Clonburris Phase One - Travellers' Accommodation

Appropriate Assessment Screening Report

South Dublin County Council

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
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1. Introduction

1.1 Background and project description

AECOM Ireland Limited ('AECOM') was commissioned by South Dublin County Council (SDCC) to produce an Appropriate Assessment (AA) Screening Report for the Traveller Accommodation Site at Kishogue Road, Clonburris, Co. Dublin.

This planning application is for the replacement of existing dwellings with fifteen new dwellings, new community facilities, one large open green space, and provision of temporary traveller accommodation (hereafter referred to as the 'Proposed Development'). The Proposed Development is located within the Clonburris Strategic Development Zone (SDZ) at Clonburris, Co. Dublin (the approximate Irish Grid Reference of the site centroid is O 04362 32596 and the Irish Transverse Mercator (ITM) coordinates of the centre of the Site is 704304, 732620). The location of the Proposed Development is hereafter referred to as the 'Site'. The location of the Site is shown in Figure 1.

This document considers the potential effects of the Proposed Development on European sites, which include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). It serves to 'screen' for likely significant effects on European sites from the Proposed Development, either alone or in-combination with other plans or projects, and in view of best scientific knowledge.

1.2 Legislative context

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which is more commonly known as the 'Habitats Directive', requires Member States of the European Union (EU) to take measures to maintain or restore, at favourable conservation status, natural habitats and wild species of fauna and flora of Community interest. The provisions of the Habitats Directive require that Member States designate SACs for habitats listed in Annex I and for species listed in Annex II. Similarly, Directive 2009/147/EC on the conservation of wild birds, which is more commonly known as the 'Birds Directive', provides a framework for the conservation and management of wild birds. It also requires Member States to identify and classify SPAs for rare or vulnerable species listed in Annex I of the Birds Directive, as well as for certain regularly occurring migratory species. Collectively, SACs and SPAs are known as 'European sites'.

In Ireland, the habitats and/or species which are the reason(s) for designation of an SAC are referred to as 'Qualifying Interests' (QI). In relation to SPAs, the bird species for which a particular site is designated are referred to as the 'Special Conservation Interests' (SCI).

Under Article 6(3) of the Habitats Directive, any plan or project which is not directly connected with or necessary to the management of a European site but would be likely to have a significant effect on such a site, either individually or in-combination with other plans or projects, must be subject to an Appropriate Assessment (AA) of its implications for the SAC / SPA in view of the site's Conservation Objectives.

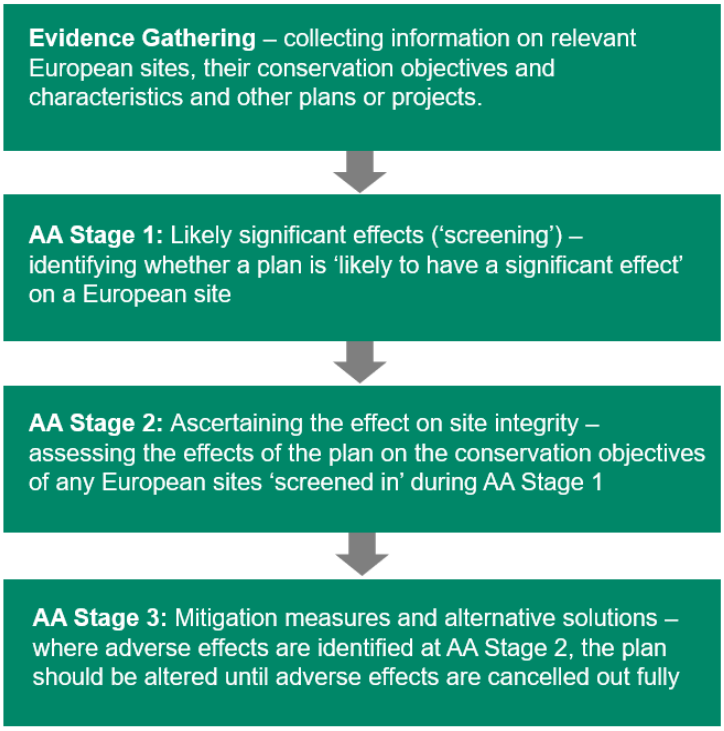
In the Republic of Ireland, the requirements of Article 6(3) are transposed into national law through Part XAB of the Planning and Development Act 2000 (as amended) (hereafter abbreviated to the 'PDA') for planning matters, and by the European Communities (Birds and Natural Habitats) Regulations 2011 (the 'Habitats Regulations') in relation to other relevant approvals / consents. The legislative provisions for Appropriate Assessment Screening for planning applications are set out in Section 177U of the PDA.

The competent authority which is responsible for carrying out the AA is the relevant consenting body for each project or plan, which in this case is South Dublin County Council.

1.3 Overview of the Appropriate Assessment process

The process required by Articles 6(3) and 6(4) of the Habitats Directive is stepwise and must be followed in sequence. Image 1 below outlines the stages of AA according to current European Commission (EC) guidance (European Commission, 2021). The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations, and any relevant changes to the plan or project until no significant adverse effects remain.

Image 1: The stages of Appropriate Assessment (taken from European Commission (2021))



The first step in the sequence of tests is to establish whether an AA is required. This is often referred to as 'AA Screening'. The purpose of AA Screening is to determine, in view of best available scientific knowledge, whether a plan or project, either alone or in-combination with other plans or projects, could have likely significant effects on a European site, in view of that site's Conservation Objectives.

Section 177U of the PDA provides:

> *"A screening for appropriate assessment of … [an] application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that … proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.*
>
> *The competent authority shall determine that an appropriate assessment of … a proposed development, …, is required* ***if it cannot be excluded*** *[emphasis added], on the basis of objective information, that … the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site".*

For this purpose and as a result of case law 'likely' in practice means 'possible'[1]. If the competent authority determines that there are no likely significant effects (including 'in-combination' effects from other plans or projects), then no further assessment is necessary and the plan or project can, subject to any other issues, be taken forward. If, however, the competent authority determines that there are likely significant effects, or if there is reasonable scientific doubt, then the next step in the process must be initiated and a detailed AA must be undertaken.

The purpose of the stage of Appropriate Assessment is to further explore the potential impacts and effects and to determine whether a conclusion of no adverse effects on integrity can be drawn for any of the 'screened in' impacts / European sites.

