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Appropriate Assessment Screening Report for a Proposed Mixed-Use Development including Lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18 (known as the Kilternan Village LRD)

prepared for Liscove Limited

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1 Introduction

1 This report, which contains information required for the competent authority (in this instance an Dun Laoghaire-Rathdown County Council) to undertake a screening for Appropriate Assessment (AA), has been prepared by Scott Cawley Ltd. on behalf of the applicant. It provides information on, and assesses the potential for, the proposed development to impact on the Natura 2000 network (hereafter referred to as European sites)[1]. The proposed development consists of the demolition of existing structures and provision of a mixed-use development principally consisting of 487 No. residential units and a Neighbourhood Centre at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18. The proposed development includes associated road works 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).

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)

[1] 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:

Determining whether the proposed development is directly connected with, or necessary to the conservation management of, any European site(s)

Describing the details of the proposed development

Describing the receiving environment

Assessment of effects on European sites

Identifying all the potential impacts of the proposed development on the receiving environment

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Defining the zone of influence of the proposed development on the receiving environment

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Identifying the European site(s) within the zone of influence of the proposed development

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Assessing whether the potential impacts associated with the proposed development will undermine the conservation objectives of any European site(s), either alone or in combination with other plans or projects

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, either alone or in combination with other plans and projects, then there is no requirement to undertake an Appropriate Assessment.

8 In establishing which European sites are potentially at risk (in the absence of mitigation) from the proposed development, 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)[2]), and a pathway between the source and the receptor (e.g. pathway 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 development 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[3].

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[4]. 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 in May 2024):

- Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie[5], including conservation objectives documents

[2] The term qualifying interest is used when referring to the habitats or species for which an SAC is designated; the term special conservation interest is used when referring to the bird species (or wetland habitats) for which an SPA is designated.

[3] As defined in the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018)

[4] 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*"..

[5] The following SAC and SPA GIS boundary datasets are the most recently available at the time of writing: SAC_ITM_2024_05 and SPA_ITM_2024_01.

- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
- Information on the surface water network and surface water quality in the area available from www.epa.ie
- Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- Information on the location, nature and design of the proposed development supplied by the applicant's design team
- Hydrological and Hydrogeological Risk Assessment Report for Large-Scale Residential Development on Lands at Wayside, Enniskerry road and Glenamuck Road, Kilternan, Dublin 18 (Enviroguide Consulting, 2024)

2.4 Baseline Surveys

13 This section describes the ecological surveys carried out to inform the assessment of likely significant effects on European sites.

2.4.1 Habitats and Flora Survey

14 A habitat survey was undertaken of the proposed development site on the 30th March 2023 following the methodology described in *Best Practice Guidance for Habitat Survey and Mapping*[6]. A site walkover was carried out on 13th of May 2024, to verify conditions had not changed from previous surveys.

15 All habitat types were classified using the *Guide to Habitats in Ireland*[7], recording the indicator species and recording any species of conservation interest. Vascular and bryophyte plant nomenclature generally follow that of *The National Vegetation Database*[8], having regard to more recent taxonomic changes to species names after the *New Flora of the British Isles*[9] and the British Bryological Society's *Mosses and Liverworts of Britain and Ireland: A Field Guide*[10]. Annex I habitat types were classified after the *Interpretation manual of European Union Habitats EUR28*[11] with reference to the corresponding national habitat survey reports and NPWS wildlife manuals, as applicable. The nomenclature for Annex I habitats follows that of the *Interpretation manual of European Union Habitats EUR28* with abbreviated names after those used in *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview*[12].

[6] Smith, G.F., O'Donoghue, P., O'Hora, K. & Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council Church Lane, Kilkenny, Ireland.

[7] Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

[8] Weekes, L.C. & FitzPatrick, Ú. (2010) The National Vegetation Database: Guidelines and Standards for the Collection and Storage of Vegetation Data in Ireland. Version 1.0. Irish Wildlife Manuals, No. 49. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

[9] Stace, C. (2019) *New Flora of the British Isles*. *4th Edition*. C&M Floristics.

[10] Atherton, I., Bosanquet, S. & Lawley, M. (2010) *Mosses and Liverworts of Britain and Ireland: A Field Guide*. Latimer Trend & Co., Plymouth.

[11] CEC. (Commission of the European Communities) (2013) *Interpretation manual of European Union Habitats EUR28.* European Commission, DG Environment.

[12] NPWS (2019). *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview.* Unpublished NPWS report.

2.4.2 Fauna Surveys

2.4.2.1 Terrestrial Mammals (excl. Bats)

16 A terrestrial fauna survey (excluding bats) was undertaken on the 30th March 2023. The presence/absence of terrestrial fauna species were surveyed through the detection of field signs such as tracks, markings, feeding signs, and droppings, as well as by direct observation. The habitats on site were assessed for signs of usage by protected/red-listed fauna species, and their potential to support these species.

2.4.2.2 Breeding Birds

17 Breeding bird surveys were undertaken on lands within and adjacent to the proposed development site on the 26th April 2023, 26th May 2023 and 27th June 2023 using a methodology adapted from the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species* [13]. Lands within the study area were slowly walked in a manner allowing the surveyor to come within 50m of all habitat features. Birds were identified by sight and song, and general location and activity were recorded using the British Trust for Ornithology (BTO) species and activity codes.

2.4.2.3 Wintering Birds

18 Wintering bird surveys were undertaken on lands within and adjacent to the proposed development site on the 8th December 2022, 4th January 2023, 14th February 2023 and 14th March 2023 using a methodology based on the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species*. Lands were initially surveyed visually using binoculars/scope from a vantage point(s) at the edge of the study area followed by a walkover of the area to identify birds which may not be visible from a distance (e.g. waders) and evidence of usage by wildfowl such as swans or geese (e.g. droppings). Birds were identified by sight and general location and activity was recorded using the British Trust for Ornithology (BTO) species and activity codes.

19 These surveys did not represent a full survey season (October – March). However, this has not impacted the findings of this assessment as wintering bird surveys were undertaken following methodology from the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species* within the proposed development site for a previous application on the 19th of February 2021, 2nd of March 2021, 19th of March 2021, 23rd of November 2021, 20th of December 2021, 19th of January 2022, 22nd of February 2022 and 22nd March 2022 (Enviroguide Consulting, 2022)[14]. The surveys span three wintering bird seasons in total at the proposed development site. Due to the low numbers of species and individuals recorded and the lack of significant change in ecological conditions or habitats present, this does not impact the assessment of the use of the proposed development site by wintering birds.

3 Provision of Information for Screening for Appropriate Assessment

20 The following sections provide information to facilitate the Appropriate Assessment screening of the proposed development to be undertaken by the competent authority.

21 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. hydrogeological and hydrological data).

22 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

[13] Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods* - A *Manual of Techniques for Key UK Species*. RSPB: Sandy

[14] Environmental Impact Assessment Report for Kilternan Village Strategic Housing Development at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18 (Enviroguide Consulting, 2022)

development will 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

23 The proposed development (Figure 1) comprises a Large-Scale Residential Development on 2 No. sites, measuring *c.* 14.2 Ha., which will be separated by the future Glenamuck Distributer Link Road (GLDR). The western site principally comprises lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18, which include a derelict dwelling known as 'Rockville' and associated derelict outbuildings (Enniskerry Road, Kilternan, Dublin 18, D18 Y199) and the former Kilternan Country Market (Enniskerry Road, Kilternan, Dublin 18, D18 PK09). The western site is generally bounded by the Glenamuck Road to the north; the Sancta Maria property to the north, west and south; a recently constructed residential development named "Rockville" to the north-east; the Enniskerry Road to the south-west; dwellings to the south; and the future GLDR to the east. The eastern site is generally bound by dwellings to the south; the future GLDR to the west; and greenfield land to the north and east.

24 Road works are 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 potable water infrastructure are proposed to connect to services on the Glenamuck Road, Enniskerry Road and the GLDR.

25 The Glenamuck Road access point 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. Surface water and foul drainage infrastructure are proposed to connect into the drainage infrastructure to be constructed as part of the Part 8 scheme. Potable water is to be provided from the existing piped infrastructure adjacent to the site along Glenamuck Road. Surface water and foul drainage infrastructure connections for the 'former County Market' area (north-west of the site) are proposed to connect into the drainage infrastructure at the Enniskerry Road/Glenamuck Road junction.

26 The GLDR 'western' access point 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 this GLDR access point will include the provision of the necessary tactile paving layouts. Surface water, foul drainage and potable water infrastructure connections are proposed into the drainage infrastructure to be constructed as part of the GDRS scheme.

27 The GLDR 'eastern' access point 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. Potable water, surface water and foul drainage infrastructure connections for the eastern site are proposed into the drainage infrastructure to be constructed as part of the GLDR.

