



**Appropriate Assessment Screening Report**  
**For Proposed Mixed-use Development**  
**Enniskerry Road and Glenamuck Road, Kiltarnan,**  
**Dublin 18**

prepared for Liscove Limited

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## Document Control

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This report has been prepared by Scott Cawley Ltd. in accordance with the particular instructions and requirements of our agreement with the Client, the project's budgetary and time constraints and in line with best industry standards. The methodology adopted and the sources of information used by Scott Cawley Ltd. in providing its services are outlined in this report. The scope of this report and the services are defined by these circumstances.

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The conclusions presented in this report represent Scott Cawley Ltd.'s best professional judgement based on review of site conditions observed during the site visit (if applicable) and the relevant information available at the time of writing. Scott Cawley Ltd. has used reasonable skill, care and diligence in compiling this report and no warranty is provided as to the report's accuracy.

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### *Appendix I*

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the proposed development site (see Figure 2)

### *Appendix II*

Planning policies/objectives relating to the protection of European sites and water quality

### *Appendix III*

Hydrological and hydrogeological risk assessment report for strategic housing development at wayside, Enniskerry road, Kiltarnan, Dublin 18

## 1 Introduction

- 1 This report, which contains information required to assist the competent authority (in this instance An Bord Pleanála) to undertake a screening for Appropriate Assessment (AA) in respect of the proposed Kiltiernan Village SHD development, has been prepared by Scott Cawley Ltd. on behalf of the applicant, Liscove Limited. It provides information on, and assesses in view of best scientific knowledge the potential for, the proposed development to have significant effects either individually or in-combination with other plans or projects on the Natura 2000 network (hereafter referred to as European sites)<sup>1</sup>. The proposed development consists of include the demolition of existing structures on site comprising a derelict dwelling known as 'Rockville' and associated derelict outbuildings and the provision of a mixed use development consisting of 383 No. residential units (165 No. houses, 118 No. duplex units and 100 No. apartments) and a Neighbourhood Centre, with associated car parking and landscaping.
- 2 An AA is required if significant effects on European sites arising from a proposed development cannot be ruled out at the screening stage, either alone or in combination with other plans or projects. It is the responsibility of the competent authority to make a decision as to whether or not the proposed development is likely to have significant effects on European sites, either individually or in combination with other plans or projects.

For the reasons set out in detail in this AA Screening Report, an **Appropriate Assessment of the proposed development is not required in this instance** as it can be concluded, on the basis of objective information, that the proposed development, either individually or in combination with other plans or projects, will not have a significant effect on any European sites.

## 2 Methodology

### 2.1 Guidance

- 3 This Appropriate Assessment Screening Report has been prepared with regard to the following guidance documents, as relevant:
  - *OPR Practice Note PN01. Appropriate Assessment Screening for Development Management* (Office of the Planning Regulator, 2021)
  - *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision)
  - *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10
  - *Assessment of Plans and Projects in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021)

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<sup>1</sup> The Natura 2000 network is a European network of important ecological sites, as defined under Article 3 of the Habitats Directive 92/43/EEC, which comprises both special areas of conservation and special protection areas. Special conservation areas are sites hosting the natural habitat types listed in Annex I, and habitats of the species listed in Annex II, of the Habitats Directive, and are established under the Habitats Directive itself. Special protection areas are established under Article 4 of the Birds Directive 2009/147/EC for the protection of endangered species of wild birds. The aim of the network is to aid the long-term survival of Europe's most valuable and threatened species and habitats.

In Ireland these sites are designed as European sites - defined under the Planning Acts and/or the Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- *Communication from the Commission on the precautionary principle* (European Commission, 2000), and
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019)

## 2.2 Assessment Methodology

- 4 The above referenced guidance sets out a staged process for carrying out Appropriate Assessment. To determine if an Appropriate Assessment is required, documented screening is required. Screening identifies the potential for effects on the conservation objectives of European sites, if any, which would arise from a proposed plan or project, either alone or in combination with other plans and projects (i.e. likely significant effects).
- 5 Significant effects on a European site are those that would undermine the conservation objectives supporting the favourable conservation condition of the Qualifying Interest (QI) habitats and/or the QI/Special Conservation Interest (SCI) species of a European site(s).
- 6 Screening for Appropriate Assessment involves the following steps:





## Conclusions of screening assessment process

- 7 If the conclusions at the end of screening are that there is no likelihood of significant effects occurring on any European sites as a result of the proposed plan or project in the absence of mitigation measures, either alone or in combination with other plans and projects, then there is no requirement to undertake a Stage 2 Appropriate Assessment.
- 8 In establishing which European sites are potentially at risk (in the absence of mitigation) from the proposed works, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its QI(s) or SCI(s)<sup>2</sup>), and a pathway between the source and the receptor (e.g. by air for airborne pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.
- 9 The identification of source-pathway-receptor connection(s) between the proposed works and European sites essentially is the process of identifying which European sites are within the Zone of Influence (Zoi) of the proposed development, and therefore potentially at risk of significant effects. The Zoi is the area over which the proposed development could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives<sup>3</sup>.
- 10 The identification of a source-pathway-receptor link does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for airborne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs).
- 11 The 'likely significant effects' test is based on the precautionary principle<sup>4</sup>. The precautionary principle means that, based on the most reliable available information, where there is uncertainty or doubt as to the absence of significant effects, the project cannot be screened out and an appropriate assessment must be carried out.

### 2.3 Desktop Data Review

- 12 The desktop data sources used to inform the assessment presented in this report are as follows (accessed on the 17/05/2022):

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<sup>2</sup> The term Qualifying Interest (QI) is used when referring to the habitats or species for which an SAC is designated; the term Special Conservation Interest (SCI) is used when referring to the bird species (or wetland habitats) for which an SPA is designated.

<sup>3</sup> As defined in the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018)

<sup>4</sup> The precautionary principle is a guiding principle that derives from Article 191 of the Treaty on the Functioning of the European Union and has been developed in the case law of the European Court of Justice (e.g. ECJ case C-127/02 – Waddenzee, Netherlands).

The guidance document *Communication from the Commission on the Precautionary Principle* (European Commission, 2000) notes that the precautionary principle "covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection" ..

- Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from [www.npws.ie](http://www.npws.ie)<sup>5</sup>, including conservation objectives documents
- Information on the status of EU protected habitats and species in Ireland<sup>6</sup>;
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- Information on the surface water network and surface water quality in the area available from [www.epa.ie](http://www.epa.ie)
- Information on groundwater resources and groundwater quality in the area available from [www.epa.ie](http://www.epa.ie) and [www.gsi.ie](http://www.gsi.ie)
- Ordnance Survey of Ireland mapping and aerial photography available from [www.osi.ie](http://www.osi.ie)
- Information on the location, nature and design of the proposed development supplied by the applicant's design team
- Information on hydrology and hydrogeology carried out by Enviroguide Consulting, presented in Appendix III

### 3 Provision of Information for Screening for Appropriate Assessment

- 13 The following sections provide information to facilitate the Appropriate Assessment screening of the proposed works to be undertaken by the competent authority.
- 14 A description of the proposed development and the receiving environment is provided to identify the potential ecological impacts. The environmental baseline conditions are discussed, as relevant to the assessment of ecological impacts where they may highlight potential pathways for impacts associated with the proposed development to affect the receiving ecological environment (e.g. geological, hydrogeological and hydrological data).
- 15 The potential impacts are examined in order to define the potential zone of influence of the proposed development on the receiving environment. This then informs the assessment of whether the proposed development has the potential to result in significant effects on any European sites; i.e. affect the conservation objectives supporting the favourable conservation condition of the European site's QIs or SCIs.

#### 3.1 Description of the Proposed Development

- 16 A full description of the proposed Strategic Housing Development is provided in Chapter 2 of this EIAR. Briefly, to summarise those characteristics of relevance to biodiversity, the development shall consist of the following elements:
- the demolition of c. 573.2 sq m of existing structures on site comprising a derelict dwelling known as 'Rockville' and associated derelict outbuildings;
  - the provision of a mixed use development consisting of 383 No. residential units (165 No. houses, 118 No. duplex units and 100 No. apartments) and a Neighbourhood Centre, which will provide a

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<sup>5</sup> The following SAC and SPA GIS boundary datasets are the most recently available at the time of writing: SAC\_ITM\_2022\_02 and SPA\_ITM\_2021\_10.

<sup>6</sup> NPWS (2019). *The Status of EU Protected Habitats and Species in Ireland*. Volume 1: Summary Overview. Unpublished NPWS report

creche (439 sq m), office (317 sq m), medical (147 sq m), retail (857 sq m), convenience retail (431 sq m) and a community facility (321 sq m). The 383 No. residential units will consist of 27 No. 1 bedroom units (19 No. apartments and 8 No. duplexes), 128 No. 2 bedroom units (78 No. apartments and 50 No. duplexes), 171 No. 3 bedroom units (108 No. houses, 3 No. apartments and 60 No. duplexes) and 57 No. 4 bedroom units (57 No. houses);

- 678 No. car parking spaces (110 No. in the undercroft of Blocks C and D and the Neighbourhood Centre and 568 No. at surface level) including 16 No. mobility impaired spaces, 73 No. electric vehicle spaces, 1 No. car share space, 4 No. drop-off spaces/loading bays;
- motorcycle parking;
- bicycle parking;
- bin storage;
- the decommissioning of the existing telecommunications mast at ground level and provision of new telecommunications infrastructure at roof level of the Neighbourhood Centre including shrouds, antennas and microwave link dishes (18 No. antennas and 6 No. transmission dishes, all enclosed in 9 No. shrouds together with all associated equipment);
- private balconies, terraces and gardens;
- hard and soft landscaping;
- sedum roofs, solar panels; and
- and all other associated site works above and below ground.

- 17 In addition to the above the Proposed Development will also include pedestrian links from Enniskerry Road and within the site to the neighbouring “Rockville” development to the north-east and a pedestrian/cycle route through the Dingle Way from Enniskerry Road to the future Glenamuck Link Distributor Road.
- 18 Road works are also proposed to facilitate access to the development from the Enniskerry Road; to the approved Part 8 Enniskerry Road/Glenamuck Road Junction Upgrade Scheme on Glenamuck Road (DLRCC Part 8 Ref PC/IC/01/17); and to the approved Glenamuck District Roads Scheme (GDRS) (ABP Ref:HA06D.303945) on the Glenamuck Link Distributor Road (GLDR). Drainage and water works are also proposed to connect to services on the Glenamuck Road and Enniskerry Road.
- 19 At the Glenamuck Road access point, this will include works, inclusive of any necessary tie-ins, to the footpath and cycle track to create a side road access junction incorporating the provision of an uncontrolled pedestrian crossing across the side road junction on a raised table and the changing of the cycle track to a cycle lane at road level as the cycle facility passes the side road junction. These interfacing works are proposed on an area measuring c. 0.05 Ha.
- 20 At the GLDR access point, this will include works, inclusive of any necessary tie-ins, to the footpath and cycle track to create a side road access junction incorporating the provision of short section of shared path and an uncontrolled shared pedestrian and cyclist crossing across the side road junction on a raised table. The works will also include the provision of a toucan crossing, inclusive of the necessary traffic signal equipment, immediately south of the access point to facilitate pedestrian and cyclist movement across the mainline road. All works at the GLDR access point will include the provision of the necessary tactile paving layouts and are provided on an area measuring 0.06 Ha.
- 21 At the Enniskerry Road, works are proposed to facilitate 3 No. new accesses for the development along with modifications to Enniskerry Road. The 3 No. side road priority access junctions incorporate the provision of an uncontrolled pedestrian crossing across the side road junction on a raised table. The modifications to Enniskerry Road fronting the development (circa 320 metres) includes the narrowing of the carriageway down to 6.5 metres (i.e. a 3.25 metres running lane in each direction) from the front of the kerb on western side of Enniskerry Road. The remaining former carriageway, which varies in width of c. 2 metres, will be reallocated for other road users and will include the introduction of a widened pedestrian footpath and landscaped buffer on the eastern side of the road adjoining the Proposed

Development. The above works are inclusive of all necessary tie-in works such as new kerb along eastern side of Enniskerry Road, drainage details, road marking, signage and public lighting. Potable water is to be provided from the existing piped infrastructure adjacent to the site along the Enniskerry Road. The interface works on Enniskerry Road measures 0.19 Ha.

#### Surface water

- 22 The surface water infrastructure has been divided into two catchment areas. One large (c.9.63Ha drained area) and one small (c.0.29Ha drained area).
- 23 The larger catchment will flow into the existing piped infrastructure constructed in the existing Rockville development (D17A/0793) to the NE of the Proposed Development site. The smaller catchment of the Proposed Development (apartment Blocks C & D) will outfall into the surface water drainage infrastructure to be provided as part of the GDRS project in Glenamuck road. The surface water drainage connection spur into the GDRS infrastructure has been agreed with the DLRCC GDRS project office and is incorporated into that road project.
- 24 All surface waters from the Proposed Development site will ultimately drain into the Shanganagh River and then into Killiney Bay.
- 25 Sustainable Drainage System (SuDS) measures being proposed within the Proposed Development site include:
  - Filter drains to the rear of the housing
  - Permeable paving to all private parking areas
  - Rainwater butts (200l) to the rear downpipes of the houses
  - Filter Swales (13No.) adjacent to roadways where feasible
  - Tree pits (2No.) where practically feasible
  - Use of the existing central dry ditch as a drainage swale
  - Bio-Retention area
  - Silt-trap/catchpit manholes
  - Hydrobrakes limiting flow to the drained area Qbar greenfield rate
  - Petrol interceptors upstream of all outfall points
  - Stone lined voided arch retention storage devices

#### Foul water

- 26 The Proposed Development will result in an overall increase of 1,514 P.E. (population equivalent) foul effluent generated from the site.
- 27 The proposed foul outfall from c.10.5Ha of the Proposed Development site will be via the existing piped foul drainage system constructed as part of the Rockville schemes (D17A/0793 and D18A/0566). This existing infrastructure in turn outfalls downstream into the existing Irish Water owned 300mm foul drainage piped infrastructure on Glenamuck Road. Located in the northeast corner of the Proposed Development site, approximately 0.3Ha of the Proposed Development (apartment Blocks C & D) will outfall the localised foul flow into the foul drainage infrastructure to be provided as part of the GDRS project in Glenamuck road. The foul drainage connection spur from the GDRS infrastructure has been agreed with the DLRCC GDRS project office and is incorporated into that road project.
- 28 From there, foul effluent will be transferred to Shanganagh-Bray Waste Water Treatment Plant (WWTP) for treatment prior to discharge to Killiney Bay. The Shanganagh WwTP is currently operating at under its capacity of 186,000 PE, with a current peak week loading of 129,335 PE. The Shanganagh WwTP is compliant with the Emission Limit Values (ELV's) set in the Wastewater Discharge Licence.