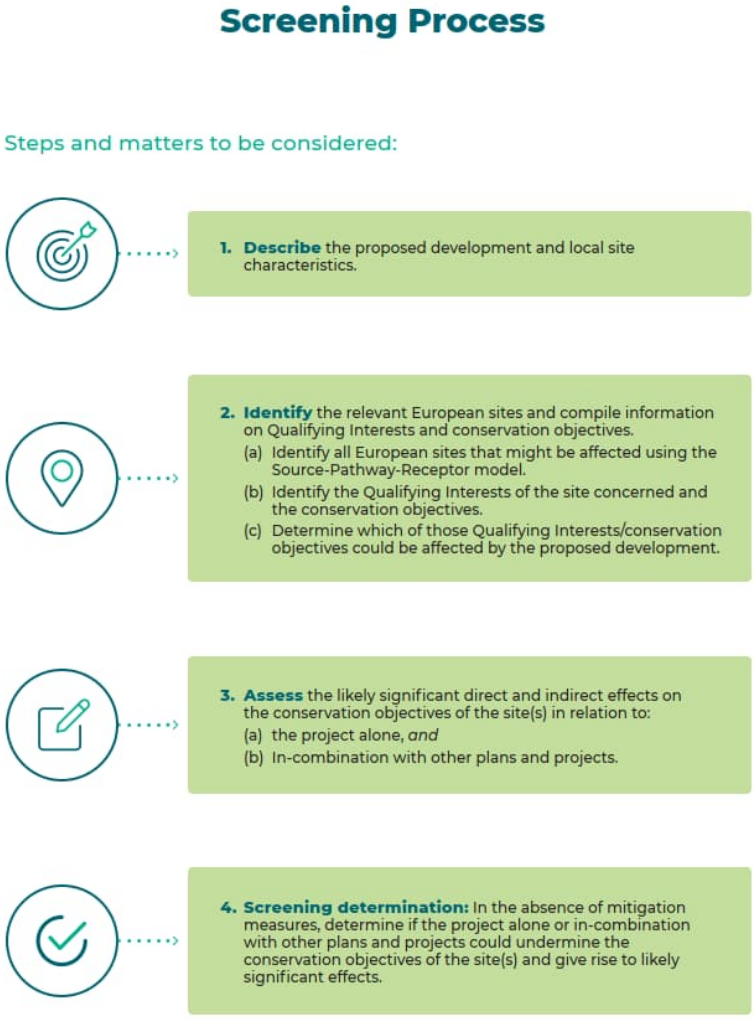
One of the key considerations during the stage of Appropriate Assessment is whether there is available mitigation that would entirely address potential effects.

[1] Waddenzee (C-127/02).

1.4 Sources of guidance

This AA Screening Report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects in relation to Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (European Commission, 2021). It also accords with the guidance provided in the Office of the Planning Regulation (OPR) document *Appropriate Assessment Screening for Development Management* (OPR, 2021), and follows the structure and approach it recommends, as shown on Image 2, below.

Image 2: The AA Screening process (taken from OPR (2021))



In addition, the following sources of guidance have also been considered during the preparation of this AA Screening Report:

- *Appropriate Assessment of Plans and Projects in Ireland* (DoEHLG, 2010);
- *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (European Commission, 2018); and,
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular Letter NPWS 1/10 & PSSP 2/10* (NPWS, 2010).

1.5 Purpose of this Report

Whilst the various steps involved in the AA process must be carried out by a competent authority, under Section 177U(3) of the PDA, project proponents or their consultants may undertake a form of screening to establish if an AA is required and provide advice or may submit the information necessary to allow the competent authority to conduct a screening of an application for consent. Specifically, Section 177U(3) states that:

"*in carrying out a screening for appropriate assessment of a proposed development a competent authority may request such information from the applicant as it may consider necessary to enable it to carry out that screening, and may consult with such persons as it considers appropriate…".*

This AA Screening Report therefore serves to provide AECOM's opinion on the requirement for further AA, and to provide the information needed by South Dublin County Council to make their own screening decision as competent authority for the planning application for the Proposed Development.

For clarity, in the context of the Habitats Directive, the Proposed Development represents a 'project' and no reference to 'plans' is made hereafter, except where required to consider the potential for in-combination effects to arise between the Proposed Development and any relevant plans.

1.6 Quality assurance

This AA Screening Report, and the assessment described within it, has been completed in accordance with the AECOM Integrated Management System (IMS). Our IMS places emphasis on professionalism, technical excellence, quality, as well as covering health, safety, environment and sustainability management. All AECOM staff members are committed to maintaining our accreditation to those parts of BS EN ISO 9001:2015 and 14001:2015, as well as BS OHSAS 18001:2007 that are relevant to a consultancy service.

The AA Screening has been carried out by AECOM ecologists with experience in conducting such assessments.

2. Methodology

2.1 Data sources

A desk-based study was carried out to help establish the baseline conditions relevant to the Proposed Development. The following resources were analysed to inform the baseline description of the Site of the Proposed Development and for assessing sensitivities of European sites:

- Environmental Protection Agency (EPA) maps website (https://gis.epa.ie/EPAMaps/) (accessed 22 April 2023);
- National Parks and Wildlife Service (NPWS) Protected Sites in Ireland website (https://www.npws.ie/protected-sites) (accessed 22 April 2023);
- Google maps website (https://maps.google.com/) (accessed 22 April 2023); and,
- The Status of European Union (EU) Protected Habitats and Species in Ireland (Article 17 Report) (https://www.npws.ie/publications/article-17-reports/article-17-reports-2019) (accessed 22 April 2023).
- Preliminary information on the nature, location and design of the Proposed Development supplied by the applicants' design team;
- Ecological Survey of Clonburris Strategic Development Zone, Clondalkin, Co. Dublin (FERS, 2018) (accessed 23 April 2023);
- Appropriate Assessment Screening Report. SDCC Clonburris Phase One. South Dublin County Council (2022) (Accessed 23 April 2023);
- Clonburris SDZ Planning Scheme. Strategic Environmental Assessment. Final Environmental Report. South Dublin County Council (Minogue & Associates Ltd., 2017) (accessed 23 April 2023);
- Appropriate Assessment Screening Report for Road Infrastructure Development at Clonburris Strategic Development Zone, Co. Dublin. Scott Cawley (2020a) (accessed 23 April 2023); and
- Outline Invasive Species Management Plan Clonburris SDZ, Clonburris, Co. Dublin. South Dublin County Council (Scott Cawley, 2020b) (accessed 23 April 2023).

2.2 Establishing the zone of influence

2.2.1 Approach

Department of the Environment, Heritage and Local Government guidance (DoEHLG, 2010) states that European sites with the potential to be affected by a project should be identified taking into consideration the potential for direct, indirect and/or cumulative (in-combination) effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the project. However, it advises that the following sites should generally be included:

- all European sites within or immediately adjacent to the project area;
- all European sites within the likely 'zone of influence' of the project; and,
- adopting the Precautionary Principle, all European sites for which there is doubt as to whether or not such sites might be significantly affected.

The likely Zone of Influence (ZoI) of a project is the geographic extent over which it could affect the receiving environment in a way that could have significant effects on the QI or SCI of a European site (OPR, 2021). In the case of projects, the DoEHLG guidance acknowledges that the ZoI must be devised on a case-by-case basis with reference to the following criteria:

- the nature, size / scale and location of the project;
- sensitivity of ecological features under consideration; and,
- cumulative effects.

When seeking to identify the relevant European sites, consideration was given to identified impact pathways and the source-pathway-receptor approach (OPR, 2021), rather than adopting a purely 'zones'-based approach whereby European sites within, potentially arbitrary, set distances of the Proposed Development would be

assessed. The source-pathway-receptor approach is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no possibility of an effect occurring. If, for example, there is a sensitive European site in the vicinity of the Proposed Development but no mechanism by which the Proposed Development would impact that site then there is no potential for an ecological effect. Furthermore, even where an impact is predicted to occur, it may not result in significant effects.

The process of determining which (if any) European sites are within the ZoI of the Proposed Development was therefore a progressive assessment of the potential for each impact source which could arise from its construction and operation to affect the QI / SCI of such sites. There is no expectation of a decommissioning phase and so no consideration was given to this theoretical stage of development. This process is set out in Table 1, below, and was conducted with cognisance of all of the impact sources described in Section 2.2.2

2.2.2 Sources of impact from the Proposed Development

A number of impacts could arise from the construction and operation of the Proposed Development. A description of each, and their potential relevance to the QI / SCI of European sites, is given under the following sub-headings.

No consideration has been given to the loss of habitat from within the boundary of a European site as the Proposed Development will involve no works inside any SAC or SPA and there is thus no possibility of this impact arising.