28 On 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 raised tables. The modification to Enniskerry Road fronting the development (*c.* 340 metres) includes the narrowing of the carriageway down to 6.5 metres (i.e. a 3.25 metre running lane in each direction) from the front of the kerb on the 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. On Enniskerry Road at the interface of the proposed Dingle Way and Enniskerry Road, aligning with the proposed location of the community centre facilities and existing Our Lady of Wayside Church, works include the continuation

of the Dingle Way surface materials across Enniskerry Road to create a raised table to connect these community facilities. The above works are inclusive of all necessary tie-in works such as new kerbs along the eastern side of Enniskerry Road, drainage details, road marking, signage and public lighting. Additionally, the development includes the removal of the existing stone wall and the construction of a new stone wall set back to facilitate the upgrade and realignment of the Enniskerry Road. Potable water is to be provided from the existing piped infrastructure along the Enniskerry Road.

29 At the 'Rockville access point', works are proposed to provide a multi-modal access, including a vehicular connection between the proposed development and the Rockville development (permitted under DLR Reg. Ref. D18A/0566). The new access will require the removal of the existing as-built hammerhead turning area at Rockville to create this new connection. The residual hammerhead area will be landscaped to tie into the adjoining landscape strategy. The above works are inclusive of all necessary tie-in works such as new kerbs, drainage details, road marking, signage, and public lighting.

30 Surface water and foul drainage infrastructure is proposed to connect into and through the existing/permitted Rockville developments (DLR Reg. Refs. D17A/0793, D18A/0566, D20A/0015 and D23A/0580).

31 The development will principally consist of:

- The demolition of *c.* 740 sq m of existing structures on site comprising a derelict dwelling known as 'Rockville' and associated derelict outbuildings (*c.* 573 sq m) and the former Kilternan Country Market (wooden structure) (*c.* 167 sq m)
- The provision of a mixed-use development principally consisting of 487 No. residential units (196 No. houses, 201 No. duplex units and 90 No. apartments) and a Neighbourhood Centre
  - The western site will comprise 362 No. residential units and the Neighbourhood Centre, which will provide an anchor retail store (*c.* 1,310 sq m), retail/commercial (*c.* 3,284 sq m), a creche (*c.* 691 sq m), restaurant (182 sq m), café (*c.* 326 sq m), and a community facility (*c.* 332 sq m), and the eastern site will comprise 125 No. residential units.
  - The 487 No. residential units will consist of 53 No. 1 bedroom units (35 No. apartments and 18 No. duplexes), 150 No. 2 bedroom units (38 No. houses, 16 No. apartments and 96 No. duplexes), 236 No. 3 bedroom units (110 No. houses, 39 No. apartments and 87 No. duplexes) and 48 No. 4 bedroom units (48 No. houses).
- The proposed development will range in height from 2 No. to 4 No. storeys (partially over podium/undercroft level in Apartment Blocks 1, 2 and 3 and Duplex Block T and U on the eastern site).

32 The development also provides:

- A pedestrian/cycle route through the Dingle Way from Enniskerry Road to the future Glenamuck Link Distributor Road
- 854 No. car parking spaces (125 No. in the undercroft of Apartment Blocks 1, 2 and 3 and Duplex Blocks T and U and 729 No. at surface level) including 28 No. mobility impaired spaces, 100 No. electric vehicle spaces, 2 No. car share spaces, and 4 No. drop-off spaces/loading bays
- Motorcycle parking; bicycle parking; bin storage
- Provision of new telecommunications infrastructure at roof level of the Neighbourhood Centre including shrouds, antennas and microwave link dishes (18 No. antennas, all enclosed in 9 No. shrouds and 6 No. transmission dishes, together with all associated equipment)
- 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.

33 The proposed development has a gross floor area of *c.* 60,504 sq m above ground, in addition to an undercroft/basement (*c.* 4,485 sq m) containing car parking, bike storage, bin storage and plant under Apartment Blocks 1, 2 and 3 and Duplex Blocks T and U on the eastern site.

Figure 1. Proposed development site

3.2 Overview of the Receiving Environment

3.2.1 European sites

34 The proposed development site is not located within or adjacent to any European sites. The nearest European site to the proposed development is Knocksink Wood SAC, *c.* 2.8km to the south, followed by Ballyman Glen SAC, located *c.* 3.5km south.

35 The nearest waterbody to the proposed development site is the Shanganagh River (IE_EA_10S010600), located *c.* 250m 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 from the outfall, respectively.

36 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.

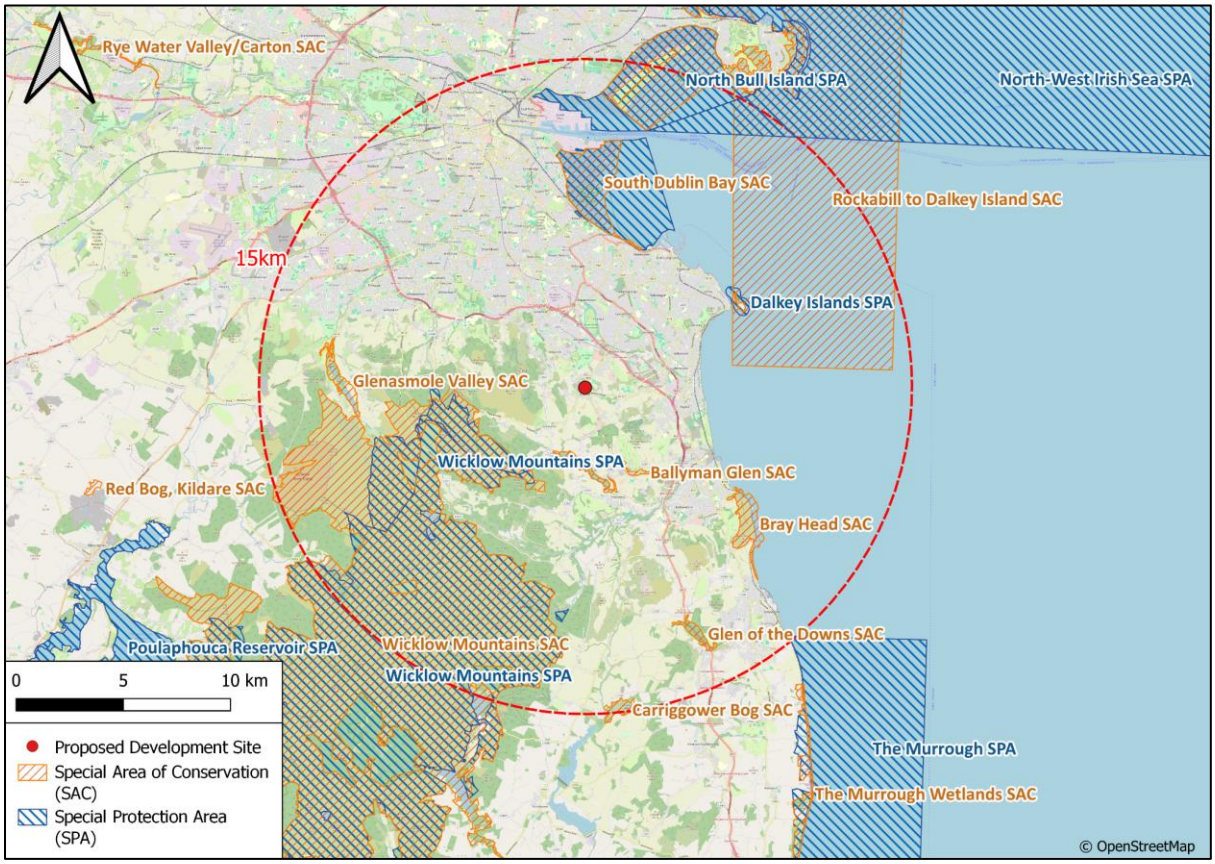

Figure 2. European sites in the vicinity of the proposed development

3.2.2 Habitats

37 The proposed development site is located to the east of the Enniskerry Road, south of Glenamuck Road, and north of Ballycorus Road within Kilternan, Co. Dublin. The proposed development site is dominated by improved agricultural grassland and dry meadows and grassy verges, with a variety of other habitats present including scrub, treelines, mixed broadleaf woodland, immature woodland, spoil and bare ground, recolonising bare ground, and buildings and artificial surfaces. The closest watercourse to the proposed development site is the Shanganagh River, located *c.* 250m to the southeast.

38 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. An area of woodland is located adjacent to the eastern boundary of the proposed development site.

39 No Annex I habitats, listed as QIs for European sites in Appendix I, were recorded within the proposed development site.

3.2.3 Flora and Fauna Species

40 The National Biodiversity Data Centre (NBDC) database search returned no records of Annex II plant species flora species protected under the Flora (Protection) Order 2022 within *c.* 2km of the proposed development site.

41 No Annex II plant species and no records of plant species protected through their inclusion within the Flora (Protection) Order, 2022 were recorded during the field surveys in 2023.