**Figure 1** Location of the proposed development site in the surrounding environment

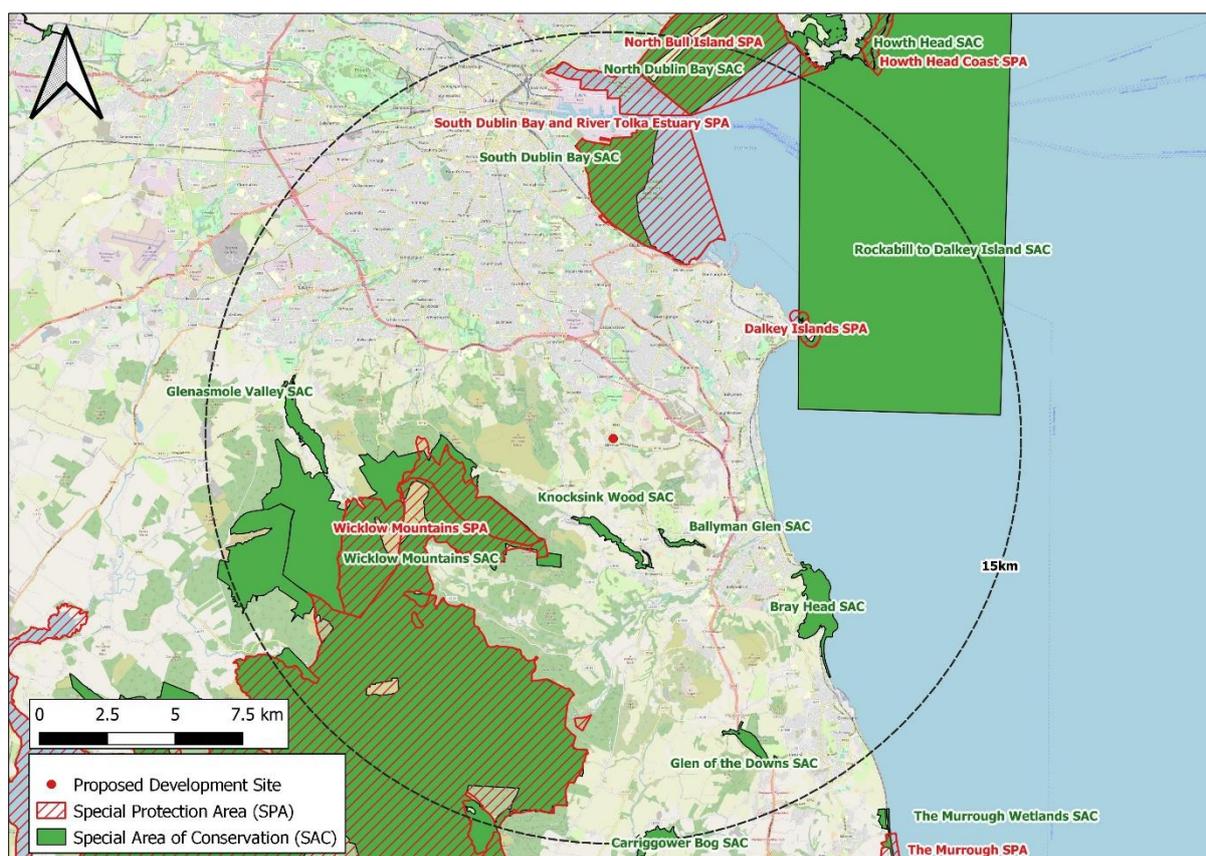


### 3.2 Overview of the Receiving Environment

#### 3.2.1 European sites

- 29 The subject lands are not located within or adjacent to any European sites. The nearest European site to the proposed development is Knocksink Wood SAC, c.2.7km to the south followed by Ballyman Glen SAC, located c. 3.5km south.
- 30 The nearest surface water receptor to the proposed development site is the Shanganagh River, located c.306m southeast of the proposed development. The Shanganagh River flows east for c. 6.5km until it discharges directly into Killiney Bay. The closest European sites to the outfall of the Shanganagh River at Killiney Bay include Rockabill to Dalkey Island SAC and Dalkey Island SPA, located c. 1.5km and c. 3.2km respectively
- 31 All of the European sites present in the vicinity of the proposed development are shown on Figure 2 below. The QIs/SCIs of the European sites in the vicinity of the proposed development are provided in Appendix I.

**Figure 2** European sites in the vicinity of the proposed development



### 3.2.2 Habitats

- 32 The proposed development site is located to the east of the Enniskerry Road, south of Glenamuck Road, and north of Ballycorus Road within Kiltarnan, Co. Dublin. While the proposed development site is dominated by a mosaic of improved agricultural grassland and dry meadow and grassy verges habitat, a variety of other habitats are present within the proposed development site boundary including treelines, scrub, buildings and artificial surfaces, spoil and bare ground, recolonising bare ground, hedgerows, buildings and artificial surfaces. The closest watercourse to the proposed development site is the Shanganagh River, located c. 306m to the southeast.
- 33 The newly constructed development of Rockville is located along the north-eastern border of the site while the lands to the east consist of similar grassland habitats. A substantial woodland is located near (c. 90m) the eastern boundary of the proposed development site, at the closest point.
- 34 No Annex I habitats for which European sites listed in Appendix I have been designated were recorded within the proposed development site.

### 3.2.3 Flora and Fauna Species

- 35 The National Biodiversity Data Centre (NBDC) database search returned no records of Annex II plant species flora species protected under the Flora (Protection) Order 2015 within 2km of the proposed development site.
- 36 No Annex II plant species and no records of plant species protected through their inclusion within the Flora (Protection) Order, 2015 were recorded during the field surveys in 2021 or 2022.
- 37 With regards to records for non-native invasive species within c. 2km of the proposed development, the NBDC database search returned records for the following non-native invasive species which are listed on

the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended):

- Himalayan Knotweed *Persicaria wallichii*
- Giant hogweed *Heracleum mantegazzianum*
- Giant-rhubarb *Gunnera tinctoria*
- Japanese Knotweed *Reynoutria japonica*
- Spanish Bluebell *Hyacinthoides hispanica*
- Three-cornered garlic *Allium triquetrum*

38 No non-native invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) were recorded within the proposed development site during surveys in 2021 or 2022.

39 The NBDC database search returned records of the following qualifying interest (QI) and special conservation interest (SCI) species, for which European sites illustrated in Figure 2, and listed in Appendix I are designated within 2km of the proposed development site:

- Redshank *Tringa totanus*
- Curlew *Numenius arquata*
- Otter *Lutra lutra*

40 Although mostly associated with wetland habitats, which do not occur within the proposed development site, some of these species are wintering birds which can utilise inland sites for terrestrial feeding purposes, such as Curlew.

41 During the dedicated wintering bird surveys of 2021 and 2022, only very low numbers of Herring Gull, Curlew, Black-headed gull were recorded feeding on the grassland within the proposed development site. A peak count of 2 Herring Gull were recorded on one occasion (21.12.2021), a peak count of four Curlew was recorded on one occasion (23.11.2021) and a peak count of seven black-headed gull was recorded on one occasion (23.11.2021). No other SCI or QI species or their signs (e.g. feathers and droppings) for which European sites listed in Appendix I were observed or recorded during field surveys within the proposed development site.

42 In addition, no otter were recorded and there are no features present that provide potentially suitable habitat for otter.

#### 3.2.4 Hydrology

43 The proposed development site is located within the Ovoca-Vartry catchment. There are no surface water features within the proposed development site. The closest watercourse to the proposed development is the Shanganagh River, located c. 306m to the southeast.

44 The proposed surface water infrastructure has been divided into two catchment areas. One large (c.9.66Ha drained area) and one small (c.0.22Ha drained area). The larger catchment will flow into the existing piped infrastructure constructed in the existing Rockville development (D17A/0793) to the NE of the subject site. The smaller catchment of the proposed development (apartment Blocks C & D) will outfall into the surface water drainage infrastructure to be provided as part of the GDRS project in Glenamuck road. The surface water drainage connection spur into the GDRS infrastructure has been agreed with the DLRCC GDRS project office and is incorporated into that road project.

45 Surface waters ultimately discharge into Killiney Bay via the Shanganagh River. The most recent surface water quality information for Killiney Bay coastal waterbody indicates that it is 'Unpolluted' and has a Water Framework Directive status of 'High'<sup>7</sup>.

### 3.2.5 Hydrogeology

46 Geological Survey of Ireland (GSI) data indicates that the site is underlain by a "Poor Aquifer", which is described as "Bedrock which is Generally Unproductive except for Local Zones". The Groundwater Body (GWB) underlying the site is the "Wicklow", which is currently classified by the EPA as having "Good" groundwater status. The Wicklow groundwater bedrock is 'dark limestone and shale'. The groundwater vulnerability underlying the site is 'high'.

## 3.3 Assessment of Effects on European Sites

47 This section identifies all the potential impacts associated with the proposed development, examines whether there are any European sites within the ZoI of effects from the proposed development, and assesses whether there is any risk of the proposed development resulting in a significant effect on any European site, either alone or in combination with other plans or projects.

48 In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

### 3.3.1 Habitat loss and fragmentation

49 The proposed development site does not lie within or overlap with the boundary of any European site. Therefore, there are no European sites at risk of direct habitat loss impacts. As the proposed development site does not traverse any European sites there is no potential for habitat fragmentation to occur.

50 The proposed development site does not support populations of any fauna species linked with the QI/SCI populations of any European site(s) for the following reasons:

- Although the proposed development site provides no suitability for otter given the lack of watercourses and suitable habitat, otter are known from the Shanganagh River system. However, the otter population in the Shanganagh River does not form part of the QI population of any European sites. The closest European site for which otter is a QI is the Wicklow Mountains SAC, southwest of the proposed development site c. 4km as the crow flies. No part of the Shanganagh River or its tributaries is located within the Wicklow Mountains SAC, and there is therefore no direct link between the otter population in Kiltarnan, and that of the Wicklow Mountains SAC.
- Wintering bird species that are Special Conservation Interests of European sites such as herring gull, black-headed gull and curlew are known to feed on inland terrestrial sites of amenity grassland outside European site boundaries in the Dublin region<sup>8</sup>. Herring gull are an SCI species of The Murrough SPA located c. 17.5km south east of the proposed development site. Curlew are an SCI of North Bull Island SPA located c. 12km northeast of the proposed development site and black-headed gull are an SCI of South Dublin Bay and River Tolka Estuary SPA located 6.6km north. Due to the low numbers of recorded Herring gull, Black-headed gull and Curlew, and lack of

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<sup>7</sup> EPA (2018) Waterbody: Southwestern Irish Sea - Killiney Bay (HA10). Accessed 11.05.2022. [[https://www.catchments.ie/data/#/waterbody/IE\\_EA\\_100\\_0000?\\_k=4g99dw](https://www.catchments.ie/data/#/waterbody/IE_EA_100_0000?_k=4g99dw)].

<sup>8</sup> Benson, L. (2009). Use of Inland Feeding Sites by Light-bellied Brent Geese in Dublin 2008-2009: A New Conservation Concern? Irish Birds 8: 563-570

Enviroguide (2019). Natura Impact Statement for Proposed Strategic Housing Development at St. Paul's College, Sybil Hill Road, Raheny, Dublin.

evidence of usage by other SCI species, the proposed development site is not considered to support important numbers of SCI species associated with Dublin Bay or other European sites. The curlew recorded within the proposed development site were noted during a single survey date and not recorded during any other visit to the site in 2021 or 2022 and thus not deemed to be regularly using the site. Furthermore, the remainder of the proposed development site is dominated by areas of dry meadow, overgrown grassy verges, improved agricultural grassland, recolonising bare ground and artificial surfaces and provides very low suitability for wetland and wader species. Therefore, this site does not represent an important inland *ex situ* site or habitat for wintering herring gull, black-headed gull or curlew, or any other Special Conservation Interest (SCI) species.

- 51 Therefore, the proposed development does not support any populations of any fauna species linked with the QI/SCI populations of any European site(s).
- 52 As the proposed development will not result in habitat loss or habitat fragmentation within any European site and will not affect any *ex-situ* sites used by SCI bird species/populations, there is no potential for any in combination effects to occur in that regard

### 3.3.2 *Habitat degradation as a result of hydrological impacts*

- 53 All surface waters from the proposed development site will ultimately drain into the Shanganagh River and then into Killiney Bay. Therefore, the ZoI of potential effects on water quality from the proposed works could extend downstream of the proposed development site, via the local surface water network to Killiney Bay.
- 54 While it is acknowledged that there is some possibility of construction-related runoff, including sediments and hydrocarbons, entering the surface water network and thereafter travelling downstream, there is no possibility of any perceptible effects on water quality in Killiney Bay, or on the European Sites, downstream of the proposed development site for the reasons listed below. A number of these reasons are outlined within the hydrological report prepared by Enviroguide Consultants for the proposed development (Appendix III) which concluded that there will not be perceptible impacts from the proposed development to the water bodies during construction or operation.
- The small scale of the proposed works relative to the receiving surface water network;
  - The relatively low volume of any surface water run-off or discharge events from the proposed works site relative to the receiving surface water and marine environments (which will be retained, attenuated, diluted and dispersed near source area);
  - There is no direct pathway via surface runoff (open water courses) to any water body;
  - The level of mixing, dilution and dispersion of any surface water run-off/discharges from the proposed development site in the receiving watercourses, Killiney Bay and the Irish Sea.
- 55 Therefore, there is no possibility of the proposed works undermining the conservation objectives of any of the qualifying interests or special conservation interests of downstream European sites as a result of surface water run-off or discharges.
- 56 The proposed foul sewer outfall from c.10.6Ha of the subject site will be via the existing piped foul drainage system constructed as part of the Rockville schemes (D17A/0793 and D18A/0566). This existing infrastructure in turn outfalls downstream into the existing Irish Water owned 300mm foul drainage piped infrastructure on Glenamuck Road. Located in the northeast corner of the subject site, approximately 0.3Ha of the proposed development (apartment Blocks C & D) will outfall the localised foul flow into the foul drainage infrastructure to be provided as part of the GDRS project in Glenamuck road. From both locations, foul water will be transferred to Shanganagh WwTP for treatment prior to discharge into Killiney Bay. The proposed development is anticipated to result in an additional foul water loading value of 1,514 P.E. to Shanganagh WWTP. The Shanganagh WwTP is currently operating under its capacity of 186,000, with a

current loading of 129,335 P.E. The Shanganagh WwTP is compliant with the limits set out in its licence and its discharge is not having an observable negative impact on water quality in Killiney Bay<sup>9</sup>.

- 57 Considering the above, particularly the current 'high' WFD status of Killiney Bay, the proposed development will not have any perceptible impact on water quality of Killiney Bay.
- 58 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the Qualifying Interests or Special Conservation Interests of the European sites in, or associated with, Killiney Bay as a result of foul water discharges.

#### *In Combination*

- 59 There is potential for "in-combination" effects on water quality in Killiney Bay from any other projects carried out within the functional areas of the Dún Laoghaire-Rathdown County Development Plan 2022-2028 (Dún Laoghaire-Rathdown County Council, 2022) and the Wicklow County Development Plan 2016-2022 (Wicklow County Council, 2016), or any other land use plans which could influence conditions in Killiney Bay via rivers and other surface water features.
- 60 The Eastern & Midland Regional Assembly, Regional Spatial & Economic Strategy 2019-2031<sup>10</sup> (Eastern & Midland Regional Assembly, 2019) includes a range of policy objectives relevant to the protection of European sites and the protection of water quality in Killiney Bay, to which the relevant planning authorities must have regard to in the preparation and adoption of their development plans (included in Appendix II).
- 61 The planning authority for the proposed development is Dún Laoghaire-Rathdown County Council. Plans and developments within Dún Laoghaire-Rathdown County must comply with the following policy objectives of the Dún Laoghaire-Rathdown County Development Plan 2022-2028 relevant to the protection of European sites and the protection of water quality in Killiney Bay:

#### **GIB18: Protection of Natural Heritage and the Environment**

It is a Policy Objective to protect and conserve the environment including, in particular, the natural heritage of the County and to conserve and manage Nationally and Internationally important and EU designated sites - such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), proposed Natural Heritage Areas (pNHAs) and Ramsar sites (wetlands) - as well as non-designated areas of high nature conservation value known as locally important areas which also serve as 'Stepping Stones' for the purposes of Article 10 of the Habitats Directive

#### **GIB19: Habitats Directive**

It is a Policy Objective to ensure the protection of natural heritage and biodiversity, including European Sites that form part of the Natura 2000 network, in accordance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines.

#### **GIB21: Designated Sites**

It is a Policy Objective to protect and preserve areas designated as proposed Natural Heritage Areas, Special Areas of Conservation, and Special Protection Areas. It is Council policy to promote the maintenance and as appropriate, delivery of 'favourable' conservation status of habitats and species within these areas.