Loss of habitat outside of European sites but which supports QI / SCI species

Habitat outside of the boundary of a European site but which supports the QI / SCI species of that site, is defined as being 'functionally-linked' to it. The ruling in the Holohan and Others v An Bord Pleanála (C-461/17) case concluded that the loss of functionally-linked habitat could result in significant effects on the qualifying features of a European site, if this prevented the site from meeting its Conservation Objectives.

To determine whether habitat may be functionally-linked to an European site requires some level of detailed study, often including targeted field survey. However, this impact can only occur on mobile animal species which could be present outside of the European site for which they are designated. For several bird species, NatureScot has published guidance on the distances up to which qualifying species may use functionally-linked habitat outside of European sites (SNH, 2016). The distances given in this guidance were used when searching for SPAs which may be within the ZoI of the Proposed Development. Accordingly, SPAs (with the exception of those designated for seabirds which exclusively inhabit the marine environment and which do not use the terrestrial habitats within the Site of the Proposed Development) up to 20 km were searched for, as this is given as the largest core foraging range for any species (non-breeding pink-footed goose *Anser brachyrhynchus* and greylag goose *Anser anser*).

For other mobile terrestrial, aquatic or amphibious animals for which SACs are designated in Ireland, the following distances were used when searching for sites which could be impacted by loss of functionally-linked habitat:

- marsh fritillary *Euphydryas aurinia* – research by Wahlberg *et al.* (2002) found that the average dispersal distance of male marsh fritillaries was 1.3 km, and up to 510 m for females. On a precautionary basis, therefore, a distance of 1.5 km was adopted;
- otter *Lutra lutra* – studies quoted in Harris and Yalden (2008) suggest that the mean liner range size for four male otters in north-east Scotland was 48 km. For one male in Perthshire the maximum range was 39 km and for another male in Suffolk the range was also 39 km. Female otters generally have smaller ranges, quoted in Harris and Yalden (2008) as being between 16-21 km. A buffer of 40 km, and only where there is direct hydrological connectivity to the Proposed Development, was used when searching for SACs designated for otter;
- lesser horseshoe bat *Rhinolophus hipposideros* – the Bat Conservation Trust (BCT) estimate that the 'core sustenance zone' (CSZ) for lesser horseshoe bats extends to around 2 km from a roost site. The CSZ is the area surrounding a communal roost within which habitat availability and quality are expected to have a significant influence on the resilience and conservation status of the colony using the roost (BCT, 2016). The ZoI of the Proposed Development on lesser horseshoe bats was therefore considered to extend to at least 2 km from the site of the Proposed Development; and,
- all fish species – no set distance was used when considering potential impacts on fish species. Where a direct hydrological link exists between the Proposed Development and an SAC designated for these species, it was considered that there could be impacts on these QI species; and,

Marine mammals were not considered as the Proposed Development has no potential to impact on these animals.

Although the whorl snails *Vertigo angustior*, *V. geyeri* and *V. moulinsiana*, and Kerry slug *Geomalacus maculosus* are all mobile species, their ability to move over any substantial distance is extremely limited. Functionally-linked habitat for these species was therefore considered to only exist up to a distance of 100 m from any SAC for which these species are a QI.

Freshwater pearl mussel *Margaritifera margaritifera* is not a mobile species. However, it relies upon salmonid fish for part of its lifecycle. Therefore, in cases where a direct hydrological connection exists between the Proposed Development and an SAC designated for freshwater pearl mussel, the potential impacts on this species were considered.

Waterborne pollution

Construction works have the potential to pollute watercourses and/or waterbodies. These could themselves represent QI of a European site, may be within a European site and support the QI of that site, or may be outside of a European site but be functionally-linked to such a site if used by the qualifying animals. Waterborne pollution may arise through spillages of fuels, oils, chemicals or other pollutants, or from the uncontrolled release of sediment. Discharges of effluent, which could increase the nutrient levels in the water would also fall under this category of impact.

Waterborne pollution can degrade habitats and can lead to the direct mortality of QI species such as fish and freshwater pearl mussel. The distance over which such impacts could have effects would depend on the severity of the pollution. However, any European site which has a direct hydrological connection to the Proposed Development, but not including estuarine or marine designations (where a huge dilution effect on any pollution would occur from the massive volume of the sea), has the potential to be within the ZoI.

Airborne pollution

Airborne pollution could occur during the construction phase due to the generation of dust or from emissions from construction vehicles. As for waterborne pollution, above, construction-phase airborne pollution could impact on qualifying, supporting or functionally-linked habitats.

Dust generated during construction activities can directly impact vegetation or aquatic environments, and can indirectly impact animal species (for example where these habitats are used by them for foraging). During extended periods of dry weather, dust can cover plant foliage and adversely affect photosynthesis or other biological functions. Rainfall can then remove deposited dust and rapidly leach chemicals into the soil (Holman *et al*, 2014). Guidance published by the Institute of Air Quality Management (IAQM) advises that consideration should be given to construction-related air quality impacts on nature conservation sites within 50 m of works, including any access routes, extending to 500 m from the entrance to the construction site (Holman *et al.*, 2014).

Vehicles which operate via internal combustion engines emit airborne pollutants. The most important of these for European sites are oxides of nitrogen (NO_x). At close distances to source, NO_x can have a directly toxic effect on vegetation at very high concentrations. However, likely to be of greater concern is the contribution NO_x makes to the deposition of nitrogen to soils. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This can have adverse effects on community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats (e.g. Wolseley *et al.*, 2006; Dijk, 2011; http://www.apis.ac.uk/search-pollutant-impacts). Both the IAQM and the Design Manual for Roads and Bridges (DMRB) advise that such impacts are only likely to extend to a maximum of 200 m from a road (or works area), and that air pollution levels fall sharply within the first few tens of metres (Holman *et al.*, 2019; Highways England *et al.*, 2019).

Changes to surface water hydrology

Changes to surface water hydrology can occur as a result of engineering activities during the construction phase. Abstraction of water (e.g. for use in dust suppression or other construction works) can also reduce water levels, as can changes to the existing flows of surface water to a watercourse.

These impacts can act on the qualifying species of a European site if they pass through or occur within the relevant part of the watercourse. Therefore any European site with direct freshwater hydrological connectivity (i.e. not including marine sites) could be impacted by changes to surface water hydrology.

Changes to groundwater flow or volume

Changes to groundwater conditions can occur as a result of excavations or the installation of piled structures (for example by interrupting groundwater flows). Guidance published by the Scottish Environment Protection Agency (SEPA) suggests that such activities could impact on groundwater dependent terrestrial ecosystems (GWDTE) up to 100 m from excavations less than 1 m in depth, extending up to 250 m for deeper excavations (SEPA, 2017). Considering the works required to construct the Proposed Development, and that large, deep excavation will not be required, it is very unlikely that groundwater impacts will extend more than 100 m.

Disturbance of qualifying species

Construction activities have the potential to cause disturbance of qualifying animal species. In addition, the presence of people during the operational phase also has the potential to cause disturbance where they occur sufficiently close to qualifying species. Disturbance can be caused visually (for example by the presence of personnel and plant, or as a result of artificial illumination of habitats) and/or by the noise and vibration generated by works. This could impact qualifying species when inside the boundary of a European site, or outside of a European site when using functionally-linked habitat.

The potential for disturbance to be caused will depend on the location and nature of activities, the distribution of the qualifying species, and the sensitivity of the species to noise and visual disturbance from human activities. Where disturbance is caused, it can have multiple adverse effects on species including increased energy expenditure, reduced feeding time, behavioural changes, and displacement.