42 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*

43 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 2023.

44 The NBDC database search returned records of the following species, listed as QI and SCI species for European sites in Appendix I, within 2km of the proposed development site:

- Redshank *Tringa totanus*
- Curlew *Numenius arquata*
- Lesser Black-backed Gull *Larus fuscus*
- Otter *Lutra lutra*

45 Although associated with wetland habitats, which do not occur within the proposed development site, wintering bird species can utilise inland sites for terrestrial feeding purposes.

46 During the dedicated wintering bird surveys, no curlew were recorded with only low numbers of herring gull and black-headed gull noted foraging within the proposed development site. A peak count of 24 herring gull was recorded on one occasion (4th January 2023) and a peak count of 26 black-headed gull was recorded on one occasion (14th February 2023). No other SCI or QI species for European sites in Appendix I, or their signs (e.g. feathers and droppings), were observed or recorded during field surveys within the proposed development site.

47 No otter were recorded and there are no features present within the proposed development site boundary that provide potentially suitable habitat for otter.

3.2.4 Hydrology

48 The proposed development site is located within the Ovoca-Vartry catchment (HA 10). There are no surface water features within the proposed development site. The closest watercourse to the proposed development is the Shanganagh River, located *c.* 250m to the southeast.

49 Surface water from the proposed development site will flow into the existing piped infrastructure constructed in the existing Rockville development (D17A/0793) to the northeast of the proposed development site. This existing pipe currently outfalls into the Glenamuck Road roadside watercourse and is to be diverted into the regional attenuation pond located beside the Glenamuck Road/GDRS junction as part of the DLRCC GLDR/GDRS roads project.

50 Surface water ultimately discharges into Killiney Bay via the Shanganagh River. The most recent (2016-2021) Water Framework Directive River Waterbody status of the Shanganagh River is 'Good' and it is 'not at risk'. 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'[15].

[15] EPA Waterbody: Southwestern Irish Sea - Killiney Bay (HA10). [https://www.catchments.ie/data/#/waterbody/IE_EA_100_0000?_k=4g99dw].

3.2.5 Hydrogeology

51 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 GWB, 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

52 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.

53 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

54 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.

55 The habitats within the proposed development site do not support significant populations of any fauna species linked with the QI/SCI populations of any European site(s) in Appendix I for the following reasons:

- The proposed development site provides no suitable habitat for otter given the lack of on-site watercourses. Although otter are known from the Shanganagh River system, 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, *c.* 4km southwest of the proposed development site. Neither the Shanganagh River nor its tributaries are located within, or connected to, the Wicklow Mountains SAC, and there is no direct link between the otter populations.
- Wintering bird species that are SCIs of European sites such as lesser black-backed gull, 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[16]. Lesser black-backed gull are an SCI species of North-West Irish Sea SPA located *c.* 12km northeast of the proposed development site. Herring gull are an SCI species of The Murrough SPA located *c.* 17.5km southeast 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. 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. Although the development site supports some amenity grassland, there is an abundance of alternative suitable grassland habitat locally, and the low numbers of recorded herring gull and black-headed gull, and lack of evidence of usage by lesser black-backed gull, curlew or any other SCI species, indicates that the site does not support significant numbers of SCI species that may be associated with

[16] 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

European sites in Appendix I. Therefore, this site does not represent an important inland *ex situ* site or habitat for the SCI species.

Therefore, the proposed development does not support any significant populations of any fauna species linked with the QI/SCI populations of any European site(s) or have any effect on the conservation objectives of European sites as a result of habitat loss and fragmentation.

56 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

57 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.

58 While it is acknowledged that there is some possibility of construction-related runoff, including sediments and hydrocarbons, entering the local and downstream surface water network, 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. The Hydrological and Hydrogeological Risk Assessment Report prepared by Enviroguide Consulting for the proposed development (Appendix III) concluded that in a worst-case unmitigated scenario there will not be any perceptible effects from the proposed development to the water bodies during construction or operation, due to the lack of direct pathway via surface water courses to any water body and the separation distances and the assimilation capacity of the receiving water bodies.

59 Therefore, there is no possibility of the proposed works undermining the conservation objectives of any of the QIs or SCIs of downstream European sites as a result of surface water run-off or discharges.

60 The proposed foul sewer outfall from 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. Foul water will be transferred to Shanganagh WwTP for treatment prior to discharge into Killiney Bay. The Shanganagh WwTP is currently operating below its design capacity of 186,000 PE, with a current (peak week) loading of 138,672 PE[17]. The predicated PE for the proposed development is 2,568 PE, which can be accommodated within the existing operating capacity. 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.

61 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.

62 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the QIs or SCIs of the European sites in, or associated with, Killiney Bay as a result of foul water discharges.

In Combination

63 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 2022-2028 (Wicklow County Council, 2022), or any other land use plans which could influence conditions in Killiney Bay via rivers and other surface water features.

[17] Irish Water (2023) Annual Environmental Report. Shanganagh D0038-02.
Available from https://www.water.ie/docs/aers/2023/D0038-02_2023_AER.pdf Accessed 24/05/2024

64 The Eastern & Midland Regional Assembly, Regional Spatial & Economic Strategy 2019-2031[18] (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).

65 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 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.

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 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.

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).

[18] Eastern & Midland Regional Assembly (2019) *Regional Spatial & Economic Strategy 2019-2031*

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.

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).

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.

EI6: Sustainable Drainage Systems

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

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.

66 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 2022-2028 (Wicklow County Council, 2022). The relevant policies and objectives of those plans for the protection of European sites and water quality are included in Appendix II.

67 As noted under the hydrology section (Section 3.2.4) 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.

68 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

69 Knocksink Wood SAC, located *c.* 2.8km 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 GWB, and partly located within Enniskerry Gravels GWB. However, the proposed development will not affect any of the QIs of the European site for the following reasons:

- It is not proposed to extract groundwater as part of this development and no significant groundworks which could potentially interact with the underlying groundwater body, e.g. piling, are proposed as part of this development.
- As outlined within the Hydrological and Hydrogeological Risk Assessment Report (Appendix III), considering the distance downgradient to the closest water courses and the fact that groundwater flow paths are localised and baseflow is limited within the granite aquifer, there is a negligible risk to watercourses within the catchments of the Carrickmines Stream and the Shanganagh River and associated waterbodies and European sites via groundwater flow from the proposed development site in a worst-case unmitigated scenario.

70 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 GWB). Therefore, there is no possibility of significant effects as a result of the proposed development.

71 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

72 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.

73 As such, there is no possibility of the proposed development undermining the conservation objectives of the QIs or SCIs of any European site as a result of accidentally spreading or introducing non-native invasive species.

3.3.5 Disturbance and displacement impacts

74 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[19]. 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[20].

75 There are no European sites within the disturbance ZoI; the nearest European site to the proposed development is *c.* 2.8km away. In addition, as noted in Section 3.3.1, the lands within the proposed development site do not constitute *ex situ* habitat for significant populations of SCI species. Therefore, the proposed development will not result in the disturbance or displacement of any QI/SCI species that would have any perceptible population or conservation objectives effects on any European site.

[19] 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 ZoI of construction related disturbance likely to be much less in reality.

[20] 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.

76 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

77 From a review of available literature, bird collisions with man-made structures are common and well documented[21] with migratory passerine species the most prevalent collision victims[22]. 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[23]. Whilst the design of the facades of the residential units, creche and retail/commercial spaces do include windows, no large surfaces of glass are proposed. Rather the external surfaces of the buildings will be a combination of brickwork and pressed metal cladding.

78 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.

79 With respect to SCI species for SPAs within the ZoI of the proposed development which regularly use or travel over inland areas, in Dublin they navigate the urban environment with built structures daily. For context on 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)[24], which 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)[25]. The risk of collision is even lower with a static, detectable building. While the presence of the proposed development might alter flight patterns of bird species to avoid the proposed building structures the risk of collision is extremely low.

80 Considering the low collision risk associated with the species in question, in combination with the building location, design and materials used, the potential for mortality due to building collisions is low. It is

[21] 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.

[22] 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.

[23] Sheppard, C. & Phillips, G. (2015). *Bird-Friendly Building Design*, 2nd Ed. The Plains, VA: American Bird Conservancy, 2015.

[24] 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.

[25] Scottish Natural Heritage (SNH). (2018) Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model. September 2018 v2.

acknowledged that there could be a low level of mortality attributable to bird collision with glazing on the proposed buildings. However, due to the low numbers of species and individuals recorded and the distance from the coastline and SPA sites, this impact would not result in any population level effect or change in distribution of any species, including any SCI species for SPAs within the ZoI of the proposed development.

81 Therefore, there is no possibility of the proposed development undermining the conservation objectives of the QIs or SCIs of any European sites as a result of mortality from building collisions.