#### **GIB22: Non-Designated Areas of Biodiversity Importance**

It is a Policy Objective to protect and promote the conservation of biodiversity in areas of natural heritage importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance - including species protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979, the Habitats Directive 1992, Flora (Protection) Order, 2015, Annex I habitats, local important areas, wildlife corridors and rare species - are adequately protected. Ecological assessments

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<sup>9</sup> Irish Water (2020) Annual Environmental Report. Shanganagh D0038-02. Available from [https://www.water.ie/\\_\\_\\_uuid/cfbdb5b6-84b3-42bf-8f82-09d97f80944/d0038-02\\_2020\\_aer.pdf](https://www.water.ie/___uuid/cfbdb5b6-84b3-42bf-8f82-09d97f80944/d0038-02_2020_aer.pdf). Accessed 23/05/2022

<sup>10</sup> Eastern & Midland Regional Assembly (2019) *Regional Spatial & Economic Strategy 2019-2031*

will be carried out for all developments in areas that support, or have potential to support, features of biodiversity importance or rare and protected species and appropriate mitigation/ avoidance measures will be implemented. In implementing this policy, regard shall be had to the Ecological Network, including the forthcoming DLR Wildlife Corridor Plan, and the recommendations and objectives of the Green City Guidelines (2008) and 'Ecological Guidance Notes for Local Authorities and Developers' (Dún Laoghaire-Rathdown Version 2014)

**GIB23: County-Wide Ecological Network**

It is a Policy Objective to protect the Ecological Network which will be integrated into the updated Green Infrastructure Strategy and will align with the DLR County Biodiversity Action Plan. Creating this network throughout the County will also improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive. The network will also include non-designated sites.

**E17: Water Supply and Wastewater treatment and Appropriate Assessment**

It is a Policy Objective to require that all developments relating to water supply and wastewater treatment are subject to screening for Appropriate Assessment to ensure there are no likely significant effects on the integrity, defined by the structure and function, of any European sites and that the requirements of Article 6 of the EU Habitats Directive are met. (Consistent with RPO 10.7 of the RSES).

**E18: Groundwater Protection and Appropriate Assessment**

It is a Policy Objective to ensure the protection of the groundwater resources in and around the County and associated habitats and species in accordance with the Groundwater Directive 2006/118/EC and the European Communities Environmental Objectives (Groundwater) Regulations, 2010. In this regard, the Council will support the implementation of Irish Water's Water Safety Plans to protect sources of public water supply and their contributing catchment.

**E12: Irish Water Enabling Policies Irish Water's Plans and Programmes**

It is a Policy Objective - in conjunction with the Eastern and Midland Regional Authority, where appropriate - to work with and support Irish Water in the delivery of the strategic objectives and strategic water and wastewater projects and infrastructure as set out in the 'Water Services Strategic Plan' (2015), any subsequent plan, Irish Water's Capital Investment Plan 2020 – 2024, any subsequent Capital Investment Plans and the forthcoming National Water Resources Plan, so as to ensure provision of infrastructure to service settlements in accordance with the Core Strategy of this Plan, and the settlement strategy of the RSES. (Consistent with RPO 10.2, 10.3, 10.11, 10.16 of the RSES).

**E15: River Basin Management Plans (RMBPs)**

It is a Policy Objective: To ensure the delivery of the relevant policies and objectives of the River Basin Management Plan for Ireland 2018 – 2021 and any subsequent plan, including those relating to protection of water status, improvement of water status, prevention of deterioration and meeting objectives for designated protected sites. To support Irish Water in its implementation of Water Quality Management Plans for ground, surface, coastal and estuarine waters as part of the implementation of the EU Water Framework Directive. To support Irish Water in the development of Drinking Water Protection Plans.

**E16: Sustainable Drainage Systems**

It is a Policy Objective to ensure that all development proposals incorporate Sustainable Drainage Systems (SuDS).

**E17: Water Pollution**

It is a Policy Objective to implement the provisions of water pollution abatement measures in accordance with national and EU Directives and other legislative requirements in conjunction with other agencies as appropriate.

- 62 Plans and developments within the other local authority areas which could influence conditions in Killiney Bay via rivers and other surface water features, also must comply with the policies and objectives relevant to the protection of European sites and water quality. This includes the Wicklow County Development Plan 2016-2022 (Wicklow County Council, 2016). The relevant policies and objectives of those plans for the protection of European sites and water quality are included in Appendix II.

- 63 As noted under the surface water and foul water sections above, the Southwestern Irish sea – Killiney Bay is currently unpolluted, and the proposed development will not result in any measurable effect on water quality in Killiney Bay. There are also protective policies and objectives in place at a strategic planning level to protect water quality in Killiney Bay.
- 64 Therefore, and having regard to the policies and objectives referred to under the relevant development plans, 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 in, or associated with, Killiney Bay can be excluded.

### 3.3.3 *Habitat degradation as a result of hydrogeological impacts*

- 65 Knocksink Wood SAC, located c. 2.7km south of the proposed development site, which is designated for groundwater dependent habitats, is partly located within the same groundwater body as the proposed development, Wicklow groundwater body, and partly located within Enniskerry Gravels groundwater body. However, the proposed development will not affect any of the QIs of the European site for the following reasons:
- The SAC, although in the same sub-catchment as the proposed development e.g. Dargle\_SC\_010, is approximately c. 2.7km distant from the proposed development site and is buffered from the proposed development site by a number of watercourses including the County Brook stream as well as woodland, agricultural land and urban and residential development all which separate the proposed development site and the European site; and,
  - It is not proposed to extract groundwater as part of this development and no significant groundworks, e.g. piling, are proposed as part of this development.
  - As outlined within the hydrological risk assessment (Appendix III), no likely hydrogeological impacts are predicted for the following reasons; considering the characteristics of the poor granite bedrock aquifer it is unlikely that there would be widespread impact within the Wicklow GWB, groundwater flow paths are localised and baseflow is limited within the granite aquifer.

Ballyman Glen SAC, which is located c. 3.5km south of the proposed development site, is also designated for groundwater dependent habitats. However, it is located within a different groundwater body to the proposed development (it lies fully within the Enniskerry Gravels groundwater body). Therefore, there is no possibility of significant effects as a result of the proposed development.

As the proposed development will not result in habitat degradation of groundwater dependent habitats of any European site, there is no potential for any in combination effects to occur in that regard.

### 3.3.4 *Habitat degradation as a result of introducing/spreading non-native invasive species*

- 66 No non-native invasive plant species which are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) are present within or adjacent to the proposed development site and there are no works proposed within the boundary of any European site.
- 67 As such, there is no possibility of the proposed development undermining the conservation objectives of the Qualifying Interests or Special Conservation Interests of the European site as a result of accidentally spreading or introducing non-native invasive species.

### 3.3.5 *Disturbance and displacement impacts*

- 68 Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the proposed development. For mammal species such as Otter, disturbance effects would not

be expected to extend beyond 150m<sup>11</sup>. For birds, disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance<sup>12</sup>. There are no European sites within the disturbance Zol; the nearest European site to the proposed development is c. 2.7km away. The nearest European site designated for Otter is Wicklow Mountains SAC located c. 4.3m southwest of the proposed development site. The nearest European site designated for wetland and wader species such as Light-bellied Brent Goose, Redshank and Oystercatcher is c. 6.6km north of the proposed development site. In addition, as noted in Section 3.3.1, the lands within the proposed development site do not constitute an *ex situ* habitat or site for any SCI species. Therefore, the proposed development will not result in the disturbance or displacement of the QI/SCI species of any European site.

- 69 As the proposed development will not result in the disturbance/displacement of QI/SCI species of any European site, there is no potential for any in combination effects to occur in that regard.

### 3.3.6 Mortality from building collisions

- 70 From a review of available literature on the subject, bird collisions with man-made structures are common and well documented<sup>13</sup> with migratory passerine species the most prevalent collision victims<sup>14</sup>. Bird collision with buildings is generally associated with reflective material such as windows or large surfaces of glass which create a mirror and appear to show the continuation of the sky or surrounding landscape, an effect that can be exacerbated by lighting<sup>15</sup>. Whilst the design of the facades of the apartments and neighbourhood centre buildings do include windows, as shown on the elevation drawings prepared by Mc Crossan O Rourke Manning Architects for the proposed development no large surfaces of glass are proposed. Rather the external surfaces of the buildings will be a combination of brickwork and pressed metal cladding.

<sup>11</sup> This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (2006) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (2005)) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual Zol of construction related disturbance likely to be much less in reality.

<sup>12</sup> This is based on the relationship between the noise levels generated by general construction traffic/works (BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise) and the proximity of those noise levels to birds – as assessed in Cutts, N. Phelps, A. & Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*, and Wright, M., Goodman, P & Cameron, T. (2010) Exploring Behavioural Responses of Shorebirds to Impulsive Noise. *Wildfowl* (2010) 60: 150–167. At 300m, noise levels are below 60dB or, in most cases, are approaching the 50dB threshold below which no disturbance or displacement effects would arise.

<sup>13</sup> Banks, R.C (1979). *Human related mortality of birds in the United States*. U.S. Fish Wildl. Serv. Spec. Sci. Rep. Wildl. 215. 16 pp.

Jenkins, A., Smallie, J.J. and Diamond, M. (2010). Avian collisions with power lines: A global review of causes and mitigation with a South African perspective. *Bird Conservation International*, 20(03), 263 – 278.

Klem, D. (1990). Collisions between birds and windows: mortality and prevention. *Journal of Field Ornithology*, 61, 120–128.

Erickson, W.P., Johnson, G.D. and Young, P.D. (2005). *A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions*. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. 2005.

Erickson, W. P., G. D. Johnson, M. D. Strickland, D. P. Young, Jr., K. J. Sernka, and R. E. Good. (2001). *Avian collisions with wind turbines: A summary of existing studies and comparisons to other sources of avian collision mortality in the United States*. National Wind Coordinating Committee, c/o RESOLVE, Inc., Washington, D.C.

<sup>14</sup> Bing G.-C., Choi C.-Y., Nam H.-Y., Park J.-G., Hong G.-P., Sung J.-K., Chae H.-Y & Choi Y.-B. (2012). Causes of mortality in birds at stopover islands. *Korean J. Ornithol.*, 19, 23–31.

Longcore, T. Rich, C., Mineau, P., MacDonald, B., Bert, D.G., Sullivan, L.M., Mutrie, E., et al. (2013). Avian mortality at communication towers in the United States and Canada: which species, how many, and where? *Biological Conservation*, 158, 410-419.

<sup>15</sup> Sheppard, C. & Phillips, G. (2015). *Bird-Friendly Building Design*, 2nd Ed. The Plains, VA: American Bird Conservancy, 2015.

- 71 The use of different materials and design in the facades and elevations will minimise the effect of glazing, making the building more detectable to birds and therefore reduce the potential for collisions to occur. In the absence of mitigation there could be a low level of mortality attributable to bird collision with glazing on the proposed buildings, however this impact is unlikely to cause any significant effect at a local scale or any other geographic scale.
- 72 With respect to Special Conservation Interest (SCI) species for SPAs within the zone of influence of the proposed development which regularly use or travel over inland areas (i.e. light bellied brent goose, gull species, duck species and a number of waders such as oystercatcher, godwit species or curlew), in Dublin they navigate the urban environment with built structures daily. To put some context on some of their avoidance capabilities, in a different setting and for use in collision risk modelling for onshore wind turbines, an avoidance rate of 99.5% is applied for large gull species and an avoidance rate of 99.2% is applied for small gull species (Furness, 2019)<sup>16</sup>, which essentially means that 99.5% and 99.2% of gull flights, respectively, will avoid collision with a moving turbine. For Curlew the avoidance rate applied is 98% (SNH, 2018)<sup>17</sup>. The risk of collision is even less with a static, clearly detectable building. The proposed buildings consist of glazing, broken up with other cladding and material finishes. While the presence of the proposed development might alter flight patterns of bird species slightly to avoid the proposed building structures the risk of collision is extremely low.
- 73 Considering the low collision risk associated with the species in question, in combination with the building location, design and materials used, the potential for collision risk for birds is low. It is however acknowledged that there could be a low level of mortality attributable to bird collision with glazing on the proposed buildings. This impact however would not result in any population level effect or change in distribution of any species, including any SCI species for SPAs within the zone of influence of the proposed development.

### 3.3.7 Summary

- 74 The potential impacts associated with the proposed development do not have the potential to affect the receiving environment and, consequently, do not have the potential to affect the conservation objectives supporting the Qualifying Interest/Special Conservation Interests of any European sites. Therefore, the proposed development is not likely to have significant effects on any European sites.
- 75 As the proposed development itself will not have any effects on the QIs/SCIs or conservation objectives of any European sites, and taking into account the policies and objectives of the statutory plans referred to above, it is concluded that there is no potential for any other plan or project to act in combination with it to result in significant effects on any European sites.
- 76 The potential impacts of the proposed development on the receiving environment, their Zol, and the European sites at risk of significant effects are summarised in Table 1 below. In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

**Table 1 Summary of Analysis of Likely Significant Effects on European sites**

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
Habitat loss	No

<sup>16</sup> Furness, R.W. (2019) Avoidance rates of herring gull, great black-backed gull and common gull for use in the assessment of terrestrial wind farms in Scotland. Scottish Natural Heritage Research Report No. 1019.

<sup>17</sup> Scottish Natural Heritage (SNH). (2018) Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model. September 2018 v2.

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
The Zol of habitat loss effects will be confined to the lands within the proposed works areas.	There are no European sites within the proposed development site, and the habitats within the proposed development site do not constitute an ex situ habitat or site for any QI or SCI species.
Habitat degradation as a result of hydrological impacts The Zol of potential hydrological effects could extend to habitats and species downstream of the proposed works areas and the associated surface water drainage discharge points.	No There are no European sites at risk of hydrological effects associated with the proposed works for reasons outlined in section 3.3.2
Habitat degradation as a result of hydrogeological impacts The Zol of potential hydrogeological effects could extend to groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the proposed works areas.	No There are no European sites at risk of hydrogeological effects associated with the proposed works
Habitat degradation as a result of introducing/spreading non-native invasive species The Zol of potential habitat degradation as a result of non-native invasive species could potentially extent to habitat areas within, adjacent to, and potentially downstream of the proposed development site.	No There are no Third Schedule non-native invasive species present on the proposed development site and, therefore, no risk associated with the proposed development to any European sites from the spread/introduction of non-native invasive species.
Disturbance and displacement impacts The Zol of disturbance and displacement effects could potentially extend up to several hundred metres from the proposed works areas, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, taking into account the sensitivity of the Qualifying Interest species to disturbance effects	No There are no European sites within the potential zone of influence of disturbance effects associated with the construction or operation of the proposed development. As outlined in section 3.3.1 the proposed development site does not support any <i>ex-situ</i> populations of QI or SCI species and thus no impacts are predicted.
Direct mortality as a result of building collision	No For reasons outlined within section 3.3.6 above

#### 4 Conclusions of Screening Assessment Process

- 77 Following an examination, analysis and evaluation of all the relevant information, in view of best scientific knowledge, , and applying the precautionary principle, it can be concluded that the possibility of any significant effects on any European sites, in the absence of mitigation, whether arising from the proposed development alone or in combination with other plans and projects, can be excluded, for the reasons set out in Section 3.3 above. In reaching this conclusion, the nature of the works and its potential relationship with all European sites within the zone of influence, and their conservation objectives, have been fully considered.

- 78 Therefore, it is the professional opinion of the authors of this report that the application for consent for the proposed development does not require a Stage 2 Appropriate Assessment or the preparation of a Natura Impact Statement (NIS).