Based on the published guidance referenced below, the following distances were used when considering how far construction and operational activities may disturb qualifying species:

- otter – 150 m, in accordance with NRA (2008), which suggests this distance for otter breeding sites, reduced to 20 m for other resting sites not used for breeding purposes;
- lesser horseshoe bat – on a precautionary basis, a distance of 150 m is considered the maximum at which disturbance could be caused to roosting lesser horseshoe bats by construction and operational activities;
- non-breeding waterbirds – the Waterbird Disturbance Mitigation Toolkit (Cutts *et al.*, 2003) provides species-specific information on the sensitivity of several bird species which are qualifying features of SPAs. However, it suggests that, in general, disturbance of non-breeding waterbirds can occur up to distances of around 300 m from construction works; and,
- breeding birds – 1 km, this being the maximum distance at which NatureScot consider disturbance could occur on the most sensitive species for which SPAs are designated (Goodship and Furness, 2022).

Disturbance of fish species is considered to be possible where works take place within 50 m of watercourses, although even with this distance disturbance is unlikely due to the vibration damping effect of intervening soil and rock.

Snail and slug species have no acoustic sense (Chase, 2001) and are not considered to be vulnerable to disturbance as a result of construction works.

Injury or mortality of qualifying species

The direct injury or mortality of QI species could occur where the species in question may be using functionally-linked habitat outside of a European site boundary.

The potential for the direct mortality of fish species as a result of waterborne pollution is also considered above.

During the operational phase there is not considered to be a risk of injury or mortality of any QI or SCI species.

Prevention of migratory movements of qualifying species

The only feasible way in which construction works could impact on species in such a way that their migratory movements could be prevented is where they take place in or near to watercourses. The pollution of a watercourse, or noise / visual disturbance could all act to prevent the migratory movement of QI fish species.

This impact was therefore considered to be possible with construction taking place adjacent to a river which is hydrologically linked to a SAC for which fish are a qualifying species. Any new in-stream structures could act as a barrier to fish migration during the operational phase of the Proposed Development.

Spread of invasive non-native species

Invasive non-native species can have detrimental effects on native flora and fauna. The construction and operation of the Proposed Development is very unlikely to result in the spread of any non-native animal species. However, construction works have the potential to spread invasive non-native plant species. This could introduce such species to a European site and have impacts on habitats and species.

When carrying out this AA Screening, it has been assumed that the spread of invasive non-native plants could occur where construction works take place up to a distance of 50 m from a European site, or where there is otherwise a direct hydrological connection between the Proposed Development and a European site.

Operation of the Proposed Development will not be materially different to the existing situation with regards to the potential spread of invasive non-native species.

2.2.3 European sites within the zone of influence

Taking the approach described in Section 2.2.1 and with cognisance of the impact sources set out in Section 2.2.2, the ZoI for the Proposed Development, and all of the European sites within it, was determined. This is set out in Table 1.

The locations of all European sites within the potential ZoI are shown on Figure 2.

Not all impacts will have pathways for effects to the QI / SCI of all European sites within the ZoI. Consequently, some sites may be within the ZoI for certain impacts, but not for others.

Table 1: Establishing the ZoI of the Proposed Development

Impact source	Pathway to European site(s)	European site within the potential ZoI
Construction phase		
Loss of habitat outside of European sites but which supports qualifying species (i.e. loss of functionally-linked habitat).	The closest European site to the Proposed Development is the Rye Water Valley/Carton SAC which is approximately 4.9 km away with no ecological pathway / hydrological link between the Site and the SAC. Given the intervening distance between the Proposed Development and any European site, there is no potential for direct loss of or damage to functionally-linked habitat. The core foraging range of the SCI bird species of the Wicklow Mountains SPA is 5 km for merlin *Falco columbarius* and 2 km for peregrine *Falco peregrinus* (SNH, 2016). This European site is therefore located well beyond the distance from the Proposed Development at which regularly foraging by birds associated with this SPA could be expected, as the SPA is 13.7 km from the Site. There is, however, the potential for wintering waterbird species of the South Dublin Bay and River Tolka Estuary SPA, which is 13.8 km from the Site, to occur near the Site for foraging purposes. Light-bellied brent geese are an SCI of the SPA and are within the foraging distance of the Site[2]. Light-bellied brent geese are the only SCI species of the SPA within the foraging ranges of the Site. The South Dublin Bay and River Tolka Estuary SPA is therefore considered to be within the potential ZoI of the Proposed Development. All other SPAs within Dublin Bay are more than 15 km from the Site, thus are beyond the foraging ranges of any of their SCI species (SNH, 2016). Therefore there is no potential for loss of functionally-linked habitat to these SCI species.	South Dublin Bay and River Tolka Estuary SPA
Waterborne pollution of qualifying, supporting or functionally-linked habitat(s), or of qualifying or supporting species.	The closest European site to the Proposed Development is the Rye Water Valley/Carton SAC which is approximately 4.9 km away with no ecological pathway / hydrological link between the Site and the SAC. There is no hydrological link between the Site and any European sites. Therefore, there is no potential for waterborne pollution.	None.
Airborne pollution of qualifying, supporting or functionally-linked habitat(s), or of qualifying or supporting species.	Construction works will involve construction vehicles. Emissions will occur and dust generation is possible. On a precautionary basis, any European sites (with the exception of estuarine and marine sites which are not vulnerable to airborne pollution (e.g. http://www.apis.ac.uk/node/968)) within 500 m (to account for IAQM guidance in relation to construction site entrances (see Section 2.2.2, above)) were considered at this stage to be within the potential ZoI of this impact. The closest European sits to the Proposed Development is the Rye Water Valley/Carton SAC which is approximately 4.9 km away. There is no potential for airborne pollution to affect these European sites given the intervening distance.	None.
Changes to groundwater flows or volume.	Similar to changes to surface water hydrology above, effects to the groundwater of a European site are unlikely given the intervening distance of approximately 4.9 km to Rye Water Valley/Carton SAC.	None.
Disturbance of qualifying species (e.g. visual, noise, vibration or artificial light).	The nearest European site for which an animal species is a QI species is the Rye Water Valley/Carton SAC (4.9 km), designated for Desmoulin's whorl snail and narrow-mouthed whorl snail. There is no suitable habitat for Desmoulin's whorl snail and narrow-mouthed whorl snail within the Proposed Development. Given the distance to the Rye Water Valley/Carton SAC (which is located 4.9 km from the Proposed	South Dublin Bay and River Tolka Estuary SPA

[2] Light-bellied brent goose is not specifically included as a selected species in the NatureScot guidance (SNH, 2016). However, research on brent geese is used as a surrogate for barnacle geese *Branta leucopsis*, thus the buffer zone for the latter species is taken to be appropriate for light-bellied brent goose.