3.3.7 Summary

82 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 QI/SCIs of any European sites. Therefore, the proposed development is not likely to have significant effects on any European sites.

83 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.

84 The potential impacts of the proposed development on the receiving environment, their ZoI, 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 ZoI of the Potential Effects	**Are there any European sites within the ZoI of the proposed development?**
Habitat loss Habitat loss will be confined to the lands within the proposed development boundary.	No 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 supporting QI or SCI populations.
Habitat degradation as a result of hydrological impacts Habitats and species downstream of the proposed development site and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.	No There are no European sites at risk of hydrological effects associated with the proposed development for reasons outlined in section 3.3.2.
Habitat degradation as a result of hydrogeological impacts Groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the proposed development site.	No There are no European sites at risk of hydrogeological effects associated with the proposed development for reasons outlined in section 3.3.3.
Habitat degradation as a result of introducing/spreading non-native invasive species 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	No

Potential Direct, Indirect In Combination Effects and the ZoI of the Potential Effects	Are there any European sites within the ZoI of the proposed development?
Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, taking into account the sensitivity of the QI species to disturbance effects	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 significant *ex situ* populations of QI or SCI species and thus no impacts are predicted.
Direct mortality as a result of building collision	No There are no European sites within the zone of influence at risk of population effects or change in distribution of any SCI species associated with the construction or operation of the proposed development for reasons outlined within section 3.3.6 above.

4 Conclusions of Screening Assessment Process

85 Following an examination, analysis and evaluation of the best available information, and applying the precautionary principle, it can be concluded that the possibility of any significant effects on any European sites, whether arising from the project 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 project and its potential relationship with all European sites within the zone of influence, and their conservation objectives, have been fully considered.

86 Therefore, it is the professional opinion of the authors of this report that the application for consent for the proposed development does not require an 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 1)

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	**Location Relative to the Proposed Development Site**
Special Area of Conservation (SAC)	
Knocksink Wood SAC [000725] 7220 Petrifying springs with tufa formation (*Cratoneurion*)* 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)* *S.I. No. 93/2019 - European Union Habitats (Knocksink Wood Special Area Of Conservation 000725) Regulations 2019* NPWS (2021) *Conservation Objectives: Knocksink Wood SAC 000725. Version 1.* National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	Located *c.* 2.8km south of the proposed development site.
Ballyman Glen SAC [000713] 7220 Petrifying springs with tufa formation (*Cratoneurion*)* 7230 Alkaline fens *S.I. No. 92/2019 - European Union Habitats (Ballyman Glen Special Area Of Conservation 000713) Regulations 2019* NPWS (2019) *Conservation Objectives: Ballyman Glen SAC 000713.* Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.	Located *c.* 3.5km south of the proposed development site.
Wicklow Mountains SAC [002122] 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 *Calaminarian* grasslands of the *Violetalia calaminariae* 6230 Species-rich *Nardus* 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 *Ilex* and *Blechnum* in the British Isles 1355 *Lutra lutra* (Otter) NPWS (2017) *Conservation Objectives: Wicklow Mountains SAC 002122.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Located *c.* 4.3km southwest of the proposed development site.

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
South Dublin Bay SAC [000210] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 *Salicornia* and other annuals colonising mud and sand 2110 Embryonic shifting dunes *S.I. No. 525/2019 - European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019* NPWS (2013) *Conservation Objectives: South Dublin Bay SAC 000210.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located *c.* 6.6km north of the proposed development site.
Rockabill to Dalkey Island SAC [003000] 1170 Reefs 1351 Harbour porpoise *Phocoena phocaena* *S.I. No. 94/2019 - European Union Habitats (Rockabill To Dalkey Island Special Area Of Conservation 003000) Regulations 2019* NPWS (2013) *Conservation Objectives: Rockabill to Dalkey Island SAC 003000.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located *c.* 6.6km east of the proposed development site.
Bray Head SAC [000714] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths *S.I. No. 620/2017 - European Union Habitats (Bray Head Special Area of Conservation 000714) Regulations 2017* NPWS (2017) *Conservation Objectives: Bray Head SAC 000714.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Located *c.* 8km southeast of the proposed development site.
Glenasmole Valley SAC [001209] 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) 7220 Petrifying springs with tufa formation (*Cratoneurion*)* *S.I. No. 345/2021 - European Union Habitats (Glenasmole Valley Special Area of Conservation 001209) Regulations 2021* NPWS (2021) *Conservation Objectives: Glenasmole Valley SAC 001209. Version 1.* National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	Located *c.* 10.3km west of the proposed development site.
Glen of the Downs SAC (000719) [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles *S.I. No. 526/2019 - European Union Habitats (Glen of the DownsSpecial Area of Conservation 000719) Regulations 2019* NPWS (2020) *Conservation objectives :Glen of the Downs SAC [000719].* Version 1.0. Department of Housing, Local Government and Heritage.	Located *c.* 11.2km southeast of the proposed development site.

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
North Dublin Bay SAC [000206] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 *Salicornia* and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1395 Petalwort *Petalophyllum ralfsii* 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes) 2190 Humid dune slacks *S.I. No. 524/2019 - European Union Habitats (North Dublin Bay Special Area of Conservation 000206) Regulations 2019* NPWS (2013) *Conservation Objectives: North Dublin Bay SAC 000206.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located *c.* 12km north of the proposed development site.
Carriggower Bog SAC [000716] [7140] Transition mires and quaking bogs *S.I. No. 293/2018 - European Union Habitats (Carriggower Bog Special Area of Conservation 000716) Regulations 2018* NPWS (2019) Conservation Objectives: Carriggower Bog SAC 000716. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.	Located *c.* 14.2km south of the proposed development site.
Howth Head SAC [000202] [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts [4030] European dry heaths *S.I. No. 524/2021 - European Union Habitats (Howth Head Special Area of Conservation 000202) Regulations 2021* NPWS (2016) *Conservation Objectives: Howth Head SAC 000202.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Located *c.* 15.2km northeast of the proposed development site.
The Murrough Wetlands SAC [002249] [1210] Annual vegetation of drift lines [1220] Perennial vegetation of stony banks [1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1410] Mediterranean salt meadows (Juncetalia maritimi) [7210] Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae* [7230] Alkaline fens *S.I. No. 622/2017 - European Union Habitats (The Murrough Wetlands Special Area of Conservation 002249) Regulations 2017*	Located *c.* 16.6km southeast of the proposed development site.

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
NPWS (2021) Conservation Objectives: The Murrough Wetlands SAC 002249. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	
Special Protection Area (SPA)	
Wicklow Mountains SPA [004040] A098 Merlin *Falco columbarius* A103 Peregrine *Falco peregrinus* *S.I. No. 586/2012 - European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012.* NPWS (2022) *Conservation objectives for Wicklow Mountains SPA [004040]. First Order Site-specific Conservation Objectives.* Version 1.0. Department of Housing, Local Government and Heritage.	Located *c.* 4.3km southwest of the proposed development site.
South Dublin Bay and River Tolka Estuary SPA [004024] A046 Light-bellied Brent Goose *Branta bernicla hrota* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A179 Black-headed Gull *Chroicocephalus ridibundus* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* A999 Wetland and Waterbirds *S.I. No. 212/2010 - European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.* NPWS (2015) *Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located *c.* 6.6km north of the proposed development site.
Dalkey Islands SPA [004172] A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* *S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010.* NPWS (2022*) Conservation objectives for Dalkey Islands SPA [004172]. First Order Site-specific Conservation Objectives.* Version 1.0. Department of Housing, Local Government and Heritage.	Located *c.* 7.6km northeast of the proposed development site.

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
North Bull Island SPA [004006] A046 Light-bellied Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A052 Teal *Anas crecca* A054 Pintail *Anas acuta* A056 Shoveler *Anas clypeata* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A160 Curlew *Numenius arquata* A162 Redshank *Tringa totanus* A169 Turnstone *Arenaria interpres* A179 Black-headed Gull *Chroicocephalus ridibundus* A999 Wetlands & Waterbirds *S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.* NPWS (2015) *Conservation Objectives: North Bull Island SPA 004006.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Located *c.* 12km northeast of the proposed development site.
North-West Irish Sea SPA [004236] [A065] Common Scoter *Melanitta nigra* [A001] Red-throated Diver *Gavia stellata* [A003] Great Northern Diver *Gavia immer* [A009] Fulmar *Fulmarus glacialis* [A013] Manx Shearwater *Puffinus puffinus* [A018] Shag *Phalacrocorax aristotelis* [A017] Cormorant *Phalacrocorax carbo* [A177] Little Gull *Larus minutus* [A188] Kittiwake *Rissa tridactyla* [A179] Black-headed Gull *Chroicocephalus ridibundus* [A182] Common Gull *Larus canus* [A183] Lesser Black-backed Gull *Larus fuscus* [A184] Herring Gull *Larus argentatus* [A187] Great Black-backed Gull *Larus marinus* [A195] Little Tern *Sterna albifrons* [A192] Roseate Tern *Sterna dougallii* [A193] Common Tern *Sterna hirundo*	Located *c.* 12km northeast of the proposed development site.