## Appendix I

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the proposed development site (see Figure 2)

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<b>Special Area of Conservation (SAC)</b>	
<p><b>Knocksink Wood SAC [000725]</b>            [7220] Petrifying springs with tufa formation (Cratoneurion)*            [91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*            [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>NPWS (2021) <i>Conservation objectives for Knocksink Wood SAC [000725]. Version 1.0.</i> Department of Housing, Local Government and Heritage.</p>	<p>Located c. 2.7km south of the proposed development site.</p>
<p><b>Ballyman Glen SAC [000713]</b>            [7220] Petrifying springs with tufa formation (Cratoneurion)*            [7230] Alkaline fens</p> <p>NPWS (2019) <i>Conservation Objectives: Ballyman Glen SAC 000713.</i> Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	<p>Located c. 3.5km south of the proposed development site.</p>
<p><b>Wicklow Mountains SAC [002122]</b>            [3110] Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)            [3160] Natural dystrophic lakes and ponds            [4010] Northern Atlantic wet heaths with <i>Erica tetralix</i>            [4030] European dry heaths            [4060] Alpine and Boreal heaths            [6130] Calaminarian grasslands of the Violetalia calaminariae            [6230] Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)*            [7130] Blanket bogs (* if active bog)            [8110] Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)            [8210] Calcareous rocky slopes with chasmophytic vegetation            [8220] Siliceous rocky slopes with chasmophytic vegetation            [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles            [1355] <i>Lutra lutra</i> (Otter)</p> <p>NPWS (2017) <i>Conservation Objectives: Wicklow Mountains SAC 002122.</i> Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Located c. 4.3km south west of the proposed development site.</p>
<p><b>South Dublin Bay SAC [000210]</b>            [1140] Mudflats and sandflats not covered by seawater at low tide            [1210] Annual vegetation of drift lines</p>	<p>Located c. 6.6km north of the proposed development site.</p>

<p>[1310] <i>Salicornia</i> and other annuals colonising mud and sand [2110] Embryonic shifting dunes</p> <p>NPWS (2013b) <i>Conservation Objectives: South Dublin Bay SAC 000210</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p><b>Rockabill to Dalkey Island SAC [003000]</b> [1170] Reefs [1351] Harbour porpoise <i>Phocoena phocoena</i></p> <p>NPWS (2013) <i>Conservation Objectives: Rockabill to Dalkey Island SAC 003000</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht<sup>18</sup></p>	<p>Located c.6.7km east of the proposed development site.</p> <p>Located c. 1.5km north east of the Shanganagh WwTP outfall.</p>
<p><b>Bray Head SAC (000714)</b> [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts [4030] European dry heaths</p> <p>NPWS (2017) <i>Conservation Objectives: Bray Head SAC 000714</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Located c. 8.1km south east of the proposed development site.</p>
<p><b>Glenasmole Valley SAC [001209]</b> [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [7220] Petrifying springs with tufa formation (Cratoneurion)*</p> <p>NPWS (2021) <i>Conservation objectives:Glenasmole Valley SAC [001209]</i>. Version 1.0. Department of Housing, Local Government and Heritage.</p>	<p>Located c. 10.4km west of the proposed development site.</p>
<p><b>Glen of the Downs SAC (000719)</b> [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>NPWS (2020) <i>Conservation objectives :Glen of the Downs SAC [000719]</i>. Version 1.0. Department of Housing, Local Government and Heritage.</p>	<p>Located c. 11.3km south east of the proposed development site.</p>
<p><b>North Dublin Bay SAC [000206]</b> [1140] Mudflats and sandflats not covered by seawater at low tide [1210] Annual vegetation of drift lines [1310] <i>Salicornia</i> and other annuals colonising mud and sand [1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1395] Petalwort <i>Petalophyllum ralfsii</i> [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [2110] Embryonic shifting dunes [2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p>	<p>Located c. 12km north of the proposed development site.</p>

<sup>18</sup> The versions of the conservation objectives documents referenced in this table are the most recent published versions at the time of writing

<p>[2190] Humid dune slacks</p> <p>NPWS (2013a) <i>Conservation Objectives: North Dublin Bay SAC 000206</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p><b>Carriggower Bog SAC [000202]</b></p> <p>[7140] Transition mires and quaking bogs</p> <p>NPWS (2019) <i>Conservation Objectives: Carriggower Bog SAC 000716</i>. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	<p>Located c. 14.2km south of the proposed development site.</p>
<p><b>Howth Head SAC [000202]</b></p> <p>[1230] Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>[4030] European dry heaths</p> <p>NPWS (2016) <i>Conservation Objectives: Howth Head SAC 000202</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Located c. 15.3km north east of the proposed development site.</p>
<p><b>The Murrough Wetlands SAC [002249]</b></p> <p>[1210] Annual vegetation of drift lines</p> <p>[1220] Perennial vegetation of stony banks</p> <p>[1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>[1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>[7210] Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion <i>davallianae</i>*</p> <p>[7230] Alkaline fens</p> <p>NPWS (2021) <i>Conservation Objectives: The Murrough Wetlands SAC 002249</i>. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	<p>Located c. 16.6km south east of the proposed development site.</p>
<p><b>Special Protection Area (SPA)</b></p>	
<p><b>Wicklow Mountains SPA [004040]</b></p> <p>[A098] Merlin <i>Falco columbarius</i></p> <p>[A103] Peregrine <i>Falco peregrinus</i></p> <p>NPWS (2022) <i>Conservation objectives for Wicklow Mountains SPA [004040]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Located c. 4.3km south west of the proposed development site.</p>
<p><b>South Dublin Bay and River Tolka Estuary SPA [004024]</b></p> <p>[A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>[A130] Oystercatcher <i>Haematopus ostralegus</i></p> <p>[A137] Ringed Plover <i>Charadrius hiaticula</i></p> <p>[A141] Grey Plover <i>Pluvialis squatarola</i></p> <p>[A143] Knot <i>Calidris canutus</i></p> <p>[A144] Sanderling <i>Calidris alba</i></p> <p>[A149] Dunlin <i>Calidris alpina</i></p> <p>[A157] Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>[A162] Redshank <i>Tringa totanus</i></p>	<p>Located c. 6.6km north of the proposed development site.</p>

<p>[A179] Black-headed Gull <i>Chroicocephalus ridibundus</i>  [A192] Roseate Tern <i>Sterna dougallii</i>  [A193] Common Tern <i>Sterna hirundo</i>  [A194] Arctic Tern <i>Sterna paradisaea</i>  [A999] Wetland and Waterbirds</p> <p>NPWS (2015) <i>Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p><b>Dalkey Islands SPA [004172]</b>  [A192] Roseate Tern <i>Sterna dougallii</i>  [A193] Common Tern <i>Sterna hirundo</i>  [A194] Arctic Tern <i>Sterna paradisaea</i></p> <p>NPWS (2022) <i>Conservation objectives for Dalkey Islands SPA [004172]. Generic Version 9.0</i>. Department of Housing, Local Government and Heritage.</p>	<p>Located c. 7.6km north east of the proposed development site.</p> <p>Located c. 3.2km north east of the Shanganagh WwTP outfall.</p>
<p><b>North Bull Island SPA [004006]</b>  [A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i>  [A048] Shelduck <i>Tadorna tadorna</i>  [A052] Teal <i>Anas crecca</i>  [A054] Pintail <i>Anas acuta</i>  [A056] Shoveler <i>Anas clypeata</i>  [A130] Oystercatcher <i>Haematopus ostralegus</i>  [A140] Golden Plover <i>Pluvialis apricaria</i>  [A141] Grey Plover <i>Pluvialis squatarola</i>  [A143] Knot <i>Calidris canutus</i>  [A144] Sanderling <i>Calidris alba</i>  [A149] Dunlin <i>Calidris alpina</i>  [A156] Black-tailed Godwit <i>Limosa limosa</i>  [A157] Bar-tailed Godwit <i>Limosa lapponica</i>  [A160] Curlew <i>Numenius arquata</i>  [A162] Redshank <i>Tringa totanus</i>  [A169] Turnstone <i>Arenaria interpres</i>  [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i>  [A999] Wetlands &amp; Waterbirds</p> <p>NPWS (2015) <i>Conservation Objectives: North Bull Island SPA 004006</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Located c. 12km northeast of the proposed development site.</p>
<p><b>Howth Head Coast SPA [004113]</b>  [A188] Kittiwake (<i>Rissa tridactyla</i>)</p> <p>NPWS (2022) <i>Conservation objectives for Howth Head Coast SPA [004113]. Generic Version 9.0</i>. Department of Housing, Local Government and Heritage.</p>	<p>Located c. 16.3km north east of the proposed development site.</p>

<p><b>The Murrough SPA [004113]</b></p> <p>[A001] Red-throated Diver <i>Gavia stellata</i>  [A043] Greylag Goose <i>Anser anser</i>  [A046] Light-bellied Brent Goose <i>Branta bernicla hrota</i>  [A050] Wigeon <i>Anas penelope</i>  [A052] Teal <i>Anas crecca</i>  [A179] Black-headed Gull <i>Chroicocephalus ridibundus</i>  [A184] Herring Gull <i>Larus argentatus</i>  [A195] Little Tern <i>Sterna albifrons</i>  [A999] Wetland and Waterbirds</p> <p>NPWS (2022) <i>Conservation objectives for The Murrough SPA [004186]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Located c. 17.5km north east of the proposed development site.</p>
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## Appendix II

### Planning polices/objectives relating to the protection of European sites and water quality

#### Eastern & Midland Regional Assembly, Regional Spatial & Economic Strategy 2019-2031

##### **Regional Policy Objective 3.4**

Ensure that all plans, projects and activities requiring consent arising from the Regional Spatial and Economic Strategy are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate. In addition the future strategic development of settlements throughout the Region will have full cognisance of the legal requirements pertaining to sites of International Nature Conservation Interest.

##### **Regional Policy Objective 7.2**

To achieve and maintain 'Good Environmental Status' for marine waters and to ensure the sustainable use of shared marine resources in the Region, and to promote the development of a cross-boundary and cross-border strategic management and stakeholder engagement framework to protect the marine environment.

##### **Regional Policy Objective 7.10**

Support the implementation of the Water Framework Directive in achieving and maintaining at least good environmental status for all water bodies in the Region and to ensure alignment between the core objectives of the Water Framework Directive and other relevant Directives, River Basin Management plans and local authority land use plans.

##### **Regional Policy Objective 7.11**

For water bodies with 'high ecological status' objectives in the Region, local authorities shall incorporate measures for both their continued protection and to restore those water bodies that have fallen below high ecological status and areas 'At Risk' into the development of local planning policy and decision making any measures for the continued protection of areas with high ecological status in the Region and for mitigation of threats to waterbodies identified as 'At Risk' as part of a catchment based approach in consultation with the relevant agencies. This shall include recognition of the need to deliver efficient wastewater facilities with sufficient capacity and thus contribute to improved water quality in the Region.

##### **Regional Policy Objective 7.12**

Future statutory land use plans shall include Strategic Flood Risk Assessment (SFRA) and seek to avoid inappropriate land use zonings and development in areas at risk of flooding and to integrate sustainable water management solutions (such as SuDS, nonporous surfacing and green roofs) to create safe places in accordance with the Planning System and Flood Risk Assessment Guidelines for Local Authorities.

##### **Regional Policy Objective 7.15**

Local authorities shall take opportunities to enhance biodiversity and amenities and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned.

##### **Regional Policy Objective 7.16**

Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans.

##### **Regional Policy Objective 7.22**

Local authority development plan and local area plans, shall identify, protect, enhance, provide and manage Green Infrastructure in an integrated and coherent manner and should also have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks and protected species.

##### **Regional Policy Objective 10.6**

Delivery and phasing of services shall be subject to the required appraisal, planning and environmental assessment processes and shall avoid adverse impacts on the integrity of the Natura 2000 network.

##### **Regional Policy Objective 10.7**

Local authority core strategies shall demonstrate compliance with DHPLG Water Services Guidelines for local authorities and demonstrate phased infrastructure – led growth that is commensurate with the carrying

capacity of water services and prevent adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network.

**Regional Policy Objective 10.10**

Support Irish Water and the relevant local authorities in the Region to eliminate untreated discharges from settlements in the short term, while planning strategically for long term growth in tandem with Project Ireland 2040 and in increasing compliance with the requirements of the Urban Waste Water Treatment Directive from 39% today to 90% by the end of 2021, to 99% by 2027 and to 100% by 2040.

**Regional Policy Objective 10.11**

EMRA supports the delivery of the waste water infrastructure set out in Table 10.2, subject to appropriate environmental assessment and the planning process.<sup>19</sup>

**Regional Policy Objective 10.12**

Development plans shall support strategic wastewater treatment infrastructure investment and provide for the separation of foul and surface water networks to accommodate the future growth of the Region.

**Regional Policy Objective 10.15**

Support the relevant local authorities (and Irish Water where relevant) in the Region to improve storm water infrastructure to improve sustainable drainage and reduce the risk of flooding in the urban environment and in the development and provision at a local level of Sustainable Urban Drainage solutions.

**Regional Policy Objective 10.16**

Implement policies contained in the Greater Dublin Strategic Drainage Study (GSDSDS), including SuDS.

**Regional Policy Objective 10.18**

Local authorities shall ensure adequate surface water drainage systems are in place which meet the requirements of the Water Framework Directive and the associated River Basin Management Plans.

**Dún Laoghaire-Rathdown County Development Plan 2022-2028**

**Policy Objective GIB18: Protection of Natural Heritage and the Environment**

It is a Policy Objective to protect and conserve the environment including, in particular, the natural heritage of the County and to conserve and manage Nationally and Internationally important and EU designated sites - such as Special Protection Areas (SPAs), Special Areas of Conservations (SACs), proposed Natural Heritage Areas (pNHAs) and Ramsar sites (wetlands) - as well as non-designated areas of high nature conservation value known as locally important areas which also serve as 'Stepping Stones' for the purposes of Article 10 of the Habitats Directive

**Policy Objective GIB19: Habitats Directive**

It is a Policy Objective to ensure the protection of natural heritage and biodiversity, including European Sites that form part of the Natura 2000 network, in accordance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines.

**Policy Objective GIB21: Designated Sites**

It is a Policy Objective to protect and preserve areas designated as proposed Natural Heritage Areas, Special Areas of Conservation, and Special Protection Areas. It is Council policy to promote the maintenance and as appropriate, delivery of 'favourable' conservation status of habitats and species within these areas.

**Policy Objective GIB22: Non-Designated Areas of Biodiversity Importance**

It is a Policy Objective to protect and promote the conservation of biodiversity in areas of natural heritage importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance - including species protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979, the Habitats Directive 1992, Flora (Protection) Order, 2015, Annex I habitats, local important areas, wildlife corridors and rare species - are adequately protected. Ecological assessments will be carried out for all developments in areas that support, or have potential to support, features of biodiversity importance or rare

<sup>19</sup> The Greater Dublin Drainage Project, the Ringsend Wastewater Treatment Plant Project, the Athlone Main Drainage Project and the Upper Liffey Valley Sewerage Scheme

and protected species and appropriate mitigation/ avoidance measures will be implemented. In implementing this policy, regard shall be had to the Ecological Network, including the forthcoming DLR Wildlife Corridor Plan, and the recommendations and objectives of the Green City Guidelines (2008) and 'Ecological Guidance Notes for Local Authorities and Developers' (Dún Laoghaire-Rathdown Version 2014)

**Policy Objective GIB23: County-Wide Ecological Network**

It is a Policy Objective to protect the Ecological Network which will be integrated into the updated Green Infrastructure Strategy and will align with the DLR County Biodiversity Action Plan. Creating this network throughout the County will also improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive. The network will also include non-designated sites.

**Policy Objective EI7: Water Supply and Wastewater treatment and Appropriate Assessment**

It is a Policy Objective to require that all developments relating to water supply and wastewater treatment are subject to screening for Appropriate Assessment to ensure there are no likely significant effects on the integrity, defined by the structure and function, of any European sites and that the requirements of Article 6 of the EU Habitats Directive are met. (Consistent with RPO 10.7 of the RSES).

**Policy Objective EI8: Groundwater Protection and Appropriate Assessment**

It is a Policy Objective to ensure the protection of the groundwater resources in and around the County and associated habitats and species in accordance with the Groundwater Directive 2006/118/EC and the European Communities Environmental Objectives (Groundwater) Regulations, 2010. In this regard, the Council will support the implementation of Irish Water's Water Safety Plans to protect sources of public water supply and their contributing catchment.

**Policy Objective EI2: Irish Water Enabling Policies Irish Water's Plans and Programmes**

It is a Policy Objective - in conjunction with the Eastern and Midland Regional Authority, where appropriate - to work with and support Irish Water in the delivery of the strategic objectives and strategic water and wastewater projects and infrastructure as set out in the 'Water Services Strategic Plan' (2015), any subsequent plan, Irish Water's Capital Investment Plan 2020 – 2024, any subsequent Capital Investment Plans and the forthcoming National Water Resources Plan, so as to ensure provision of infrastructure to service settlements in accordance with the Core Strategy of this Plan, and the settlement strategy of the RSES. (Consistent with RPO 10.2, 10.3, 10.11, 10.16 of the RSES).