Impact source	Pathway to European site(s)	European site within the potential ZoI
	Development) there is no potential for noise, light or visual disturbance of these species. Moreover, small molluscs are not likely to be vulnerable to such disturbance. SPAs designated for wintering waterbirds are all located well beyond the distance at which direct construction-related disturbance would be expected. The closest SPA to the Site is Wicklow Mountains SPA which is 13.7 km from the Site. There is no pathway for disturbance effects on birds occurring within the boundary of European designated sites due to the intervening distances. However, should SCI species occur in proximity to the Proposed Development, there is the potential for disturbance to be caused. The Waterbird Disturbance Mitigation Toolkit (Cutts *et al*., 2013) states that even 'high level' disturbance sources (including, for example, very noisy construction activities), are only likely to result in 'low level' disturbance at distances of more than 500 m. There is no pathway for effects to SCI bird species when present within any SPA. The core foraging range of the SCI bird species of the Wicklow Mountains SPA is 5 km for merlin and 2 km for peregrine (SNH, 2016). This European site is therefore located well beyond the distance from the Proposed Development at which regularly foraging by birds associated with this SPA could be expected. There is, however, the potential for wintering waterbird species of the South Dublin Bay and River Tolka Estuary SPA, which is 13.8 km from the Site, to occur near the Site for foraging purposes. This could lead to disturbance where they occur within 500 m of construction works. The South Dublin Bay and River Tolka Estuary SPA is therefore considered to be within the potential ZoI of the Proposed Development. All other SPAs within Dublin Bay are more than 15 km from the Site, thus are beyond the foraging ranges of any of their SCI species (SNH, 2016). Therefore there is no potential for disturbance to these SCI species as they will not be foraging within proximity to the Site.	
Injury or mortality of qualifying species.	Construction of the Proposed Development is not situated in a location where qualifying mobile species would be likely to occur given it is an existing residential area, with the exception of qualifying birds that may forage near the Site. However, qualifying birds of European sites that could occur (i.e., mobile adults and young), all are well able to move away from sources of injury such as plant machinery.	None.
Barriers to or displacement of QI / SCI or supporting species.	There is no potential for barrier to or displacement of QI / SCI species as a result of the construction of the Proposed Development, given the lack of an ecological pathway / hydrological link and also the intervening distance between the Site and any European sites.	None.
Spread of invasive non-native species.	Spanish bluebell *Hyacinthoides hispanica* was recorded within 80 m of the Site by SDCC, AECOM ecological walkover survey in 2021, and during invasive species surveys in 2020 (Scott Cawley, 2020). Spanish bluebell is listed on the Third Schedule of the Habitats Regulations. The spread of invasive non-native plants could occur where construction works take place up to a distance of 50 m from a European site, but as previously discussed there are no European sites within this distance and also given the lack of an ecological pathway / hydrological link to any European site there is no mechanism by which invasives non-native species could be spread into a European site.	None.
Operational phase		
Loss of habitat outside of European sites but which supports qualifying species (i.e. loss of functionally-linked habitat).	There is no mechanism by which operation of the Proposed Development could realistically lead to the loss of functionally-linked habitat. Conditions during the operational phase will be similar to existing conditions.	None.
Waterborne pollution of qualifying, supporting or functionally-linked habitat(s), or of qualifying or supporting species.	Operational activities in the area will be similar to existing conditions. There is no potential for waterborne pollution during the operational phase.	None.

Impact source	Pathway to European site(s)	European site within the potential ZoI
Airborne pollution of qualifying or supporting habitat(s) or species.	It is unlikely that the operation of the Proposed Development could lead to an increase in airborne pollution compared to pre-construction levels. The Proposed Development is situated within a residential area and the operational phase does not actively produce airborne pollution. As was stated in the construction phase above, all European sites are over 500 m from the Site of the Proposed Development.	None.
Changes to surface water hydrology.	There will be no requirement for water abstraction or no discharges to surface water during the operational phase. Consequently there is no possibility of changes to surface water hydrology.	None.
Changes to groundwater flows or volume.	As described in relation to surface water hydrology, there will be no requirement for abstraction of water for the operation of the Proposed Development. There is consequently no potential for impact on groundwater flows or volume during the operational phase.	None.
Disturbance of qualifying species (e.g. visual, noise, vibration or artificial light).	Given the Proposed Development involves the replacement of existing dwellings with new ones, conditions will be similar to existing conditions, thus no potential for disturbance to QI / SCI species.	None.
Barriers to or displacement of QI / SCI or supporting species.	There is no realistic pathway for this impact. Operation of the Proposed Development does not pose as a barrier to or displacement of QI / SCI species, given the intervening distances between the Site and any European site.	None.
Injury or mortality of qualifying species.	There is no realistic pathway for this impact. Operation of the Proposed Development does not pose any significant injury / mortality risk to QI / SCI species, given the intervening distances between the Site and any European site.	None.
Spread of invasive non-native species.	There is no mechanism by which the operation of the Proposed Development could realistically lead to the spread of invasive non-native species into any European site.	None.

3. Test of likely significant effects

3.1 Overview

This section assesses the potential for the identified construction and operational phase impacts, for which pathways exist to European sites, to have likely significant effects on those sites. 'Likely' in this context is taken to mean 'possible', while a 'significant' effect is one which could undermine the Conservation Objectives of a European site.

The purpose of AA Screening is to determine those elements of a project regarding which it can be stated, without detailed assessment, that significant effects on a European site are unlikely. In line with case law[3], consideration cannot be given at this stage to specific mitigation measures designed to avoid significant effects on a European site. The test of likely significant effects in this section is therefore necessarily a high-level assessment, carried out without consideration of mitigation measures, and with a precautionary approach adopted when reaching a conclusion.

For any impacts for which likely significant effects cannot be 'screened out' (i.e. excluded), further assessment at the Appropriate Assessment stage will be required.

3.2 Impacts with pathways to European sites

3.2.1 Impacts screened out of further assessment

On the basis of the initial assessment described in Section 2 of this Report, there is no pathway for the following construction phase impacts to reach any European sites:

- direct loss of or damage to habitats within the boundary of a European site;
- waterborne pollution of qualifying, supporting or functionally-linked habitat(s), or of QI / SCI or supporting species;
- airborne pollution of qualifying, supporting or functionally-linked habitat(s), or of qualifying or supporting species;
- changes to surface water hydrology;
- changes to groundwater flows or volume;
- injury or mortality of QI / SCI species;
- barriers to or displacement of QI / SCI or supporting species; and,
- spread of invasive non-native species.

Furthermore, all possible operational phase impacts have been screened out of further appraisal because there is no potential for them to occur on the qualifying features of any European site.

3.2.2 Impacts tested for likely significant effects

For all other construction phase impacts given in Table 1, the European sites within the potential zone of influence of the Proposed Development was established. Possible construction phase impacts are as follows:

- loss of functionally-linked habitat; and,
- disturbance of qualifying species (e.g. visual, noise, vibration or artificial light).

3.3 Screening assessment

For South Dublin Bay and River Tolka Estuary SPA, the construction impacts for which that site was determined to be within the ZoI of the Proposed Development are examined in Table 2 for potential to result in significant effects on the SCI species of the SPA. Information on South Dublin Bay and River Tolka Estuary SPA including the list of SCI, Conservation Objectives, and known existing threats or pressures, was obtained from the NPWS website (https://www.npws.ie/). A summary of this information is presented in Appendix A.

[3] People Over Wind and Sweetman v Coillte Teoranta (C-323/17).

Table 2: AA Screening assessment for South Dublin Bay and River Tolka Estuary SPA

Impact source	Potential effects	Likely significant effects?
Construction phase		
Loss of habitat outside of European sites but which supports qualifying species (i.e., loss of functionally-linked habitat).	As previously discussed, there is the potential for light-bellied brent geese which is a SCI species of South Dublin Bay and River Tolka Estuary SPA to occur near the Site for foraging purposes given its foraging distance can range up to 15 km from an SPA. However, there is no potential for likely significant effects to this species given: • the Proposed Development is situated close to the limit (nearly 15 km inland) that light-bellied brent geese and other SCI waterbirds from Dublin Bay would reasonably be expected to commute to; • the habitats within and adjacent to the Proposed Development generally comprise limited areas of potential foraging habitat (e.g. hard-standing within the Site itself, residential areas to the north, and industrial areas to the south). There is some semi-improved grassland surrounding the Site, however this is rendered considerably unfavourable through being enclosed by hedgerows and/or treelines, scrub encroachment, and the presence of relatively high levels of disturbance from the existing housing community within the Site; and, • there is abundant alternative habitat for roosting and foraging by SCI species, including those recorded by field survey, within Dublin Bay, the wider coastal area, and agricultural areas around Dublin. Therefore, there is extensive alternative suitable habitat available for SCI species.	No.
Disturbance of qualifying species (e.g. visual, noise, vibration or artificial light).	As discussed for the loss of functionally-linked habitat above, there is no potential for likely significant effects to this SCI species as they are unlikely to make significant (if any) use of habitats on or near the Site. If any displacement of birds during the construction phase took place as a result of disturbance, there would be extensive alternative suitable habitat available. Thus no potential for likely significant effects.	No.