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	**Location Relative to the Proposed Development Site**
[A194] Arctic Tern *Sterna paradisaea* [A204] Puffin *Fratercula arctica* [A200] Razorbill *Alca torda* [A199] Guillemot *Uria aalge* NPWS (2023) *Conservation Objectives: North-west Irish Sea SPA 004236. Version 1*. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	
Howth Head Coast SPA [004113] A188 Kittiwake *Rissa tridactyla* *S.I. No. 185/2012 - European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012.* NPWS (2022) *Conservation objectives for Howth Head Coast SPA [004113]. First Order Site-specific Conservation Objectives.* Version 1.0. Department of Housing, Local Government and Heritage.	Located *c.* 16.2km northeast of the proposed development site.
The Murrough SPA [004186] A001 Red-throated Diver *Gavia stellata* A043 Greylag Goose *Anser anser* A046 Light-bellied Brent Goose *Branta bernicla hrota* A050 Wigeon *Anas penelope* A052 Teal *Anas crecca* A179 Black-headed Gull *Chroicocephalus ridibundus* A184 Herring Gull *Larus argentatus* A195 Little Tern *Sterna albifrons* *S.I. No. 298/2011 - European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011.* NPWS (2022) *Conservation objectives for The Murrough SPA [004186]. First Order Site-specific Conservation Objectives* Version 1.0. Department of Housing, Local Government and Heritage.	Located *c.* 17.6km northeast of the proposed development site.

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.[26]

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 (GDSDS), 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

[26] 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 2022-2028

CPO13.1

To ensure and support the implementation of the EU Groundwater Directive and the EU Water Framework Directive and associated River Basin and Sub-Basin Management Plans and Blue Dot Catchment Programme, to ensure the protection, improvement and sustainable use of all waters in the County, including rivers, lakes, ground water, coastal and estuarine waters, and to restrict development likely to lead to a deterioration in water quality. The Council will also have cognisance of, where relevant, the EU's Common Implementation Strategy Guidance Document No. 20 and 36 which provide guidance on exemptions to the environmental objectives of the Water Framework Directive.

CPO13.1

To ensure and support the implementation of the EU Groundwater Directive and the EU Water Framework Directive and associated River Basin and Sub-Basin Management Plans and Blue Dot Catchment Programme, to ensure the protection, improvement and sustainable use of all waters in the County, including rivers, lakes, ground water, coastal and estuarine waters, and to restrict development likely to lead to a deterioration in water quality. The Council will also have cognisance of, where relevant, the EU's Common Implementation Strategy Guidance Document No. 20 and 36 which provide guidance on exemptions to the environmental objectives of the Water Framework Directive.

CPO 13.5

To ensure compliance with and to implement the provisions of the Nitrates Directive in so far as it falls within the remit of the Council to do so.

CPO 13.6

To encourage and promote the use of catchment-sensitive farming practices, in order to meet Water Framework Directive targets and comply with the River Basin Management Plan.

CPO 13.6

To encourage and promote the use of catchment-sensitive farming practices, in order to meet Water Framework Directive targets and comply with the River Basin Management Plan.

CPO 13.16

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

CPO 13.21

Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) in accordance with the Wicklow County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design; Water Quality, Water Quantity, Amenity and Biodiversity.

CPO 13.21

Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) in accordance with the Wicklow County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design; Water Quality, Water Quantity, Amenity and Biodiversity.

CPO 17.4

To contribute, as appropriate, towards the protection of designated ecological sites including Special Areas of Conservation (SACs) 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 but not limited to the following and any updated/superseding documents: 333 Chapter 17 | Natural Heritage & Biodiversity Draft Wicklow County Development Plan 2021-2027

- EU Directives, including the Habitats Directive (92/43/EEC, as amended), the Birds Directive (2009/147/EC)7 , the Environmental Liability Directive (2004/35/EC)8 , the Environmental Impact

Assessment Directive (2011/92/EU, as amended), the Water Framework Directive (2000/60/EC), EU Groundwater Directive (2006/118/EC) and the Strategic Environmental Assessment Directive (2001/42/EC); EU 'Guidance on integrating ecosystems and their services into decision-making' (European Commission 2019)

- National legislation, including the Wildlife Acts 1976 and 2010 (as amended)9 , European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, 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), the European Communities (Environmental Liability) Regulations 2008 (as amended)10 and the Flora Protection order 2015.
- National policy guidelines (including any clarifying circulars or superseding versions of same), including 'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment' (2018), 'Guidance for Consent Authorities regarding Sub-Threshold Development' (2003), 'Tree Preservation Guidelines', 'Landscape and Landscape Assessment' (draft 2000), 'Appropriate Assessment Guidance' (2010);
- Catchment and water resource management plans, including the National River Basin Management Plan 2018-2021 (including any superseding versions of same),
- Biodiversity plans and guidelines, including National Biodiversity Action Plan 2017-2021 (including any superseding versions of same) and the County Wicklow Biodiversity Action Plan;
- Ireland's Environment – An Integrated Assessment 2020 (EPA), including any superseding versions of same), and to make provision where appropriate to address the report's goals and challenges

CPO 17.5

Projects giving rise to adverse effects on the integrity of European sites (cumulatively, directly or indirectly) 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 not be permitted on the basis of this plan

CPO 17.6

Ensure that development proposals, contribute as appropriate towards the protection and where possible enhancement of the ecological coherence of the European Site network and encourage the retention and management of landscape features that are of major importance for wild fauna and flora as per Article 10 of the EU Habitats directive. All projects and plans arising from this Plan will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive.

CPO 17.7

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

CPO 17.8

Ensure ecological impact assessment is carried out for any proposed development likely to have a significant impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Annex I habitats, or rare and threatened species including those species protected by law and their habitats. Ensure appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment.

CPO 17.24

- To ensure and support the implementation of the EU Groundwater Directive and the EU Water Framework Directive and associated River Basin and Sub-Basin Management Plans and Blue Dot Catchment Programme, to ensure the protection, improvement and sustainable use of all waters in the County, including rivers, lakes, ground water, coastal and estuarine waters, and to restrict development likely to lead to a deterioration in water quality. The Council will also have cognisance of, where relevant, the EU's Common Implementation Strategy Guidance Document No. 20 and 36 which provide guidance on exemptions to the environmental objectives of the Water Framework Directive.

Appendix III

Hydrological and Hydrogeological Risk Assessment Report for Large-Scale Residential Development on Lands at Wayside, Enniskerry road and Glenamuck Road, Kilternan, Dublin 18 (Enviroguide Consulting, 2024)

Enviroguide
a DNV company

enviroguide.ie

Hydrological and Hydrogeological Risk Assessment Report

PRESENTED TO

Liscove Limited

Large-Scale Residential Development on Lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18

DATE

July 2024

Environmental Consultancy Services

DOCUMENT CONTROL SHEET

Client	Liscove Limited
Project Title	Large-Scale Residential Development on Lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18
Document Title	Hydrological and Hydrogeological Risk Assessment Report

Rev.	Status	Author(s)	Reviewed by	Approved by	Issue Date
01	DRAFT	*Gareth Carroll* *Principal Consultant*	Patrick Higgins *Technical Director*	Patrick Higgins *Technical Director*	14/06/2024
02	FINAL	*Gareth Carroll* *Principal Consultant*	Patrick Higgins *Technical Director*	Patrick Higgins *Technical Director*	09/07/2024

REPORT LIMITATIONS

Synergy Environmental Ltd. t/a Enviroguide Consulting (hereafter referred to as "Enviroguide") has prepared this report for the sole use of *Liscove Limited* in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by Enviroguide.

The information contained in this Report is based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by Enviroguide has not been independently verified by Enviroguide, unless otherwise stated in the Report.

The methodology adopted and the sources of information used by Enviroguide in providing its services are outlined in this Report.

The work described in this Report is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

All work carried out in preparing this report has used, and is based upon, Enviroguide's professional knowledge and understanding of the current relevant national legislation. Future changes in applicable legislation may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Enviroguide has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, Enviroguide will have no obligation to advise the client of any such changes, or of their repercussions.

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Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. Enviroguide specifically does not guarantee or warrant any estimate or projections contained in this Report.

Unless otherwise stated in this Report, the assessments made assume that the site and facilities will continue to be used for their current or stated proposed purpose without significant changes.

The content of this report represents the professional opinion of experienced environmental consultants. Enviroguide does not provide legal advice or an accounting interpretation of liabilities, contingent liabilities or provisions.