**Policy Objective EI5: River Basin Management Plans (RMBPs)**

It is a Policy Objective: To ensure the delivery of the relevant policies and objectives of the River Basin Management Plan for Ireland 2018 – 2021 and any subsequent plan, including those relating to protection of water status, improvement of water status, prevention of deterioration and meeting objectives for designated protected sites. To support Irish Water in its implementation of Water Quality Management Plans for ground, surface, coastal and estuarine waters as part of the implementation of the EU Water Framework Directive. To support Irish Water in the development of Drinking Water Protection Plans.

**Policy Objective EI6: Sustainable Drainage Systems**

It is a Policy Objective to ensure that all development proposals incorporate Sustainable Drainage Systems (SuDS).

**Policy Objective EI17: Water Pollution**

It is a Policy Objective to implement the provisions of water pollution abatement measures in accordance with national and EU Directives and other legislative requirements in conjunction with other agencies as appropriate.

**Wicklow County Development Plan 2016-2022**

**NH2**

No projects giving rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this plan (either individually or in combination with other plans or projects).

Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be: a) no alternative solution available, b) imperative reasons of overriding public interest for the project to proceed; and c) Adequate compensatory measures in place.

### NH3

To contribute, as appropriate, towards the protection of designated ecological sites including candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs); Wildlife Sites (including proposed Natural Heritage Areas); Salmonid Waters; Flora Protection Order sites; Wildfowl Sanctuaries (see S.I. 192 of 1979); Freshwater Pearl Mussel catchments; and Tree Preservation Orders (TPOs). To contribute towards compliance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines, including the following and any updated/superseding documents:

- EU Directives, including the Habitats Directive (92/43/EEC, as amended)<sup>7</sup>, the Birds Directive (2009/147/EC)<sup>8</sup>, the Environmental Liability Directive (2004/35/EC)<sup>9</sup>, the Environmental Impact Assessment Directive (85/337/EEC, as amended), the Water Framework Directive (2000/60/EC) and the Strategic Environmental Assessment Directive (2001/42/EC).
- National legislation, including the Wildlife Act 1976<sup>10</sup>, the European Communities (Environmental Impact Assessment) Regulations 1989 (SI No. 349 of 1989) (as amended), the Wildlife (Amendment) Act 2000, the European Union (Water Policy) Regulations 2003 (as amended), the Planning and Development Act 2000 (as amended), the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011) and the European Communities (Environmental Liability) Regulations 2008<sup>11</sup>.
- National policy guidelines (including any clarifying Circulars or superseding versions of same), including the Landscape and Landscape Assessment Draft Guidelines 2000, the Environmental Impact Assessment Sub-Threshold Development Guidelines 2003, Strategic Environmental Assessment Guidelines 2004 and the Appropriate Assessment Guidance 2010.
- Catchment and water resource management Plans, including Eastern and South Eastern River Basin Management Plan 2009-2015 (including any superseding versions of same).
- Biodiversity Plans and guidelines, including Actions for Biodiversity 2011-2016: Ireland's 2nd National Biodiversity Plan (including any superseding version of same).
- Ireland's Environment 2014 (EPA, 2014, including any superseding versions of same), and to make provision where appropriate to address the report's goals and challenges.

### NH4

All projects and plans arising from this plan<sup>12</sup> (including any associated improvement works or associated infrastructure) will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and a Stage 2 Appropriate Assessment where necessary, that:

- 1) The Plan or project will not give rise to significant adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or
- 2) The Plan or project will have significant adverse effects on the integrity of any European site (that does not host a priority natural habitat type and / or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or
- 3) The Plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out

in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.

**NH5**

To maintain the conservation value of all proposed and future Natural Heritage Areas (NHAs) and to protect other designated ecological sites in Wicklow.

Along with cSACs, SPAs and pNHA these include Salmonid Waters; Flora Protection Order sites; Wildfowl Sanctuaries (see S.I. 192 of 1979); Freshwater Pearl Mussel catchments; and Tree Preservation Orders (TPOs).

**WI2**

To protect existing and potential water resources of the County, in accordance with the EU Water Framework Directive, the River Basin Management Plans, the Groundwater Protection Scheme and source protection plans for public water supplies.

**WI12**

Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) and in particular, to ensure that all surface water generated in a new development is disposed of on-site or is attenuated and treated prior to discharge to an approved surface water system.

**WI6**

In order to fulfil the objectives of the Core Strategy, Wicklow County Council will work alongside and facilitate the delivery of Irish Water's Water Services Investment Programme, to ensure that all lands zoned for development are serviced by an adequate wastewater collection and treatment system and in particular, to endeavour to secure the delivery of regional and strategic wastewater schemes. In particular, to support and facilitate the development of a WWTP in Arklow, at an optimal location following detailed technical and environmental assessment and public consultation.

**WI7**

Permission will be considered for private wastewater treatment plants for single rural houses where: • the specific ground conditions have been shown to be suitable for the construction of a treatment plant and any associated percolation area;

- the system will not give rise to unacceptable adverse impacts on ground waters / aquifers and the type of treatment proposed has been drawn up in accordance with the appropriate groundwater protection response set out in the Wicklow Groundwater Protection Scheme (2003);
- the proposed method of treatment and disposal complies with Wicklow County Council's Policy for Wastewater Treatment & Disposal Systems for Single Houses (PE ≤ 10) and the Environmental Protection Agency "Waste Water Treatment Manuals"; and
- in all cases the protection of ground and surface water quality shall remain the overriding priority and proposals must definitively demonstrate that the proposed development will not have an adverse impact on water quality standards and requirements set out in EU and national legislation and guidance documents.

**WI9**

Private wastewater treatment plants for commercial / employment generating development will only be considered where:

- Irish Water has confirmed the site is due to be connected to a future public system in the area or Irish Water have confirmed there are no plans for a public system in the area;
- it can clearly demonstrated that the proposed system can meet all EPA / Local Authority environmental criteria; and

an annually renewed contract for the management and maintenance of the system is contracted with a reputable company / person, details of which shall be provided to the Local Authority.

**Appendix III**

**Hydrological and hydrogeological risk assessment report for strategic housing development  
at wayside, Enniskerry road, Kiltarnan, Dublin 18**



**Enviroguide**  
CONSULTING

# HYDROLOGICAL AND HYDROGEOLOGICAL RISK ASSESSMENT REPORT

FOR  
STRATEGIC HOUSING DEVELOPMENT  
AT  
WAYSIDE, ENNISKERRY ROAD, KILTERNAN, DUBLIN 18

June 2022

ON BEHALF OF  
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## DOCUMENT CONTROL SHEET

<b>Client</b>	Liscove Limited
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<b>Document Title</b>	Hydrological and Hydrogeological Risk Assessment Report

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03	Final	Candice Serbu <i>Consultant</i>	Gareth Carroll <i>Senior Consultant</i>	Claire Clifford <i>Technical Director</i>	16/06/2022

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## 1 INTRODUCTION

Enviroguide Consulting (hereafter referred to as EGC) was appointed by Liscove Limited (hereafter referred to as the Applicant) to prepare a hydrological and hydrogeological risk assessment for the Proposed Strategic Housing Development (SHD) at Wayside, Enniskerry Road and Glenamuck Road, Kiltarnan, Dublin 18 (referred to hereafter as the Proposed Development and the Site).

### 1.1 Project Objective

The project objective was to undertake a risk-based assessment of any potential impacts on the receiving water environment and in particular:

- the sites protected and designated under the Habitats Directive (92/43/EEC) and Birds Directive (2009/147/EC); and,
- the Water Framework Directive (WFD) status of waterbodies assigned under the European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003).

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). SACs and SPAs are collectively known as Natura 2000 or European sites (referred to hereafter as Natura 2000 sites).

The EU Water Framework Directive (2000/60/EC) was given legal effect in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003). It applies to rivers, lakes, groundwater, and transitional coastal waters and provides for the protection of the quality status of all waters.

The risk-based assessment of any potential impacts on water and specifically on Natura 2000 sites assumed the absence of any avoidance and mitigation measures including those embedded in the design that will be implemented during the Construction and Operational Phases of the Proposed Development.

### 1.2 Project Scope

To undertake the assessment, the project scope included the following tasks:

- A desk-based study that comprised a review of published environmental information;
- A review of the Proposed Development design details provided by the Applicant;
- Develop a preliminary Conceptual Site Model (CSM) to describe potential source-pathway-receptor (SPR) linkages for the Site;
- Assess the potential impacts that the Proposed Development may have on the receiving water environment including Natura 2000 sites; and,
- Identify and assess the potential for any significant impact on Natura 2000 sites.

### **1.3 Professional Competency**

This report was written by Candice Serbu BSc. MSc. and Gareth Carroll BAI and reviewed by Claire Clifford BSc., MSc., PGeo, EurGeol, who is Technical Director with Enviroguide Consulting, who is professionally competent and accredited to undertake environmental risk assessments and is listed on the Institute of Geologists of Ireland 'Register of Professional Qualified Geoscientist/competent persons: Regulated and Unregulated Waste Disposal/ Contaminated Land Assessments'.

This assessment is reliant on the information pertaining to the Proposed Development provided by the Applicant.

## 2 METHODOLOGY

### 2.1 Standards and Regulations

The methodology adopted for this assessment takes cognisance of the relevant standards and regulations pertinent to undertaking a hydrological and hydrogeological assessment in particular the following:

- Council Directive 2006/118/EEC, 2006. On the protection of groundwater against pollution and deterioration. European Parliament and the Council of European Communities;
- Commission Directive 2014/80/EU of 20 June 2014 amending Annex II to Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration;
- Dún Laoghaire-Rathdown County Development Plan 2022-2028 (Dún Laoghaire-Rathdown County, April 2022).
- EU Water Framework Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy with amendments;
- European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003)
- Environmental Protection Agency, December 2011. Guidance on the Authorisation
- of Discharges to Groundwater;
- Department of the Environment, Heritage and Local Government, Environmental Protection Agency and Geological Survey of Ireland, 1999. Groundwater Protection Schemes (Groundwater Protection Schemes, 1999);
- Local Government, July 1990. No. 21 of 1990. Local Government (Water Pollution) (Amendment) Act, 1990;
- S.I. No. 9/2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010 and as amended; and,
- S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009 and as amended.

### 2.2 Desk-based Study

A desk-based study was undertaken including a review of relevant information from the following publicly available sources and information provided by the Applicant:

- Ordnance Survey Ireland Online mapping (OSI, 2022);
- Geological Survey of Ireland Online mapping (GSI, 2022);
- The Office of Public Works website and Online mapping (OPW, 2022);
- Environmental Protection Agency Online mapping (EPA, 2022);

- National Parks & Wildlife Services, Protected Sites Webmapping (NPWS, 2022);
- The Office of Public Works (OPW, 2022);
- DBFL Consulting Engineers, March 2019. Glenamuck District Roads Scheme Environmental Impact Assessment Report.
- Department of Environment, Community and Local Government Online Mapping (DECLG, 2022); and,
- Relevant drawings and design reports for the Proposed Development provided by the applicant.

### **2.3 Risk Based Impact Assessment**

A risk-based and receptor-focussed approach was adopted for this assessment. The assessment involves a determination of the potential risk of impact to identified receptors (i.e. water bodies and Natura 2000 sites). The basis for a risk assessment is the Conceptual Site Model (CSM) or source-pathway-receptor (S-P-R) model which underpins the Water Framework Directive (WFD) and Irish water quality legislation as well as EPA guidelines on the assessment and protection water resources and associated aquatic ecosystems and human health receptors (e.g., groundwater supply users).

A risk-based assessment of the CSM and S-P-R linkages for a site is undertaken to provide an understanding of any potential risk associated with the infrastructure or activities on a site (the source). If one or more of the three elements of the S-P-R linkage are missing, the linkage is considered incomplete and there is no risk associated with the site (i.e., there is no means of transport or exposure to receptors).

The 'prevent or limit' objective of the WFD requires that the first line of defence is to restrict inputs of pollutants from the Proposed Development (i.e., 'source' removal) and thereby avoiding or reducing any potential impact to the receiving water environment and requirement for mitigation.

In this assessment all three elements (S-P-R) of the CSM will be considered and any potential linkages with receptors, including Natura 2000 sites hydraulically connected to the Proposed Development Site, will be assessed to determine if the Proposed Development either individually or in combination could potentially result in a significant impact to water quality and the integrity of any the identified Natura 2000 sites in the absence of mitigation.

### 3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The Applicant, intend to apply to An Bord Pleanála for permission for the SHD (the Proposed Development) at lands at Wayside, Enniskerry Road and Glenamuck Road, Kiltarnan, Dublin 18 (the Site), which include a derelict dwelling known as 'Rockville' and associated derelict outbuildings, Enniskerry Road, Kiltarnan, Dublin 18.

The Proposed Development Site is 11.153Ha which includes 10.8Ha of developable land plus the works areas for drainage and

The Proposed Development will principally consist of: the demolition of 573.2m<sup>2</sup> of existing structures on site comprising a derelict dwelling known as 'Rockville' and associated derelict outbuildings; and the provision of a mixed use development consisting of 383No. residential units (165No. houses, 118No. duplex units and 100No. apartments) and a Neighbourhood Centre, which will provide a creche (439m<sup>2</sup>), office (317m<sup>2</sup>), medical (147m<sup>2</sup>), retail (857m<sup>2</sup>), convenience retail (431m<sup>2</sup>) and a community facility (321m<sup>2</sup>). The 383No. residential units will consist of 27No. 1 bedroom units (19No. apartments and 8No. duplexes), 128No. 2 bedroom units (78No. apartments and 50No. duplexes), 171No. 3 bedroom units (108No. houses, 3No. apartments and 60No. duplexes) and 57No. 4 bedroom units (57No. houses). The proposed development will range in height from 2 No. to 5 No. storeys (including podium/undercroft level in Apartment Blocks C and D and in the Neighbourhood Centre).

Vehicular access will be provided from the Enniskerry Road, the approved Part 8 Enniskerry Road/Glenamuck Road Junction Upgrade Scheme on Glenamuck Road (DLRCC Part 8 Ref PC/IC/01/17) and to the approved Glenamuck District Roads Scheme (GDRS) (ABP Ref:HA06D.303945) on the Glenamuck Link Distributor Road (GLDR).

The Proposed Development will also provide pedestrian access, car, motorcycle and bicycle parking, bin storage, provision of new telecommunications infrastructure at roof level of the Neighbourhood Centre including shrouds, antennas and microwave link dishes, private balconies, terraces and gardens; hard and soft landscaping; sedum roofs; solar panels; boundary treatments; lighting; substations; plant; and all other associated site works above and below ground.

The Proposed Development Site layout is provided in Figure 3-1.



Figure 3-1. Proposed Development Site Layout

### 3.1 Surface Water Drainage

2022a), the surface water drainage for 9.92Ha of the Proposed Development Site has been divided into two (2No.) catchment areas (Catchment 1 and Catchment 2) as described below. Surface water runoff from the site will be managed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Sustainable Drainage System (GDSDS) to treat and attenuate water prior to discharge to the outfall points from the Site (Roger Mullarkey & Associates, 2022a). A full SuDS treatment train approach has been implemented in accordance with the CIRIA SuDS Manual and includes filter drains, permeable paving, swales, tree pits, green roofs, bio-retention area, Stone lined voided arch retention storage devices, silt trap manholes, petrol interceptor and hydrobrake (Roger Mullarkey & Associates, 2022a). The remaining areas of the Site will be outside of these catchments and will continue to discharge to ground.

- Catchment 1:
  - It is proposed that attenuated surface water drainage from 9.63Ha of the Proposed Development will outfall to the existing 300mm Rockville sewer in the adjoining Rockville development (Planning Ref. D17A/0793, D18A/0566 and D20A/0015).
  - The surface water from the existing 300mm Rockville surface water sewer discharges to the existing roadside drainage channel located on Glenamuck Road. It is understood that this drainage channel flows approximately 1.4km downstream in a north-easterly direction along Glenamuck Road before discharging to the Glenamuck North Stream.

