemetery management staff are carrying out similar works throughout in the cemetery (e.g. herbicide treatment) it may be feasible to share or combine various aspects of the work.

6.2 Bat-sensitive lighting

Bats are highly sensitive to artificial lighting, and may be displaced from the Site if lights are of high intensity, or if they are directed towards trees. To avoid this, a range of 'bat-sensitive lighting' principles have been implemented for the lighting plan for the development, which are taken from the *Bats and Lighting* guidelines (BCT & ILP 2018):

- Lights will incorporate LEDs with a 'warm' temperature of 2,200K. These have minimal UV ourput, and therefore least impact on bats
- Lights will be on 4 m poles, and will face vertically downwards. Louvres will be used to direct light onto the cycle path and avoid unnecessary light spill.
- No lights will be directed towards any trees or landscaped areas

These measures will apply both to temporary lighting during the construction of the proposed development, and to permanent lighting during the operation of the development.

7 Residual Impacts

The Invasive Species Management Plan includes measures to control Spanish bluebell and three-cornered leek prior to, during and following construction works. Subject to these measures, the plants will not be spread, and an offence under the *EC (Birds and Natural Habitats) Regulation* 2011 will be avoided.

Bat-sensitive lighting techniques have been incorporated into the lighting plan to avoid light-spill into areas that are likely to be used by bats. There will be localised illumination along the cycle path, predominantly in areas that are already indirectly illuminated by streetlights along Deansgrange Road. During bat surveys it was found that bat activity along the

proposed cycle route was low, and that most bats were flying at heights of at least 5 m above ground level (i.e. higher than the lighting columns). Therefore, lighting for the cycleway should will have a negligible effect on foraging bats.

Subject to the successful implementation of these measures, it can be concluded that the proposed development will not cause any significant negative impacts on designated sites, habitats, legally protected species, or any other features of ecological importance.

8 References

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