If the scope of work includes subsurface investigation such as boreholes, trial pits and laboratory testing of samples collected from the subsurface or other areas of the site, and environmental or engineering interpretation of such information, attention is drawn to the fact that special risks occur whenever engineering, environmental and related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with best practice and a professional standard of care may fail to detect certain conditions. Laboratory testing results are not independently verified by Enviroguide and have been assumed to be accurate. The environmental, ecological, geological, geotechnical, geochemical and hydrogeological conditions that Enviroguide interprets to exist between sampling points may differ from those that actually exist. Passage of time, natural occurrences and activities on and/or near the site may substantially alter encountered conditions.

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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 large-scale residential development (LRD) on lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18 (referred to hereafter as the 'Proposed Development' and 'site').

1.1 Project Objective

The project objective was to establish the baseline hydrological and hydrogeological conditions at the site and to identify the potential for any impacts on receptors associated with the site and the Proposed Development:

- Establish the hydrological and hydrogeological regime and Conceptual Site Model at the Proposed Development site.
- Determine if there are any potential impacts on the receiving water environmental receptors including those at the site and adjoining downgradient of the site.
- Determine if the Proposed Development could impact on any designated and protected Natura 2000 sites hydraulically connected with the site.
- Determine if the Proposed Development could impact on the water quality status assigned by the EPA of the receiving water bodies hydraulically connected with the site for the purposes of the Water Framework Directive.

1.2 Project Scope

The scope of the hydrological and hydrogeological assessment included the following tasks:

- A desk-based review of published information and information pertaining to the site and Proposed Development provided by the Applicant.
- Develop a hydrogeological Conceptual-Site-Model and identify any potential source-pathway-receptor linkages.
- Identify and assess any potential impacts associated with the Proposed Development on sensitive receptors associated with the receiving water environment.

This assessment is reliant on the design information for the Proposed Development provided by the Applicant.

1.3 Professional Competency

The report was prepared by Gareth Carroll BA BAI MIEnvSc, a Principal Consultant of Enviroguide Consulting with over 11 years' experience of preparing environmental and hydrogeological and assessments and reviewed and approved by Patrick Higgins BSc, MSc, MIEnvSc CEnv who is Technical Director with Enviroguide Consulting, and is professionally competent and accredited to undertake environmental risk assessments.

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, 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.
- 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, 2024).
- Geological Survey of Ireland Online mapping (GSI, 2024).
- Environmental Protection Agency Online mapping (EPA, 2024).
- National Parks & Wildlife Services, Protected Sites Webmapping (NPWS, 2024).
- 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 to include an assessment of any impact to the receiving hydrological and hydrogeological (water) environment associated with the Proposed Development.

The basis for a risk assessment is the Conceptual Site Model (CSM) or Source-Pathway-Receptor (SPR) model which underpins the Directive 2000/60/EC (Water Framework Directive) amended by Directives 2008/105/EC, 2013/39/EU and 2014/101/EU that has been transposed to Irish legislation as European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) as amended, as well as EPA guidelines on the protection of groundwater and surface water resources including associated aquatic ecosystems and human health receptors (e.g., groundwater supply users), the EPA Guidance on the Authorisation of Discharges to Groundwater (EPA, 2011) and the EPA Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites (EPA, 2013) on the protection of groundwater and surface water resources including associated aquatic ecosystems and human health receptors (e.g., groundwater supply users).

A risk assessment is undertaken to provide an understanding of the risk associated with the presence of any potentially contaminating materials and/or activities on a Site. This is informed by the assessment of potential for viable pollutant linkage(s) to be present. A pollutant linkage is established when there is a viable or potentially viable **S**ource, a **P**athway and a **R**eceptor (refer to Section 2.4 below).If one or more of the three elements are missing, the exposure pathway is considered incomplete and there is no risk associated with the activity or contaminant source (i.e., a viable means of exposure is not considered to be present or is unlikely to be present).

The objective of the Water Framework Directive (WFD) is no deterioration of the water quality status, and the “prevent or limit” objective is a key element of achieving that WFD status for all water bodies regardless of the water quality status of the water body. The ‘prevent or limit’ objective is a key element to achieving the WFD status and water quality objectives and in principle, prevent or limit measures (i.e., avoidance and mitigation) are the first line of defence in restricting inputs of pollutants from a development (i.e., ‘source’ removal) and any potential impact or deterioration of water quality status or WFD status of the receiving water body.

In this assessment all three elements of the Source-Pathway-Receptor model will be identified to develop a Conceptual Site Model (CSM), and any potential linkages evaluated and assessed to determine if the development could potentially impact upon any identified receptors including Natura 2000 sites as well as the WFD Status of the water bodies associated with the Site.

2.4 Conceptual Site Model

A CSM represents the characteristics of the Site and identifies the possible relationship and potential risk between contaminant sources (i.e., characteristics of the Proposed Development), pathways and receptors (receiving environment) . These three essential elements of the CSM are described as:

- A **source –** a substance that is in, on or under the land and has the potential to cause harm or pollution;
- A **pathway** – a transport route or means by which a receptor can be exposed to, or affected by, a contaminant source; and
- A **receptor** – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body.

The term pollutant linkage is used to describe a particular combination of source-pathway-receptor. Each of these elements can exist independently, but they create a risk only where they are linked together so that a particular contaminant affects a particular receptor through a particular pathway (i.e., a pollutant linkage).

The preliminary CSM for the site of the Proposed Development is initially defined and this is then revised throughout the risk-based assessment process.

3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The Applicant intends to apply for permission for a Large-Scale Residential Development on 2No. sites, measuring approximately 14.2 Ha., which will be separated by the future Glenamuck Distributer Link Road (GLDR). The western site principally comprises lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18, which include a derelict dwelling known as 'Rockville' and associated derelict outbuildings, Enniskerry Road, Kilternan, Dublin 18, D18 Y199 and the former Kilternan Country Market, Enniskerry Road, Kilternan, Dublin 18, D18 PK09. The western site is generally bounded by the Glenamuck Road to the north; the Sancta Maria property to the north, west and south; a recently constructed residential development named "Rockville" to the north-east; the Enniskerry Road to the south-west; dwellings to the south; and the future GLDR to the east. The eastern site is generally bound by dwellings to the south; the future GLDR to the west; and greenfield land to the north and east.

Road works are 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 potable water infrastructure is proposed to connect to services on the Glenamuck Road, Enniskerry Road and the GLDR.

At the 'Rockville access point', works are proposed to provide a multi-modal access, including a vehicular connection between the Proposed Development and the Rockville development (permitted under DLR Reg. Ref. D18A/0566). The new access will require the removal of the existing as-built hammerhead turning area at Rockville to create this new connection. The residual hammerhead area will be landscaped to tie into the adjoining landscape strategy. The above works are inclusive of all necessary tie-in works such as new kerbs, drainage details, road marking, signage, and public lighting.

The Proposed Development will principally consist of: the demolition of approximately 740m^2 of existing structures on site comprising a derelict dwelling known as 'Rockville' and associated derelict outbuildings (approximately 573m^2) and the former Kilternan Country Market (wooden structure) (approximately 167m^2); and the provision of a mixed-use development principally consisting of 487 No. residential units (196 No. houses, 201 No. duplex units and 90 No. apartments) and a Neighbourhood Centre. The western site will comprise 362 No. residential units and the Neighbourhood Centre, which will provide an anchor retail store (approximately 1,310m^2), retail/commercial (approximately 3,284m^2), a restaurant (approximately 182m^2), a creche (approximately 691m^2), café (approximately 326m^2), and a community facility (approximately 332m^2), and the eastern site will comprise 125 No. residential units. The 487 No. residential units will consist of 53 No. 1 bedroom units

(35 No. apartments and 18 No. duplexes), 150 No. 2 bedroom units (38 No. houses, 16 No. apartments and 96 No. duplexes), 236 No. 3 bedroom units (110 No. houses, 39 No. apartments and 87 No. duplexes) and 48 No. 4 bedroom units (48 No. houses). The Proposed Development will range in height from 2 No. to 4 No. storeys (partially over podium/undercroft level in Apartment Blocks 1, 2 and 3 and Duplex Block T and U on the eastern site).

The Proposed Development also provides: a pedestrian/cycle route through the Dingle Way from Enniskerry Road to the future Glenamuck Link Distributor Road; 854 No. car parking spaces (125 No. in the undercroft of Apartment Blocks 1, 2 and 3 and Duplex Blocks T and U and 729 No. at surface level) including 28 No. mobility impaired spaces, 100 No. electric vehicle spaces, 2 No. car share spaces, and 4 No. drop-off spaces/loading bays; motorcycle parking; bicycle parking; bin storage; provision of new telecommunications infrastructure at roof level of the Neighbourhood Centre including shrouds, antennas and microwave link dishes (18 No. antennas, all enclosed in 9 No. shrouds and 6 No. transmission dishes, together with all associated equipment); 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 has a gross floor area of approximately 60,504m^2 above ground, in addition to an undercroft/basement (approximately 4,485m^2) containing car parking, bike storage, bin storage and plant under Apartment Blocks 1, 2 and 3 and Duplex Blocks T and U on the eastern site.