- The existing 300mm Rockville sewer will eventually be diverted into the regional attenuation pond for the surface water drainage network of the permitted Glenamuck District Roads Scheme (GDRS) project (ABP Ref: ABP-303945-19). Dún Laoghaire Rathdown County Council (DLRCC) confirmed that capacity to drain the lands at the Proposed Development have been included in regional attenuation ponds of the GDRS (Roger Mullarkey & Associates, 2022a).
- Catchment 2:
  - It is proposed that treated and attenuated surface water drainage from 0.29Ha of the Proposed Development will outfall to the surface water drainage network of the permitted GDRS project at Glenamuck Road (ABP Ref: ABP-303945-19).

The GDRS project has been designed by DLRCC to facilitate the surface water drainage connection from the Site, subject to a successful grant of planning for the Proposed Development (Roger Mullarkey & Associates, 2022a). Attenuated and treated surface water from the GDRS project will ultimately outfall to the watercourses within the catchments of the Carrickmines Stream (IE\_EA\_10C040350) and the Shanganagh River (IE\_EA\_10S010600). The Environmental Impact Assessment Report (EIAR) for the GDRS project (DBFL, March 2019) that assess the overall scheme including surface water drainage concluded that ‘the significance of the identified impacts will be reduced to a “Not significant” residual impact on the identified hydrological/ hydrogeological receptors’.

The proposed onsite catchment areas and surface water management strategy for the Proposed Development Site is present in Figure 3-2.



*Figure 3-2. Catchment, Interception and Paved Areas (Source: Roger Mullarkey & Associates, 2022a. DWG. No. 2104/13)*

### **3.2 Foul Water Drainage**

Foul water from the Proposed Development will be managed within two separate foul drainage catchments and will ultimately discharge to Shanganagh Wastewater Treatment Plant (WWTP). The proposal for foul water from the two catchments is as follows:

- Foul water from 10.5Ha of the Site will outfall to via the existing Rockville foul sewer in the adjoining Rockville development (Planning Ref. D17A/0793, D18A/0566 and D20A/0015). This existing Rockville foul sewer connects into the Irish Water (IW) foul sewer on Glenamuck Road.
- Foul water from 0.3Ha of the Site will outfall to the foul sewer network of the permitted GDRS project in Glenamuck Road (ABP Ref: ABP-303945-19). The GDRS project has been designed by DL RCC to facilitate the foul drainage connection from the Site, subject to a successful grant of planning for the Proposed Development (Roger Mullarkey & Associates, 2022a).

The foul water drainage infrastructure for the Proposed Development will be designed and constructed in accordance with current IW Code of Practice for Wastewater Infrastructure (Roger Mullarkey and Associates, 2022a).

IW issued a Confirmation of Feasibility (COF) (Ref.CDS20006509 dated 30<sup>th</sup> May 2022) that the proposed connections to IW mains foul water from the Site are 'feasible without infrastructure upgrade by Irish Water'. Subsequently, a full design submission was made for the foul water infrastructure and IW have issued the Statement of Design acceptance (SODA) letter (Ref.CDS20006509 issued on the 1<sup>st</sup> June 2022) (Roger Mullarkey & Associates, 2022a).

The foul water drainage infrastructure at the Proposed Development will be designed and constructed in accordance with current IW Code of Practice for Wastewater Infrastructure (Roger Mullarkey and Associates, 2022a).

### **3.3 Water Supply**

Water supply to the Proposed Development will be from the two (2No.) existing IW water supply mains located on Enniskerry Road and on Glenamuck Road.

IW issued a Confirmation of Feasibility (COF) (Ref.CDS20006509 dated 30<sup>th</sup> May 2022) that both water supply connections from the Site are 'feasible without infrastructure upgrade by Irish Water'. Subsequently, a full design submission was made for the water infrastructure and IW have issued the Statement of Design acceptance (SODA) letter (Ref.CDS20006509 issued on the 1<sup>st</sup> June 2022) (Roger Mullarkey & Associates, 2022a).

The water supply infrastructure at the Proposed Development will be designed and constructed in accordance with current IW Code of Practice for Water Infrastructure (Roger Mullarkey and Associates, 2022a).

## 4 PROPOSED DEVELOPMENT SITE SETTING

### 4.1 Site Location and Description

The Proposed Development site is located at Wayside, Enniskerry Road and Glenamuck Road, Kiltarnan, Dublin 18 and approximately 1.9 km southwest of the M50 and Carrickmines Retail Park. The Proposed Development Site location is presented in Figure 4-1.

The Proposed Development site is accessed from the Enniskerry Road (R117) and currently comprises undeveloped lands and agricultural lands (grazing of cattle) with a derelict dwelling known as 'Rockville' and associated derelict outbuilding within an overall site area of 11.153Ha including 10.8Ha of developable land. The Proposed Development Site is located within Kiltarnan Village with the surrounding land use comprising predominantly residential housing and agricultural lands.

The Proposed Development Site is bounded by Glenamuck Road, Kiltarnan Country Market and the Sancta Maria property to the north and northwest, by Enniskerry Road to the west and southwest, by residential dwellings to the south and southeast and by agricultural lands and the Rockville residential development to the east and northeast.

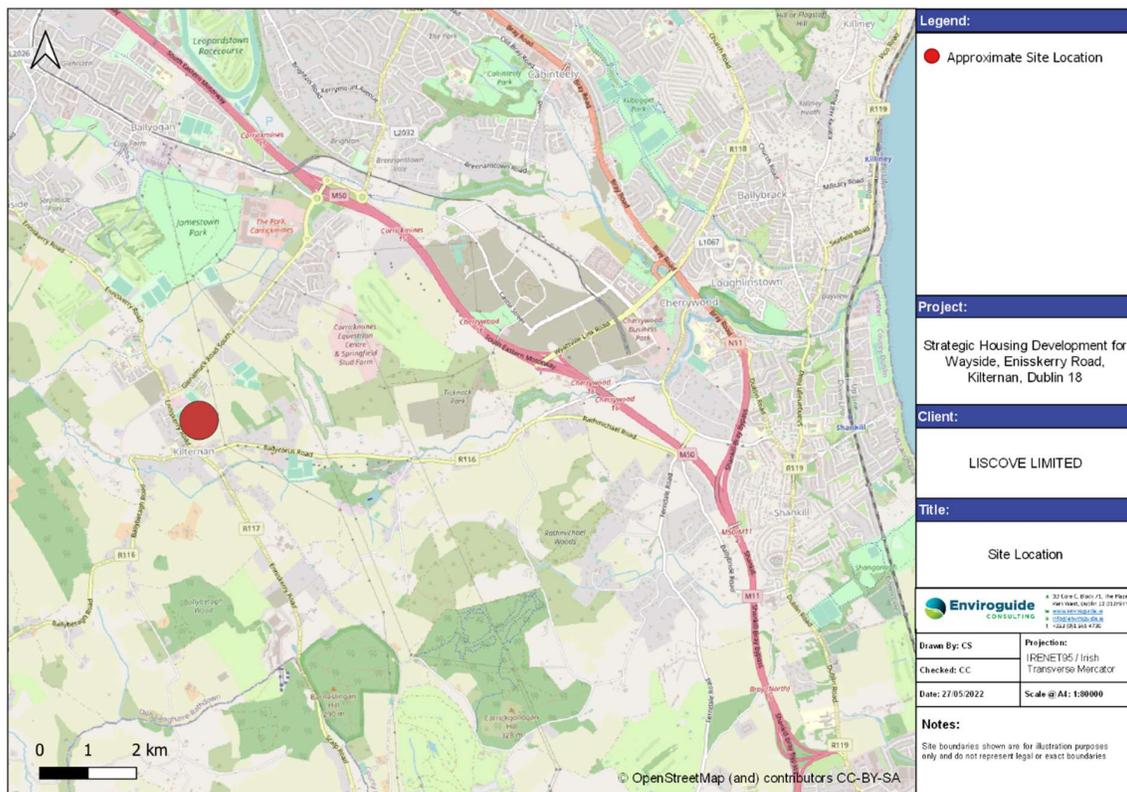


Figure 4-1. Site Location

### 4.2 Topography

The topography surrounding the Proposed Development site is generally toward the east and northeast towards the coast.

As documented in the Engineering Infrastructure Report (Roger Mullarkey & Associates, 2022), the topography at the Proposed Development site is generally a gradually increasing slope downwards from Enniskerry Road (western boundary) in a north-easterly direction and then falls off sharply toward the eastern boundary of the Proposed Development site at a gradient of approximately 10%. Ground elevations at the site range from approximately 143.07mOD in the southwest to 132.85mOD in the northeast of the Proposed Development site (Roger Mullarkey & Associates, 2022a).

### **4.3 Hydrology**

#### **4.3.1 Surface Water Drainage**

The Site has been mapped by the EPA (EPA, 2022) to be within the Ovoca-Vartry WFD Catchment (ID: 10), the Ovoca-Vartry Hydrometric Area (HA10), the Dargle\_SC\_010 Sub-Catchment, (Sub-catchment ID: 10\_5) and the Carrickmines Stream\_010 WFD River Sub Basin (IE\_EA\_10C040350).

The closest surface water feature is recorded on the EPA database (EPA, 2022) as the Shanganagh River (IE\_EA\_10S010600), named locally as the Loughlinstown River, which is located approximately 0.3km south / southeast of the Proposed Development Site and flows eastwards, discharging to the Irish Sea (South Western Irish Sea - Killiney Bay - IE\_EA\_G\_076), approximately 5.3km east of the Site.

The Glenamuck North Stream (IE\_EA\_10C040350) is located approximately 0.4km north of the Proposed Development Site and flows eastwards before converging with the Carrickmines Stream (IE\_EA\_10C040350) approximately 2.0km east of the Site. The Carrickmines Stream flows approximately 3.2km downstream in a south-easterly direction before converging with the Shanganagh River approximately 3.9km east of the Site (EPA, 2022). The Shanganagh River flows approximately 1.8km downstream in a south-easterly direction before discharging to the Irish Sea approximately 5.3km east of the Site.

The surface water features mapped by the EPA within a 2km radius of the Proposed Development Site are presented in Figure 4-2.

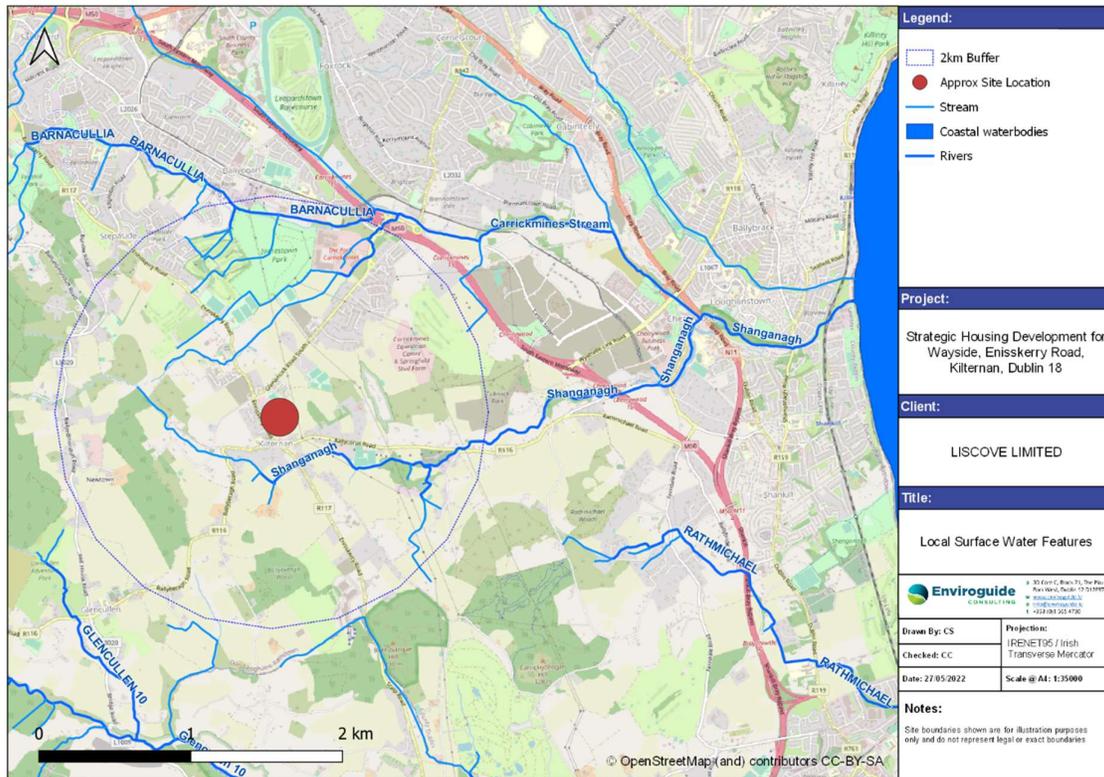


Figure 4-2. Local Surface Water Features

#### 4.3.2 Existing Surface / Storm Drainage

There is no surface water drainage at the Site and no direct hydraulic connection with any water courses and surface runoff at the Site discharges to ground (Enviroguide Consulting, 2022a).

There is an existing roadside drainage channel located approximately 0.02km north of the Site along Glenamuck Road. It is understood that this drainage channel flows approximately 1.4km downstream in a north-easterly direction along Glenamuck Road before discharging to the Glenamuck North Stream. The Glenamuck North Stream flows approximately 0.6km downstream in a north-easterly direction before converging with the Carrickmines Stream.

#### 4.4 Flood Risk

A site-specific preliminary flood risk assessment (SFRA) for the Proposed Development (Roger Mullarkey & Associates, 2022b) states that the Proposed Development Site is outside the 10% AEP, 5% AEP, 1%AEP and 0.1% AEP flood extents for fluvial and coastal flooding of the Shanganagh River. The report concludes that the Proposed Development Site is regarded to be of low flood risk and is suitable for development (Roger Mullarkey & Associates, May 2022b).

#### 4.5 Soil and Geology

The soils beneath the Site are mapped by Teagasc (Teagasc, 2022) as imperfectly drained peat over lithoskeletal acid igneous rock of the Carrigvanagh (0410a) soil series and Urban' beneath the northern part and the southeast corner of the Site.

Subsoils beneath the Site are mapped by the GSI (GSI, 2022) as ‘till derived from granites (TGr)’ with ‘bedrock outcrop or subcrop (Rck)’ mapped beneath the southern and northern parts of the Site. Previous site investigation records indicate that cohesive soils comprising clay / silt was encountered to a maximum depth of 2.9mbGL (SII, 2006, GII, 2010 and GII, 2017).

Bedrock beneath the Site is mapped by the GSI (GSI, 2022) as Granite - Type 3 Muscovite Porphyritic Formation (Stratigraphic Code: Nt3; New Code IDNLGR3). Previous site investigation records indicate that bedrock was encountered as weathered Granite at depths below 0.8mbGL and 2.9mbGL (SII, 2006, GII, 2010 and GII, 2017).

## **4.6 Hydrogeology**

### **4.6.1 Site Investigation and Groundwater Levels**

Groundwater strikes were recorded during drilling of boreholes at the Proposed Development Site (SII, 2006; borehole logs are appended to the Roger Mullarkey & Associates, 2022a Drainage Infrastructure Report however a location map for boreholes is not included). The groundwater strikes where encountered were recorded at depths ranging from 2.6mbGL to 2.9mbGL and typically within the sandy gravelly clays / silts above the granite bedrock.

### **4.6.2 Aquifer Classification and Groundwater Vulnerability**

The GSI (GSI, 2022) has classified the bedrock of the Type 3 Muscovite Porphyritic Formation beneath the Proposed Development Site and surrounding area as a Poor Aquifer (PI) (i.e. bedrock which is generally unproductive except for local zones). Poor aquifers are capable of supplying ‘moderate’ to ‘low’ yields (<100m<sup>3</sup>/day) and Groundwater flow occurs predominantly through a limited and poorly-connected network of fractures, fissures and joints (GSI, 2017).