3.4 In-combination assessment

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2022). Effects which arise in-combination with other projects or plans must be considered as part of AA Screening. In accordance with OPR (2021), the assessment of in-combination effects must examine:

- completed projects;
- projects which are approved but not completed;
- proposed projects (i.e. for which an application for approval or consent has been made, including refusals subject to appeal and not yet determined);
- proposals in adopted plans; and,
- proposals in finalised draft plans formally published or submitted for consultation or adoption.

As noted above, there is considered to be no likely significant effect on any European site from the Proposed Development. This is considered to be very clearly the case for this small development that is located distantly from European sites. As such it is not possible for there to be a cumulative or in-combination effect with other plans or projects.

However, the primary plan which could theoretically cause in-combination effects is the overall SDZ itself.

The SDZ was designated as a SDZ Planning Scheme in 2015, comprising approximately 280 hectares of land in Clonburris, Co. Dublin. The purpose of the SDZ Planning Scheme is to ensure the delivery of residential and commercial / economic development together with supporting infrastructure and facilities in a sustainable manner on a strategic site (i.e. a sustainable community rather than solely a housing or commercial development). The Core Strategy in the County Development Plan 2016-2022 envisages approximately 8,000 units within the SDZ lands over the lifetime of the County Development Plan (Minogue & Associates Ltd. 2017).

A Strategic Environmental Assessment (SEA) was prepared for SDCC by Minogue & Associates Ltd. (2017) for the Clonburris Strategic Development Zone (SDZ) Planning Scheme. The Environmental Report documents the SEA process and is the key consultation document in the SEA process and facilitates interested parties to comment on the environmental issues associated with the plan. It includes Key Principles following a review of International, National, Regional and Local Plans, Policies and Programmes as follows:

- Conserve and enhance biodiversity at all levels,
- Avoid and minimise effects on nationally and internationally rare and threatened species and habitats through sensitive design and consultation, recognising ecological connectivity where possible,
- Facilitate species and habitat adaption to climate change,
- Avoid and minimise habitat fragmentation and seek opportunities to improve habitat connectivity,
- Ensure careful consideration of non-native invasive and alien species issues particularly as they relate to waterbodies such as the Grand Canal and Griffeen River.

The SDZ Planning Scheme includes residential infrastructure developments, associated roads and drainage works within the Clonburris SDZ land, including the Proposed Development. The SDZ Planning Scheme underwent an AA screening exercise which concluded that the SDZ Planning Scheme would not result in any likely significant effects either alone or in-combination to any European sites (Scott Cawley, 2017).

An Appropriate Assessment Screening Report was prepared by Scott Cawley (2017) in line with Article 6(3) of the EC Habitats Directive for the Balgaddy-Clonburris Strategic Development Zone – Draft Planning Scheme to be read in conjunction with the SEA Environmental Report. The professional opinion of the authors of that report was that the draft Planning Scheme for Clonburris SDZ did not require a full Stage 2 Appropriate Assessment.

Notwithstanding this conclusion, which is based on the assessment of the Draft Scheme in its own right, it is important to acknowledge the “protective” policies and objectives contained within the South Dublin County Development Plan (2016-2022). They are regarded as strategic policies and objectives for the County and the draft Planning Scheme is consistent with these policies and objectives. The draft Planning Scheme sets out

principles to protect ecological networks and resources, to help to prevent any adverse effects on European sites (and their supporting networks) which may arise as a result of implementing the Clonburris SDZ.

An Bord Pleanála decided under the provisions of section 169 (7) of the Planning and Development Act, 2000, as amended, to APPROVE the making of the Balgaddy Clonburris SDZ planning scheme.

Several objectives are relevant to biodiversity and the Proposed Development in the South Dublin County Council Development Plan 2022-2028, which include:

- IE2 Objective 9: To protect water bodies and watercourses, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains, within the County from inappropriate development. This will include protection buffers in riverine and wetland areas as appropriate (see also Objective G3 Objective 2 – Biodiversity Protection Zone).
- G1 Objective 1: To establish a coherent, integrated and evolving Green Infrastructure network across South Dublin County with parks, open spaces, hedgerows, grasslands, protected areas, and rivers and streams forming the strategic links and to integrate the objectives of the Green Infrastructure Strategy throughout all relevant Council plans, such as Local Area Plans and other approved plans.
- G2 Objective 2: To protect and enhance the biodiversity value and ecological function of the Green Infrastructure network.
- G2 Objective 8: To provide for the incorporation of Eco-ducts and/or Green Bridges at ecologically sensitive locations on the County's road and rail corridors that will facilitate the free movement of people and species through the urban and rural environment.
- G2 Objective 9: To preserve, protect and augment trees, groups of trees, woodlands and hedgerows within the County by increasing tree canopy coverage using locally native species and by incorporating them within design proposals and supporting their integration into the Green Infrastructure network.
- G2 Objective 11: To incorporate appropriate elements of Green Infrastructure e.g. new tree planting, grass verges, planters etc. into existing areas of hard infrastructure wherever possible, thereby integrating these areas of existing urban environment into the overall Green Infrastructure network.
- G2 Objective 12: To seek to control and manage non-native invasive species and to develop strategies with relevant stakeholders to assist in the control of these species throughout the County.
- G3 Objective 2: To maintain a biodiversity protection zone of not less than 10 metres from the top of the bank of all watercourses in the County, with the full extent of the protection zone to be determined on a case by case basis by the Planning Authority, based on site specific characteristics and sensitivities. Strategic Green Routes and Trails identified in the South Dublin Tourism Strategy, 2015; the Greater Dublin Area Strategic Cycle Network; and other government plans or programmes will be open for consideration within the biodiversity protection zone, subject to appropriate safeguards and assessments, as these routes increase the accessibility of the Green Infrastructure network.
- G3 Objective 5: To restrict the encroachment of development on watercourses, and provide for protection measures to watercourses and their banks, including but not limited to: the prevention of pollution of the watercourse, the protection of the river bank from erosion, the retention and/or provision of wildlife corridors and the protection from light spill in sensitive locations, including during construction of permitted development.
- G4 Objective 4: To minimise the environmental impact of external lighting at sensitive locations within the Green Infrastructure network to achieve a sustainable balance between the recreational needs of an area, the safety of walking and cycling routes and the protection of light sensitive species such as bats.
- G4 Objective 5: To promote the planting of woodlands, forestry, community gardens, allotments and parkland meadows within the County's open spaces and parks.
- G4 Objective 7: To avoid the cumulative fragmentation and loss of ecologically sensitive areas of the Green Infrastructure network to artificial surfaces and to position recreational facilities that incorporate artificial surfaces at appropriate community-based locations.
- G6 Objective 1: To protect and enhance existing ecological features including tree stands, woodlands, hedgerows and watercourses in all new developments as an essential part of the design process.
- G6 Objective 2: To require new development to provide links into the wider Green Infrastructure network, in particular where similar features exist on adjoining sites.