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

Figure 3-1: Proposed Development Site Layout Plan (McCrossan O'Rourke Manning Architects (MCORM), 2024. Site Layout - Drawing No. PL100)

3.1 Construction Phase

The construction phase of the Proposed Development will include:

- The demolition of approximately 740m^2 of existing structures onsite.
- Foundation design will consist of pad and strip foundations with no requirement for piling.
- The stripping of existing topsoil at the Site.
- Excavation of soil and subsoil for the construction of building foundations, drainage and other infrastructure to depths of between 0.6m and 3.0m for foundations and 1.5m to 3.0mbGL for drainage and infrastructure with excavation of 95,250m^3 of soils. It is anticipated that there will be no requirement for the excavation of bedrock during the construction phase of the Proposed Development.
- Where possible, it is intended to reuse suitable excavated soil and subsoil for landscaping and engineering use. However, it is anticipated that up to 66,400m^3 of surplus materials will require removal offsite in accordance with all statutory legislation.
- It is anticipated that excavations for foundations will be above groundwater however, locally groundwater may be encountered during deeper excavations for drainage.

- The importation of 77,750m^3 of aggregate fill materials will be required for the construction of the Proposed Development (e.g., granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds etc.).
- Construction of new surface water drainage (refer to Section 3.2.1) designed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Sustainable Drainage System (GDSDS) and the requirements of Dún Laoghaire-Rathdown County Council (DLRCC).
- Construction of new foul and mains water connections (refer to Section 3.2.2 and Section 3.2.3) in accordance with UE Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03) and UE's Code of Practice for Water Infrastructure (IW-CDS-5020-03).

3.2 Operational Phase

3.2.1 Surface Water Drainage

As documented in the Engineering Infrastructure Report (Roger Mullarkey & Associates, 2024a submitted with the planning application), the surface water drainage for 12.6Ha of the 14.2Ha site (i.e., the drained site area) has been divided into three (4No.) catchment areas as follows:

- Catchment 1 (9.99Ha) outfalls into the existing piped infrastructure constructed as part of the existing Rockville development (D17A/0793) to the northeast of the site. This connection point of the attenuated flow will be downstream of the existing Rockville attenuation system into the existing 300mm surface water drain. It is understood that this surface water drain currently discharges to the existing roadside drainage channel located in Glenamuck Road which in turn flows approximately 1.4km downstream in a north-easterly direction along Glenamuck Road before discharging to the Glenamuck North Stream. It is noted that the existing 300mm surface water drain will eventually be diverted to the regional attenuation pond located beside the Glenamuck Road/GDRS junction permitted as part of the DLRCC GLDR/GDRS roads project. (Roger Mullarkey & Associates, 2024a).
- Catchment 2 (0.21Ha) outfalls into the 225mm surface water drain to be constructed as part of the GDRS upgrade. It is understood that this drainage channel flow north along Enniskerry Road before discharging to the Glenamuck North Stream approximately 0.42km north of the Site.
- Catchment 3 (0.56Ha) outfalls into the existing 300mm surface water drain in Enniskerry Road at the Glenamuck Road junction.
- Catchment 4 (1.80Ha) outfalls into the 300mm surface water drain to be constructed as part of the GLDR project.
- Surface water from all remaining areas of the Proposed Development (i.e., undeveloped / landscaped areas) will continue to discharge to ground.

It was confirmed by DLRCC consultants that the GDRS infrastructure has been designed to cater for the attenuated run-off from the Proposed Development (subject to grant of planning) and that the regional pond in that project has capacity to intercept and store the surface water outfall from the site (Roger Mullarkey & Associates, 2024a).

Attenuated and treated surface water from the GLDR/GDRS roads project will ultimately outfall to the watercourses within the catchments of the Carrickmines Stream (River Waterbody Code: IE_EA_10C040350) and the Shanganagh River (River Waterbody Code: IE_EA_10S010600). The Environmental Impact Assessment Report (EIAR) for the GDRS project (DBFL, 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'.

Surface water runoff from the Proposed Development 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 attenuated water prior to discharge to the outfall point. A full SuDS treatment train approach has been implemented in accordance with the CIRIA SuDS Manual, as detailed in Engineering Infrastructure Report (Roger Mullarkey & Associates, 2024a) and includes:

- Filter drains to the rear of the housing.
- Permeable paving to all parking spaces.
- Rainwater butts (200l) to the rear downpipes.
- Swales adjacent to roads where practically feasible.
- Tree pits where practically feasible.
- Extensive Green Roofs and Blue Roof.
- Bio-Retention areas and Rain Garden areas.
- Silt-trap/catchpit manholes.
- Hydrobrake limiting flow to the drained area Qbar greenfield rate.
- Petrol interceptors.
- Stone lined voided arch retention storage devices.

The proposed surface water drainage for the Proposed Development is provided in Figure 3-2.

Figure 3-2. Drainage Masterplan (Roger Mullarkey & Associates, 2024. 2104C/313 Drainage Masterplan)

3.2.2 Foul Water Drainage

As documented in the Engineering Infrastructure Report (Roger Mullarkey & Associates, 2024a), the foul drainage from the Proposed Development has been divided into three (4No.) catchment areas as follows:

- Catchment 1 (308No. residential units, 5,434m^2 commercial / retail and 619m^2 creche) outfalls into the existing 225mm foul sewer constructed as part of the existing Rockville development (D17A/0793 and D18A/0566) to the northeast of the site. The existing
- Rockville foul sewer has been submitted by the Rockville developer for taking-in-charge by Uisce Éireann (hereafter referred to as UE) and the Applicant has a wayleave agreement for the connection into this foul pipe. This existing infrastructure in turn outfalls downstream into the existing UE owned 300mm foul drainage piped infrastructure on Glenamuck Road.
- Catchment 2 (18No. residential units) outfalls into the 225mm foul sewer to be extended as part of the Glenamuck Road upgrade.
- Catchment 3 (36No. residential units) outfalls into the existing 300mm UE owned foul sewer in Enniskerry Road at the Glenamuck Road junction.
- Catchment 4 (125No. residential units) outfalls into the 225mm foul sewer to be constructed as part of the GLDR project.

It was confirmed by DLRCC consultants that the GDRS infrastructure has been designed to cater for the foul water from the Proposed Development (subject to grant of planning) (Roger Mullarkey & Associates, 2024a). The foul outfalls from Catchment 2 and Catchment 4 are dependent on the construction of the foul drainage infrastructure as part of the GLDR/Glenamuck Road project. This roads project has already commenced as of May 2024 and it has been stated by DLRCC that it will be completed by Q1 2026. Therefore, the above noted Catchment 2 and Catchment 4 will be phased to coincide with the GLDR completion (Roger Mullarkey & Associates, 2024a).

The estimated peak wastewater loading generated by the Proposed Development's Dry Weather Flow is estimated at 2.51l/s residential and 1.5l/s commercial with a Design Flow of 7.57l/s residential and 6.9l/s commercial.

The proposed foul drainage for the Proposed Development is provided in Figure 3-2.

Construction of new foul drainage connection will in accordance with UE's Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03).

The UE Confirmation of Feasibility (CoF) letter dated the 14th June 2024 (UE Reference: CDS24004528) states that the proposed foul water connection is feasible without infrastructure upgrade by UE. A Statement of Design Acceptance (SODA) was subsequently received from UE on the 17th June 2024 (UE Reference: CDS24004528) confirming that UE has no objections to the foul water design proposals.

Foul water from the Proposed Development will be treated in the Shanganagh Wastewater Treatment Plant (WWTP) (Discharge Licence No. D0039-02) before ultimately discharging to the Southwestern Irish Sea - Killiney Bay coastal waterbody.

3.2.3 Water Supply

Water supply to the western portion of the Proposed Development (i.e., to the west of the GLDR) will be from the existing 300mm UE mains water supply located on Enniskerry Road. While water supply to the eastern portion of the Proposed Development (i.e., to the east of the GLDR) will be via the 280mm watermain currently under construction as part of the GLDR roads project. As part of the land acquisition agreements for the GLDR between the Applicant and DLRCC, it has already been agreed that a spur watermain connection from this new water main into the eastern portion of the site will be constructed as part of the GLDR project.

The estimated peak hour water demand for the Proposed Development is 14.45l/s residential and 8.6l/s commercial / retail and creche. In accordance with best practice, the use of water conservation appliances in the buildings will be employed as part of the Proposed Development to reduce the water demand (i.e., water saving tap valves, eco-flush, toilet system and water saving appliances). As a further measure of demand reduction, it is proposed to provide approximately one hundred and eighty-five (185No.) 200 litre rainwater butts to the rear of each gabling property. This will collect rainwater from the house roofs for use in garden irrigation, therefore reducing drinking water demand and decreasing run-off from the site (Roger Mullarkey & Associates, 2024a).