There are no gravel aquifers mapped within a 2.0km radius of the Proposed Development site (GSI, 2022).

The GSI have assigned a groundwater vulnerability rating of “High” (H) for the groundwater beneath the Proposed Development Site (GSI, 2022) indicating approximately 3m to 10m of overburden.

As documented in the site investigation reports (SII, 2006, GII, 2010 and GII, 2017 included in the Roger Mullarkey & Associates, 2022a Drainage Infrastructure Report), weathered bedrock was encountered at depths below 0.8mbGL and 2.9mbGL. Therefore, the vulnerability rating of can be considered to be locally extreme based on available data for the Proposed Development Site.

The bedrock aquifer map is presented in Figure 4-3 and the GSI Groundwater Vulnerability Map is presented in Figure 4-4.

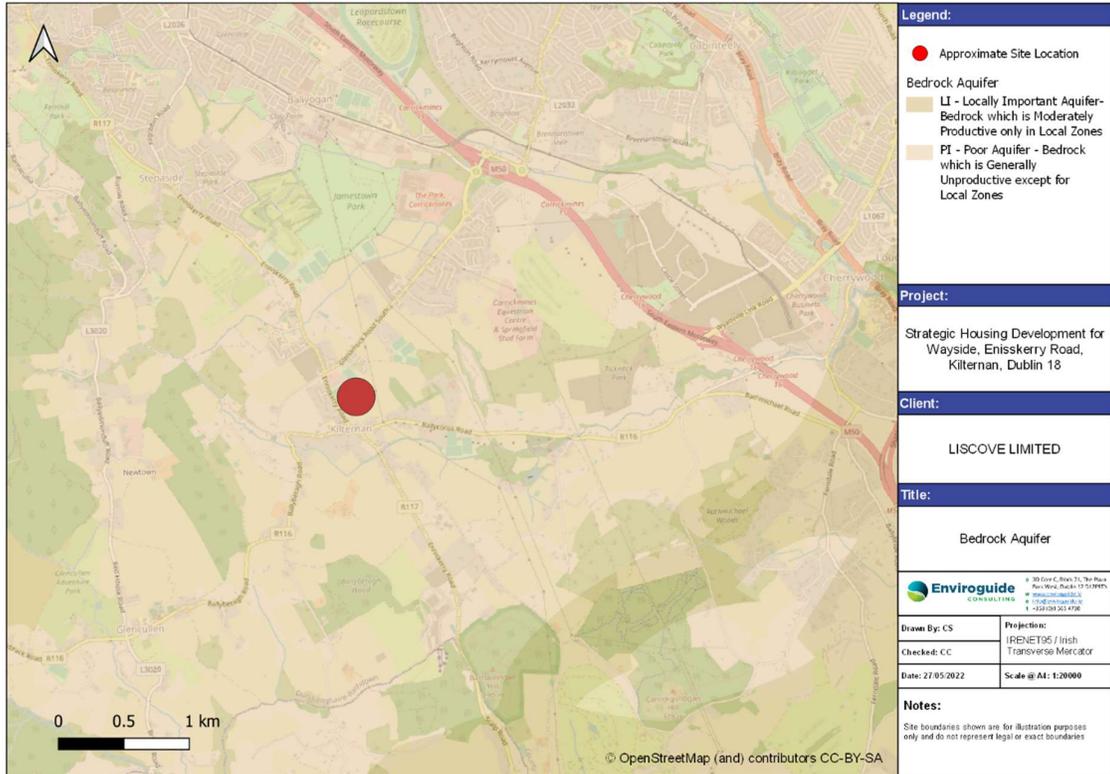


Figure 4-3. Bedrock Aquifer

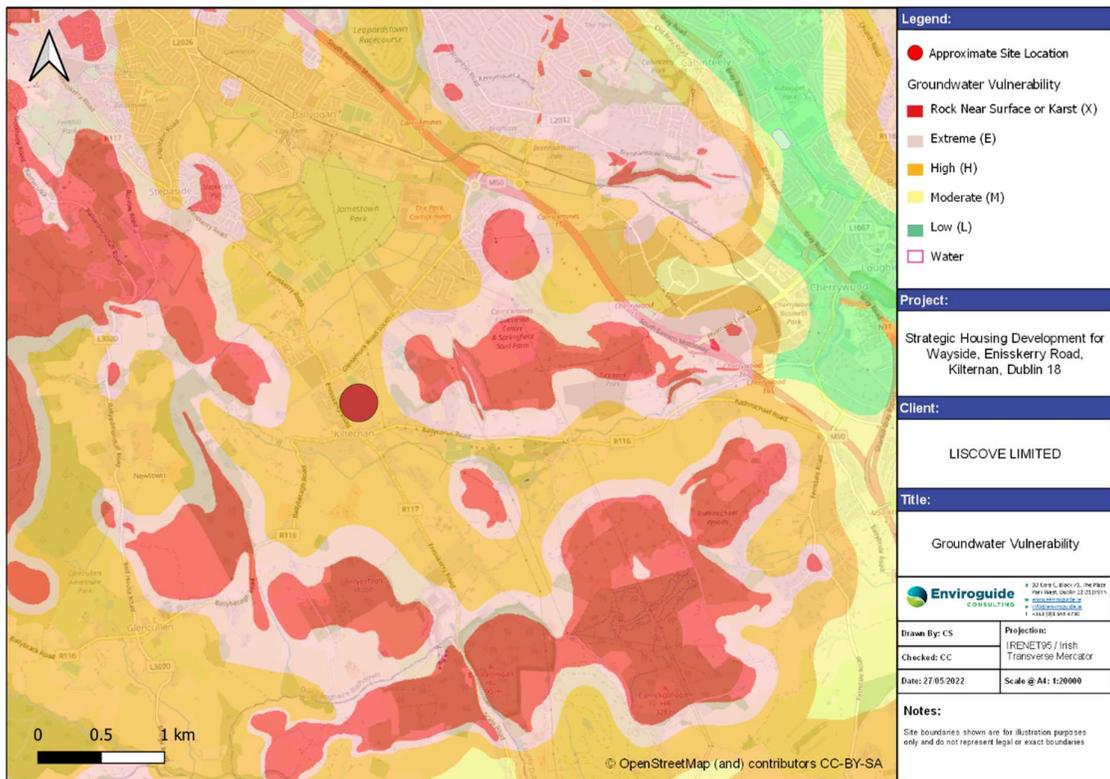


Figure 4-4. Groundwater Vulnerability

### 4.6.3 Groundwater Body and Flow Regimes

The bedrock aquifer beneath the Site is within the Wicklow Groundwater Body (GWB) (EU Code: IE\_EA\_G\_076). that covers some 1396km<sup>2</sup> and occupies an area across Co. Dublin, Co. Wicklow and Co. Wexford (GSI, 2022).

Recharge in the vicinity of the Proposed Development is diffuse through overlying tills into the aquifer. The granite aquifer beneath the Site is classified as a poor aquifer which is characterised by a lower capacity to accept recharge via infiltration of rainfall. A recharge coefficient of between 20% and 60% of effective rainfall with a capped recharge value of 100mm/year has been assigned to the aquifer (GSI, 2022).

The GSI (Wicklow GWB Report) identifies that the majority of groundwater flow direction in the aquifer will take place in the upper 3m of the rocks. Site investigation results indicate that shallow groundwater, where encountered, was recorded at depths ranging from 2.6mbGL to 2.9mbGL and typically within the sandy gravelly clays / silts above the granite bedrock (SII, 2006, GII, 2010 and GII, 2017).

Regionally groundwater flow is towards the Irish Sea with local flow towards streams and rivers (GSI, 2022). Groundwater flow in the vicinity of the Site is likely to be towards the Carrickmines Stream and the Shanganagh River although baseflow contributions are noted to be low within the Wicklow GWB.

### 4.6.4 Water Use and Source Protection

The Proposed Development Site is located within an area serviced by mains water supply. The GSI groundwater wells and springs database (GSI, 2022) lists one (1No.) groundwater well (domestic use) within a 2km radius located 0.9km south of the Proposed Development Site.

There are no Groundwater Source Protection Areas (SPAs) located within a 2km radius of the Proposed Development Site. The closest Groundwater SPAs to the Proposed Development Site are the Ballyfolan Group Scheme Preliminary SPA and the Roundwood Public Water Supply (PWS) which are located approximately 15.1km west and 18.5km south of the Proposed Development Site respectively.

The Shanganagh River which is located approximately 0.3km south / southeast of the Proposed Development Site is mapped by the EPA (EPA, 2022) as a surface water drinking water source under Article 7 of the Water Framework Directive. There are no other surface water drinking water sources identified by the EPA (EPA, 2022) within a 2km radius of the Proposed Development Site.

## 4.7 Water Quality

The EPA Q-Value is a system of water quality rating based on the biological quality of the water body and abundance for specific invertebrate species. A summary of the Q-value for the operational and historic EPA monitoring locations along the Carrickmines Stream and the Shanganagh River is presented in Table 4-1. The EPA data indicates that there is an upward trend in total ammonia and ortho-phosphate (as P) for the water course for the period 2013-2018 (EPA, 2022).

It is noted that the Ballyogan Landfill facility (Licence Number W0015-01) is located approximately 1.3km north of the Site and upstream from where the Glenamuck North Stream converges with the Carrickmines Stream. The most recent available Annual Environmental Report (AER) for the Ballyogan Landfill indicates no non-compliance issues for the 2020 reporting period.

It is also noted that the available 2020 AER for the Shanganagh WWTP indicates that discharges from the WWTP to the Irish Sea were compliant with the Emission Limit Values (ELVs).

There is no available published groundwater quality data for the Wicklow GWB in the vicinity of the Site.

*Table 4-1: EPA Monitoring Stations within 2km of the Proposed Development*

River I.D.	Sample Location / Monitoring Station	Q-Value (WFD Status)
Shanganagh River (0.63km upstream)	Shanganagh Middle Bridge Cabinteely Park Station I.D.: RS10S010100	3 (Poor) in 1990
Shanganagh River (0.27km downstream)	Shanganagh Kiltarnan Bridge Enniskerry Road Station ID: RS10S010440	3-4 (Moderate) in 2000
Shanganagh River (1.45km downstream)	Shanganagh Bridge North of Ballycorus Lead Works Station I.D.: RS10S010450	4 (Good) in 1994
Shanganagh River (4.6km downstream)	At Commons Road Station I.D.: RS10S010600	4 (Good) in 2020
Shanganagh River (4.9km downstream)	At Commons Road Station I.D.: RS10S0107000	3 (Poor) in 1984
Carrickmines Stream (2.0km downstream)	Carrickmines Stream Glenamuck Road Bridge (Friarsland / Priorsland) Station I.D. RS10C040200	3 (Poor) in 2003
Carrickmines Stream (2.9km downstream)	Carrickmines Stream Bridge near Glendruid House Station I.D. RS10C040300	3-4 (Moderate) in 1990
Carrickmines Stream (3.7km downstream)	Carrickmines Stream Upstream Overpass Station I.D. RS10C040350	4 (Good) in 2020
Carrickmines Stream (3.9km downstream)	Carrickmines Stream Bridge at Loughlinstown Station I.D. RS10C040400	3 (Poor) in 2003

#### 4.8 Water Framework Directive

The Water Framework Directive status for surface water, groundwater, transitional and coastal water bodies relevant to the Site as recorded by the EPA (EPA, 2022) in accordance with European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003) are provided in Table 4-2.

Table 4-2. Water Framework Directive Status

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2013-2018)	Hydraulic Connection to the Site
<b>Surface Water Bodies</b>					
<b>Shanganagh River</b>	IE_EA_10S0_10600	South / Southeast	0.27	Moderate	Cross-gradient of the Proposed Development Site
<b>Glenamuck North River</b>	IE_EA_10C0_40350	North	0.42	Moderate	Cross-gradient of the Proposed Development Site
<b>Carrickmines Stream</b>	IE_EA_10C0_40350	North	2.0	Moderate	Cross-gradient of the Proposed Development Site
<b>Coastal Water Bodies</b>					
<b>Southwestern Irish Sea -Killiney Bay</b>	IE_EA_100_0000	East	5.21	High	Downstream of Shanganagh River
<b>Groundwater Bodies</b>					
<b>Wicklow Groundwater Body</b>	IE_EA_G_07_6	N/A	N/A	Good	Underlying groundwater-body

#### 4.9 Designated and Protected Areas

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). SACs and SPAs are collectively known as Natura 2000 or European sites (referred to hereafter as Natura 2000 site).

Designated and protected areas located within 15km of the Proposed Development Site are identified in Figure 4-5 and listed in Table 4-3 with the Natura 2000 sites that are potentially hydraulically connected to the Site identified.

Table 4-3. Natura 2000 sites within 15km of the Site

Site Code	Site Name	Distance and Direction from Proposed Development Site	Potential for Hydraulic Connection
<b>Special Areas of Conservation (SAC)</b>			
002122	Wicklow Mountains SAC	4.4km Southwest	No - Located within with Wicklow GWB but upgradient of the Site.
001209	Glenasmole Valley SAC	10.5km West	No - Located within with Wicklow GWB but upgradient of the Site.
000725	Knocksink Wood SAC	3.0km South	No Located with the Wicklow GWB but within a different hydrological catchment and cross gradient (based on regional groundwater flow towards the Irish Sea).

Site Code	Site Name	Distance and Direction from Proposed Development Site	Potential for Hydraulic Connection
000713	Ballyman Glen	3.6km Southeast	No Located within Enniskerry Gravels GWB and within a different hydrological catchment and cross gradient (based on regional groundwater flow towards the Irish Sea).
000714	Bray Head SAC	8.2km Southeast	Potential hydraulic connection via the Irish Sea., located 6.1km north along the coast from the discharge point from the Shanganagh River
003000	Rockabill to Dalkey Island SAC	6.9km Northeast	Potential hydraulic connection via the Irish Sea.
<b>Special Protection Areas (SPA)</b>			
004040	Wicklow Mountains SPA	4.5km Southwest	No Located within with Wicklow GWB but upgradient of the Site.
004024	South Dublin Bay and River Tolka Estuary SPA	7.8km North	Potential hydraulic connection via the Irish Sea, however this is located 5.7km along the coast from the discharge point from the Shanganagh River.
004006	North Bull Island SPA	12.1km Northeast	Potential hydraulic connection via the Irish Sea. However, this is located 11.2km north along the coast from the discharge point from the Shanganagh River.
004172	Dalkey Island SPA	7.8km Northeast	Potential hydraulic connection via the Irish Sea.

There are other protected sites within the 15km and downstream of the site that are not within the Natura 2000 sites including twenty-three (23No.) sites that are identified as proposed National Heritage Areas (pNHAs) (refer to Figure 4-5). Of these sites the Loughlinstown Wood pNHA is considered to be hydraulically connected to the Site via the Shanganagh River.