- HCL11 Objective 5: To ensure that development along and adjacent to the Grand Canal protects and incorporates high value natural heritage features including watercourses, wetlands, grasslands, woodlands, mature trees, hedgerows and ditches and includes for an appropriate set-back distance or buffer area from the pNHA boundary to facilitate protected species, biodiversity, and a fully functioning Green Infrastructure network.
- HCL12 Objective 1: To prevent development that would adversely affect the integrity of any Natura 2000 site located within and immediately adjacent to the County and promote favourable conservation status of habitats and protected species including those listed under the Birds Directive, the Wildlife Acts and the Habitats Directive.
- HCL12 Objective 2: To ensure that projects that give rise to significant direct, indirect or secondary impacts on Natura 2000 sites, either individually or in combination with other plans or projects, will not be permitted unless the following is robustly demonstrated in accordance with Article 6(4) of the Habitats Directive and S.177AA of the Planning and Development Act (2000 – 2010) or any superseding legislation:
    1. There are no less damaging alternative solutions available; and
    2. There are imperative reasons of overriding public interest (as defined in the Habitats Directive) requiring the project to proceed; and
    3. Adequate compensatory measures have been identified that can be put in place.
- HCL13 Objective 1: To ensure that any proposal for development within or adjacent to a proposed Natural Heritage Area (pNHA) is designed and sited to minimise its impact on the biodiversity, ecological, geological and landscape value of the pNHA particularly plant and animal species listed under the Wildlife Acts and the Habitats and Birds Directive including their habitats.
- HCL15 Objective 1: To ensure that development does not have a significant adverse impact on rare and threatened species, including those protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979 and the Habitats Directive 1992.
- HCL15 Objective 2: To ensure that, where evidence of species that are protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979 and the Habitats Directive 1992 exists, appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment.
- HCL15 Objective 3: To protect existing trees, hedgerows, and woodlands which are of amenity or biodiversity value and/ or contribute to landscape character and ensure that proper provision is made for their protection and management in accordance with Living with Trees: South Dublin County Council's Tree Management Policy 2015-2020.

This assessment was also prepared with consideration of the policies and objectives of the Clonburris Strategic Development Zone Planning Scheme.

The consideration of Biodiversity and Natural Heritage of the Planning Scheme Framework and includes several Key Principles:

- To seek to protect and enhance natural, built and cultural heritage features, where appropriate, such as the Grand Canal, streams, Protected Structures and barony and townland boundary hedgerows;
- To improve the quality, character and continuity of the Grand Canal (pNHA);
- To avoid or minimise the impact on protected species and their habitats;
- To promote local heritage, the naming of any new residential development should reflect the local and historical context of its siting, and may include the use of the Irish language; and
- Incorporate biodiversity and heritage into new developments.

Furthermore, planning permission was granted for the Southern Link Road within the SDZ which would be located within 500 m of the Proposed Development; Planning reference: SDZ20A/0021. This Southern Link Road bisects the Proposed Development. The application was accompanied by a report for AA Screening which concluded that the possibility of any significant effects on any European sites, whether arising from the project alone or in-combination with other plans ad projects, could be excluded (Scott Cawley, 2020a). There is a current live planning application within the SDZ in subsector S3 Clonburris South West (CSW-S3) for 569 dwellings, creche, open space and innovation hub and that at the time of preparing this report the application is still under consideration with a request for further information requested by the planning authority.

Any new applications for the Proposed Development will be assessed on a case-by-case basis initially by South Dublin County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

3.4.1 Conclusion of in-combination effects

Consequently, having regard to the policies and objectives of the relevant development plans and projects, and in particular to the lack of likely significant effects from the Proposed Development itself, it is concluded that the possibility of any other plans or projects acting in combination with the Proposed Development to give rise to significant effects on any European site can be excluded.

4. Appropriate Assessment Screening statement and conclusion

South Dublin Bay and River Tolka Estuary SPA was considered to be within the potential ZoI of the Proposed Development. Pathways for the following construction-related impacts to reach the SCI of this site were identified and tested for likely significant effects:

- loss of functionally-linked habitat; and,
- disturbance of QI / SCI species.

No likely significant effects from these impacts were identified from the Proposed Development alone or in-combination with other plans and projects.

Therefore, in view of best scientific knowledge and on the basis of objective information, it is concluded that likely significant effects from the Proposed Development on any European site, whether individually or in-combination with other plans or projects, beyond reasonable scientific doubt, can be excluded.

There is consequently no requirement to proceed to the next stage of Appropriate Assessment.

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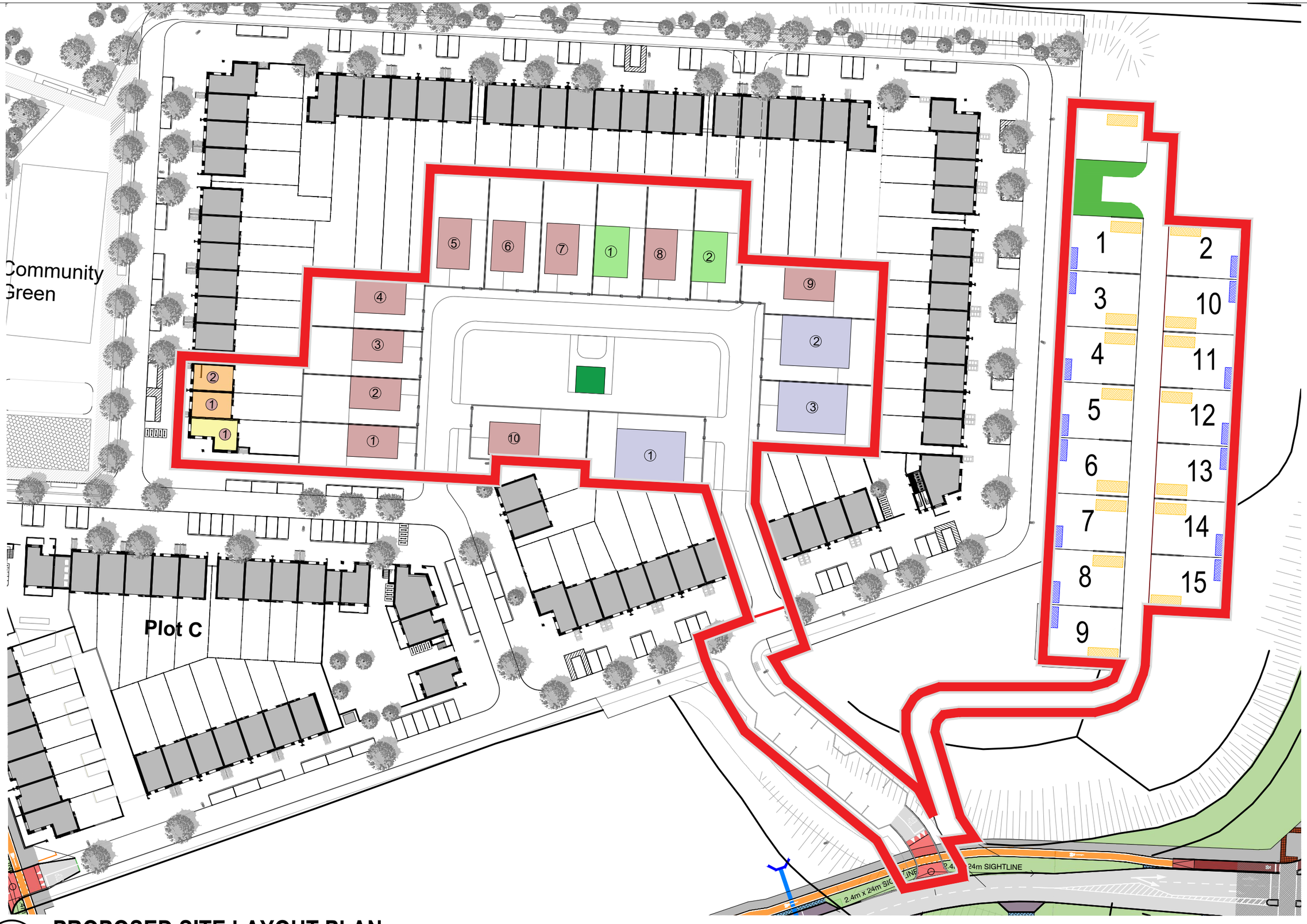
6. Figures