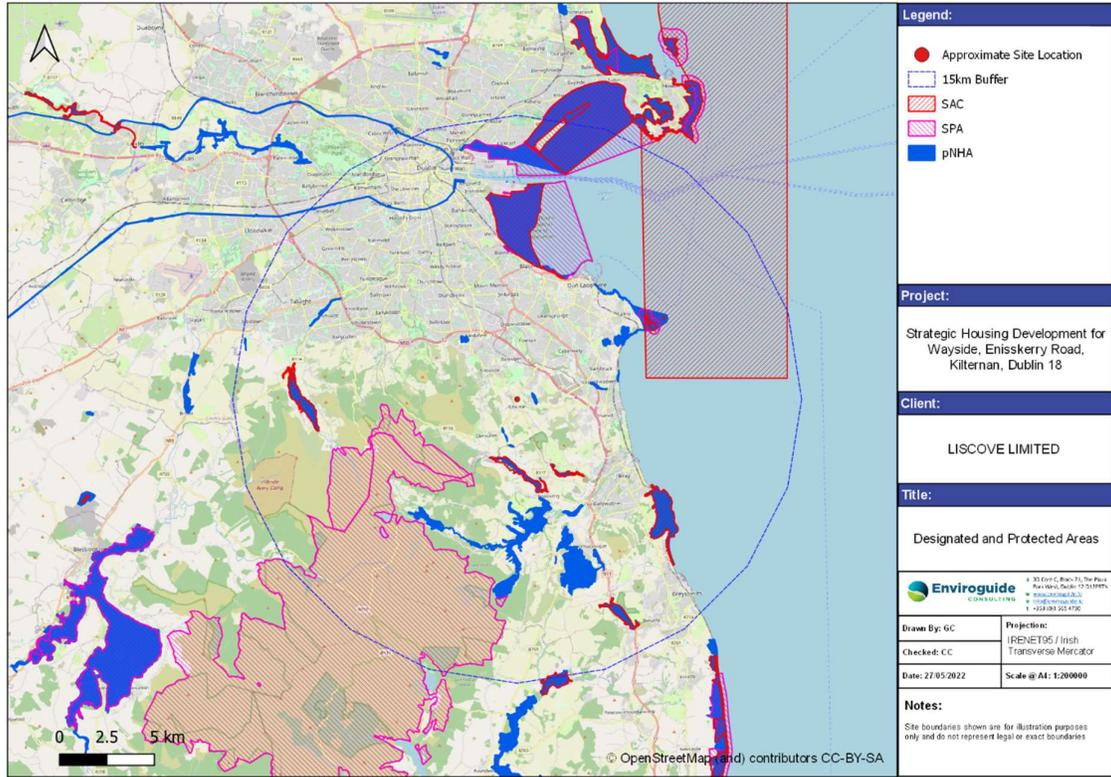


Figure 4-5. Designated and Protected Areas

## 5 ASSESSMENT OF POTENTIAL IMPACTS

### 5.1 Conceptual Site Model

A CSM has been developed identifying possible sources, potential pathways and receptors. The CSM enables a risk-based evaluation of the S-P-R linkages associated with the Proposed Development Site and to identify any potential significant risk to associated receptors.

#### 5.1.1 Potential Sources

Potential sources during both the Construction and Operational phases have been evaluated considering any hydrological / hydrogeological S-P-R connections. The scenario considered for this assessment was a worst-case source scenario without mitigation measures. These comprised short term Construction sources and long-term Operational sources as described below.

##### 5.1.1.1 Construction Phase

During the Construction Phase there will be no direct discharges to surface water or groundwater at the Proposed Development with the exception of rainfall which will continue to infiltrate to ground during the Construction Phase.

There may be a requirement for management of surface water (rain water) and shallow groundwater where encountered during groundworks. There will be no unauthorised discharge of water (groundwater or surface water runoff) to ground, drains or water courses during the Construction Phase.

Foul water discharge from the temporary welfare units at the Site during the Construction Phase will be either tankered offsite in accordance with waste management legislation or discharged under temporary consent to the IW mains foul network for treatment at Shanganagh WWTP subject to agreement with IW.

The most plausible, albeit worst case, source scenario are considered to be :

- Suspended sediment entrained in runoff arising from groundworks and other construction works at the Site;
- Fuels or potentially other hazardous materials including foul water accidentally released, through the failure of secondary containment or a materials handling accident; and
- Release of cementitious materials to groundwater of surface runoff construction works that could result in an increased pH on the receiving water environment.

These potential sources are considered to be short-term events in a worst-case scenario and deemed unlikely to occur. The Construction Phase will be managed in accordance with the procedures in the Outline Construction Management Plan (CMP) (Atkins Ireland, 2022), Outline Construction and Environmental Management Plan (CEMP) (Enviroguide Consulting, 2022b) and CDWMP (Enviroguide Consulting, 2022a). Regardless, these potential sources are considered in the unmitigated scenario for this assessment.

### **Operational Phase:**

During the Operational Phase there will be no direct discharges to surface water courses and only rainfall on unpaved or permeable areas will discharge to groundwater.

The Proposed Development will be serviced by newly constructed separate surface water and foul water drainage networks that will connect to mains sewers in accordance with appropriate consents from IW and DLRCC.

Surface water runoff from the Proposed Development will be managed in accordance with the principles and objectives of SuDS and GSDS and treated and attenuated prior to discharge from the Site to offsite surface water network.

Foul water from the Proposed Development will be discharged to the IW foul drainage network infrastructure, which was identified by IW to have sufficient capacity to accept foul water from the Proposed Development.

There will be no requirement for bulk storage of petroleum hydrocarbon-based fuels during the Operational Phase as the main operating system for heating will be gas based / air to water heat pump.

The most plausible, albeit worst case, source scenario is outlined:

- Fuels or other potentially hazardous materials released in the event of an accidental spill or leak from a vehicle (assumed 500 litres) is considered a worst-case source at the Site. This potential source is considered to be short-term event in a worst-case scenario and while unlikely to occur, this scenario is considered in this assessment; and
- Suspended sediment entrained in runoff is considered a low-risk source at the Site for the Operational Phase.

#### **5.1.2 Pathways**

The following potential pathways are identified and evaluated below:

- **Vertical migration to the underlying bedrock and lateral migration within the aquifer to downgradient receiving surface water bodies**

The Site is underlain by a Poor Aquifer (PI) within the granite bedrock with limited capacity to accept recharge and only localised flow paths. However, groundwater flow paths and potentially contaminants could enter the aquifer and flow locally within the aquifer and migrate towards local watercourses within the catchments of the Carrickmines Stream and the Shanganagh River.

- **Surface water runoff and migration offsite via water courses to downstream surface water bodies**

There is no direct pathway via surface runoff (open water courses) to any surface water body for the Construction Phase and Operational Phases.

This pathway is therefore not considered further in this assessment.

- **Surface water discharge to mains surface water sewer and downstream receiving surface water bodies**

There will be a pathway for surface water runoff discharged via onsite drainage network:

- Surface water from Catchment 1 of the Proposed Development will be discharged to the existing 300mm Rockville sewer that discharges to the existing roadside drainage channel located on Glenamuck Road which ultimately discharges to the Glenamuck North Stream and associated downstream watercourses.
- Surface water from Catchment 2 of the Proposed Development will be discharged to the mains drainage network within the GDRS scheme that ultimately outfalls to the watercourses within the catchments of the Carrickmines Stream and the Shanganagh River.

Therefore, the pathways to the Glenamuck North Stream, the Carrickmines Stream, Shanganagh River and associated downstream watercourses and receptors is considered valid for this assessment.

- **Foul water discharge to mains sewer and receiving surface water bodies**

Foul water during the Construction Phase will be either removed by tanker in accordance with waste management legislation and managed accordingly or discharged under consent to the mains IW foul sewer network. Foul water during the Operational phase will also be discharged to the IW foul drainage network infrastructure and ultimately discharged to the Irish Sea via the Shanganagh WWTP. Therefore, the indirect pathway to the Irish Sea is considered in this assessment.

### 5.1.3 Receptors

The receptors considered in this assessment include the following:

- Groundwater Bodies:
  - Bedrock Granite Poor Aquifer (PI).
- Surface Water:
  - Glenamuck North Stream;
  - Carrickmines Stream; and
  - Shanganagh River.
- Coastal Water Bodies:
  - Irish Sea and Killiney Bay.
- Natura 2000 Sites:
  - Rockabill to Dalkey Island SAC; and
  - Dalkey Island SPA.

It is noted that there are other Natura 2000 sites with a potential hydraulic connection to the Site however, those hydraulically closest to the Site are considered as the most sensitive Natura 2000 sites for this assessment.

## **5.2 Risk Evaluation of Source-Pathway-Receptor Linkages**

The possible S-P-R linkages are considered and evaluated below.

### **5.2.1 Worst-case source scenario and vertical migration to the underlying bedrock and lateral migration within the aquifer to downgradient receiving water bodies**

There is limited potential for discharge of contaminants to ground and migration offsite via groundwater during the Construction and Operational Phases taking account of the embedded design avoidance and mitigation measures. During the Construction Phase, a detailed CEMP prepared in accordance with industry best practice standards including CIRIA - C532 will detail measures to protect water quality and associated ecological habitats and receptors will be implemented by the contractor during the construction phase. The CEMP prepared by the contractor will take account of measures outlined in the outline CMP, CEMP and CDWMP submitted as part of the planning application. These measures will address the main activities of potential impact which include:

- Control and management of water and surface runoff;
- Control and management of groundwater during excavation and dewatering if required;
- Management and control of imported soil and aggregates from off-site sources;
- Fuel and Chemical handling, transport and storage; and,
- Accidental release of contaminants.

In a worst-case scenario during either the Construction or Operational Phases in the absence of any mitigation measures there is potential for discharge of contaminants to groundwater. The groundwater within the Wicklow GWB may be impacted locally in the immediate vicinity of the Site however taking account of the characteristics of the poor granite bedrock aquifer it is unlikely that there would be widespread impact within the Wicklow GWB. Taking account of the local hydrogeological regime including the distance downgradient to the closest water courses and fact that groundwater flow paths are localised and baseflow is limited within the granite aquifer (GSI, 2022) it is considered that there is a negligible risk to watercourses within the catchments of the Carrickmines Stream and the Shanganagh River and associated water bodies via groundwater flow from the Site.

### **5.2.2 Worst-case source scenario and surface water runoff and migration offsite via water courses to downstream water bodies**

There is no direct pathway via surface runoff (open water courses) to any water body and therefore as there is no identified pathway there is no risk associated with this S-P-R linkage.

### **5.2.3 Worst-case source scenario and surface water discharge to mains surface water network and downstream receiving water bodies**

There is limited potential for discharge of any contaminated runoff to the receiving water courses during the Operational of the Proposed Development associated with surface water

runoff from the Site. The embedded design avoidance including SuDS measures will treat and attenuate surface water runoff from the Proposed Development prior to discharge from the Site.

The unmitigated worst-case source scenario where the treatment and attenuation of surface water via the SuDS measures incorporated in the design was not considered. In the unmitigated scenario the discharge of surface water from Catchment 1 of the Proposed Development could result in a potential impact on the receiving water quality of the roadside drainage channel on Glenamuck Road, the Glenamuck North Stream and within the Carrickmines Stream locally at the point of discharge to the Carrickmines Stream. However, it is considered that there would be no impact to water quality downstream where the Carrickmines Stream confluences with the Shanganagh River taking account of the nature of the incident, the separation distances and the potential for assimilation within the receiving water bodies. There would also be no potential impact on water quality where the Shanganagh River discharges to the Irish Sea. Accordingly, in the event of an unmitigated worst-case source scenario there is no identified potential impact on the closest hydraulically connected Natura 2000 sites (i.e., Rockabill to Dalkey Island SAC and Dalkey Island SPA) associated with surface water runoff from Catchment 1 of the Proposed Development Site.

Surface water from Catchment 2 of the Proposed Development will be discharged to the mains drainage network within the GDRS scheme which has been designed to incorporate discharges from the Proposed Development site (Roger Mullarkey & Associates, 2022a). The EIAR (DBFL, March 2019) prepared for the GDRS identified that discharges from the GDRS incorporating connections from the Proposed Development will have no impact on the receiving water environment. Therefore, in the unmitigated worst-case source scenario, the discharge of surface water from Catchment 2 of the Proposed Development would be treated and attenuated within the GDRS surface water drainage network prior to discharge to receiving waters and there would be no impact on the receiving water quality downstream of the Site.

#### **5.2.4 Foul water discharge to mains sewer and receiving water bodies**

All below (below ground) drainage infrastructure will be constructed in accordance with current IW requirements to ensure that there will be no potential impacts to groundwater quality. Foul water from the Site will ultimately discharge via the Shanganagh WWTP to the Irish Sea via the long sea outfall and short sea outfall. Foul water from the Site will only be discharged to the IW network under the appropriate consents from IW. The Shanganagh WWTP is operated in accordance with relevant statutory approvals and therefore, there is no identified potential impact on baseline conditions at any Natura 2000 sites associated with foul discharges from the Proposed Development Site individually or in-combination including the Rockabill to Dalkey Island SAC.

#### **5.2.5 Potential Impact on Natura 2000 Sites**

Based on the findings of this assessment, it is considered that in applying the precautionary principle and assessing a worst-case scenario there is no identified potential negative impact associated with the Proposed Development on the closest hydraulically connected Natura 2000 sites in particular Rockabill to Dalkey Island SAC (Site Code: 003000) and Dalkey Island SPA (Site Code: 4172) individually or in-combination.

### **5.2.6 Potential Impact on Water Framework Directive Status**

The findings of the risk-based assessment identified that in the absence of any mitigation and avoidance measures there could be a potential impact on the water quality within receiving water bodies associated with the Proposed Development, specifically within a local zone of the Wicklow Groundwater Body, within the Glenamuck North Stream and locally within the Carrickmines Stream. There is no identified potential impact to the Shanganagh River and the Irish Sea attributed to the separation distances and potential for assimilation within the receiving water bodies and taking account of the existing baseline conditions and WFD Status.

Based on the design of the Proposed Development, embedded avoidance measures and the identified mitigation measures, that will prevent or limit impact and deterioration of the receiving water bodies, the identified potential impact on WFD status of the receiving water bodies will be prevented.

There will be no impact to the existing WFD status of water bodies associated with the Proposed Development including the Glenamuck North Stream, the Carrickmines Stream, the Shanganagh River, the Southwestern Irish Sea – Killiney Bay and the Wicklow GWB as a result of the Proposed Development taking account of embedded design avoidance and mitigation measures.

## 6 CONCLUSIONS

Enviroguide Consulting carried out a risk-based hydrological and hydrogeological impact assessment for the Proposed Development at Wayside, Enniskerry Road, Kiltarnan, Dublin 18 to determine if there is any potential for significant impacts on the receiving water environment and designated Natura 2000 sites in the absence of avoidance and mitigation measures.

A CSM was developed identifying plausible S-P-R linkages for the Proposed Development and receiving water environment. The CSM formed the basis of the evaluation of any potential impacts to receptors including water bodies and Natura 2000 sites associated with the Proposed Development. The assessment assumed a worst-case scenario (individually and in-combination) and in the absence of any mitigation measures intended to avoid or reduce potential harmful effects.

Based on the findings of this assessment the following can be concluded:

- There is a potential risk of impact to local groundwater quality at the Site and taking account of the local hydrogeological regime, there is no identified potential impact on the receiving surface water bodies via groundwater flow from the Site.
- There are no identified direct pollutant linkages between the Site via surface water courses to receiving water bodies.
- There is a potential risk associated with the indirect (mains drainage) discharge of surface water runoff from Catchment 1 of the Proposed Development on the receiving water quality of the roadside drainage channel on Glenamuck Road, the Glenamuck North Stream and potentially locally within the Carrickmines Stream. However, considering the separation distances and the potential for assimilation within the receiving water bodies there is no identified impact to the downstream Shanganagh River and the Irish Sea.
- There is no potential risk associated with the indirect (mains drainage) discharge of surface water runoff from Catchment 2 of the Proposed Development which will be diluted, treated and attenuated within the GDRS surface water drainage network prior to discharge to receiving surface watercourses within the catchments of the Carrickmines Stream and the Shanganagh River and associated downstream waterbodies and receptors.
- There is no identified risk to water quality via foul water drainage or discharges from Proposed Development that will ultimately be discharged to the Irish Sea via Shanganagh WWTP under consent from IW.
- The appropriate standard design measures for the Construction and Operational Phases of the Proposed Development including implementation of the CMP, CEMP and CDWMP and SuDS measures within the drainage design will prevent, limit and mitigate any the potential for the worst-case scenario to occur. These embedded measures will ensure there is no risk to water quality of the receiving watercourses.
- In the unmitigated worst-case scenario, there is no identified negative impact on the closest hydraulically connected Natura 2000 sites in particular Rockabill to Dalkey Island SAC (Site Code: 003000) and Dalkey Island SPA (Site Code: 4172) associated with Proposed Development either individually or in-combination.

- There is no identified impact to the existing WFD status of water bodies associated with the Proposed Development including the Glenamuck North Stream, Carrickmines Stream, Shanganagh River, Southwestern Irish Sea – Killiney Bay and the Wicklow GWB as a result of the Proposed Development taking account of design avoidance and mitigation measures that will be implemented.

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