Figure 1: Site Location Plan

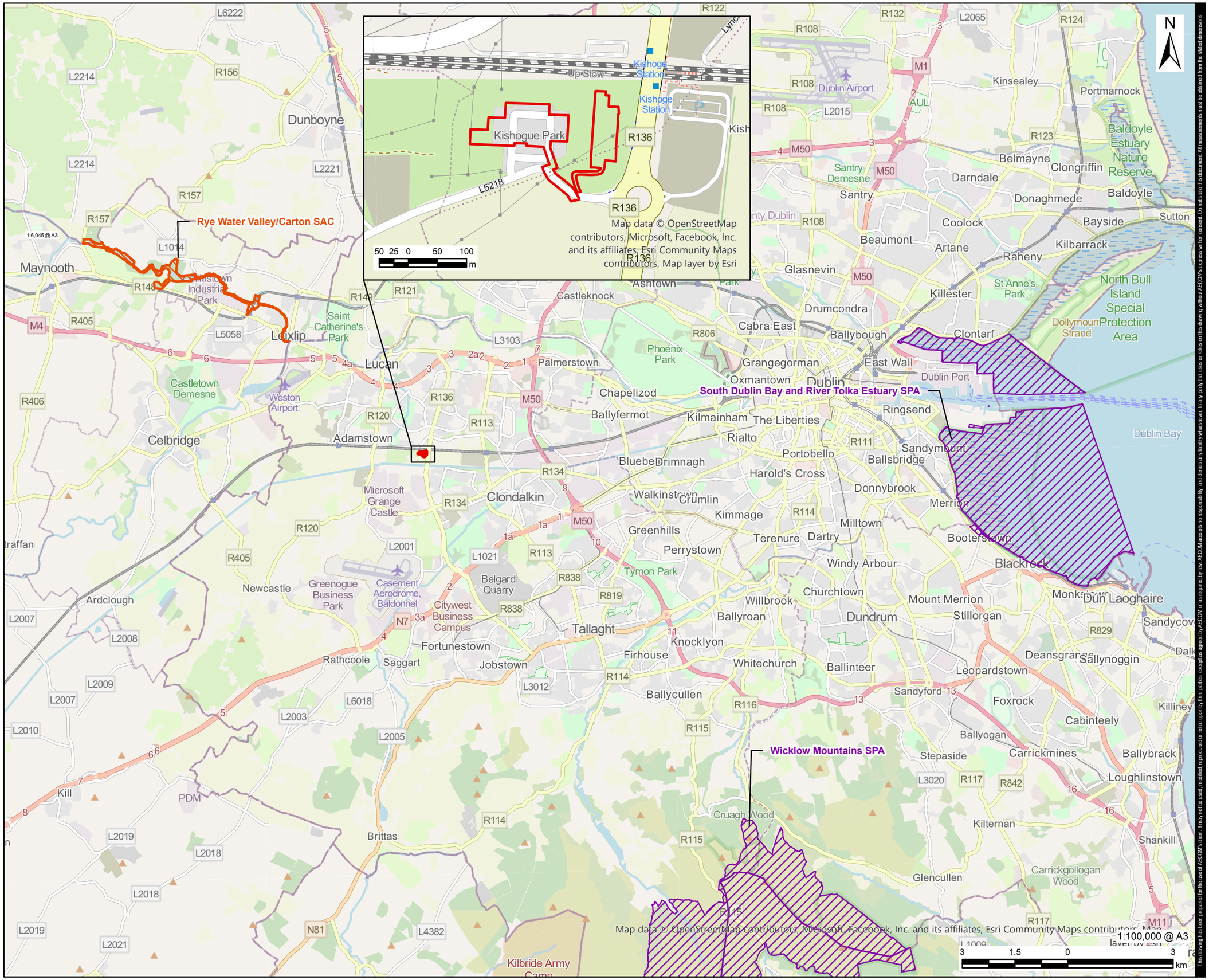
Figure 2: European sites within the potential Zone of Influence



PROPOSED SITE LAYOUT PLAN

01
P05

Revision: 0 Drawn: TS Checked: JD Approved: SW Date: 2024-04-30



AECOM

PROJECT

Clonburris Phase One
-Travellers' Accommodation

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South Dublin County Council

CONSULTANT

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LEGEND

- Site
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60707475

FIGURE TITLE

European Sites within the potential Zone of Influence (ZoI)

FIGURE NUMBER

Figure 2

Appendix A Information on European sites within the ZoI of the Proposed Development

Below are details on South Dublin Bay and River Tolka Estuary SPA which was established through the AA Screening reported in this document to be within the potential zone of influence of the construction phase of the Proposed Development.

South Dublin Bay and River Tolka Estuary SPA

Site code: 004024

Local planning authority: Dublin City Council

Qualifying Interests:

- Light-bellied brent goose *Branta bernicla hrota* [A046]
- Oystercatcher *Haematopus ostralegus* [A130]
- Ringed Plover *Charadrius hiaticula* [A137]
- Grey Plover *Pluvialis squatarola* [A141]
- Knot *Calidris canutus* [A143]
- Sanderling *Calidris alba* [A144]
- Dunlin *Calidris alpina* [A149]
- Bar-tailed godwit *Limosa lapponica* [A157]
- Redshank *Tringa totanus* [A162]
- Black-headed gull *Chroicocephalus ridibundus* [A179]
- Roseate tern *Sterna dougallii* [A192]
- Common tern *Sterna hirundo* [A193]
- Arctic tern *Sterna paradisaea* [A194]
- Wetland and Waterbirds [A999]

Conservation objectives:

- to maintain the favourable conservation condition of the SCI species:
  - to be favourable, the long-term population trend for each waterbird SCI species should be stable or increasing;
  - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of SCI, other than that occurring from natural patterns of variation; and,
  - to maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it:
  - the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 ha, other than that occurring from natural variation.

Existing threats, pressures, and activities with impacts on the site:

Existing pressures on the SPA are described in the Conservation Objectives Supporting Document, published by NPWS (NPWS, 2014). This document identifies that Dublin Bay is subject to significant recreational pressure as a consequence of its proximity to a major population centre. Recreational activity in the form of walkers, both with and without dogs, is known to be widespread across the SPA and of a 'highly active level' in certain areas. A study carried out in the Irishtown area of south Dublin Bay (Phalan and Nairn, 2007) found that dogs off the leash accounted for nearly half of all disturbance events recorded. Disturbance is also reasonably expected to be most significant prior and post migration (Tierney *et al.*, 2016). However, it also identified in NPWS (2014) that human recreational activities at coastal areas occur less frequently during winter months.

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