The proposed water supply network for the Proposed Development is provided in Figure 3-2.

Construction of new water supply connection will in accordance with UE's Code of Practice for Water Infrastructure (IW-CDS-5030-02).

The UE CoF letter dated the 14th June 2024 (UE Reference: CDS24004528) states that the proposed water supply connection is feasible without infrastructure upgrade by UE. A SODA was subsequently received from UE on the 17th June 2024 (UE Reference: CDS24004528) confirming that UE has no objections to the water supply design proposals.

4 SITE SETTING

4.1 Site Location and Description

The site of the Proposed Development, measuring approximately 14.2Ha, is located on lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18. The site is located approximately 1.9km southwest of the M50 and the Carrickmines Retail Park. The Proposed Development site location is presented in Figure 4-1.

The site, which comprises largely undeveloped grasslands, includes a derelict dwelling known as 'Rockville' and associated derelict outbuildings in the north and the former Kilternan Country Market in the south.

The site is divided into two parcels of land which will be separated by the future Glenamuck Distributer Link Road (GLDR). The western portion site is generally bounded by the Glenamuck Road to the north; the Sancta Maria property to the north, west and south; a recently constructed residential development named "Rockville" to the north-east; the Enniskerry Road to the south-west; dwellings to the south; and the future GLDR to the east. The eastern site is generally bound by dwellings to the south; the future GLDR to the west; and greenfield land to the north and east.

The current site layout is presented in Figure 4-2.

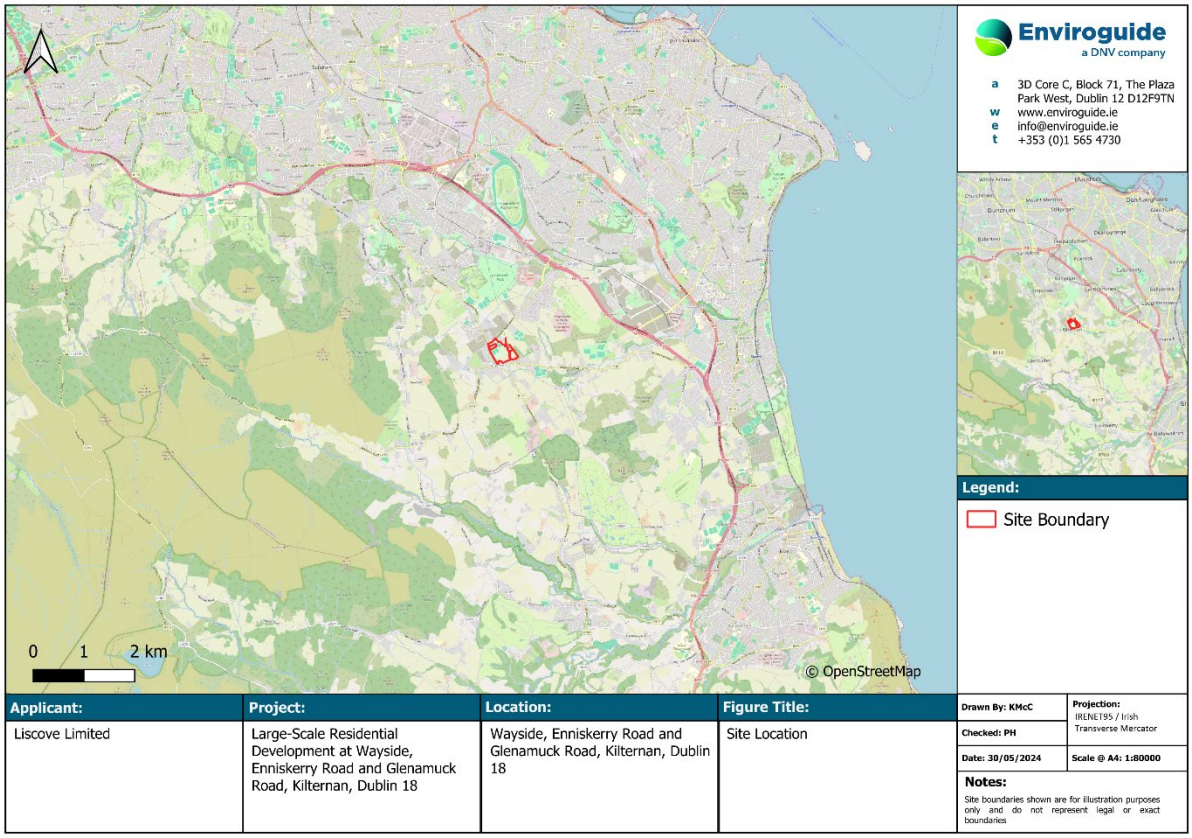

Figure 4-1. Site Location

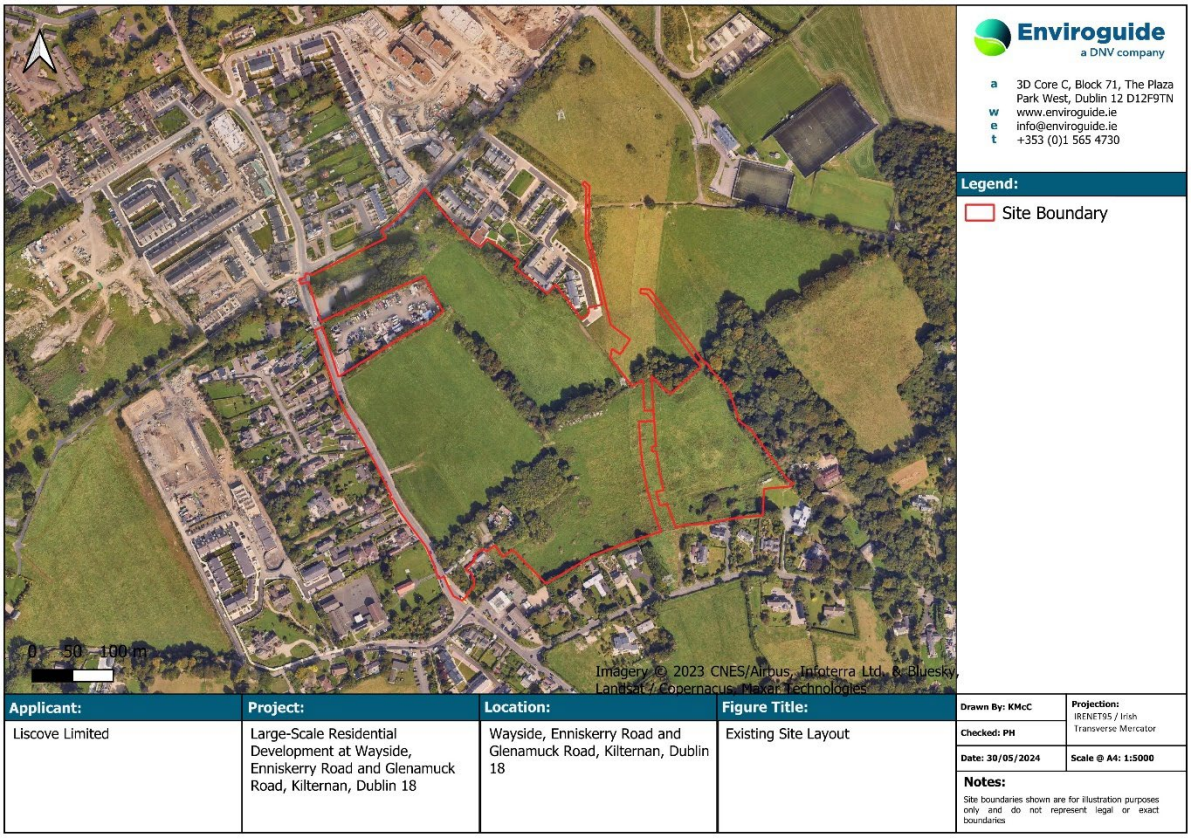

Figure 4-2. Current Site Layout

4.2 Topography

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

As documented in the Engineering Infrastructure Report (Roger Mullarkey & Associates, 2024a. Engineering Infrastructure Report and Storm Water Impact Assessment for a Residential/Commercial project at Kilternan Village LRD, Kilternan, Dublin 18), the topography at the Site is generally a gradually increased slope downwards from the Enniskerry Road along the western boundary in an easterly and north-easterly direction and falling off sharply towards the eastern boundary at a gradient of approximately 10%. Ground elevations at the site range from approximately 141.5 meters above Ordnance Datum (mOD) in the southwest to 122.5mOD in the northeast. The topographic survey with the elevation changes denoted is presented in Figure 4-3.

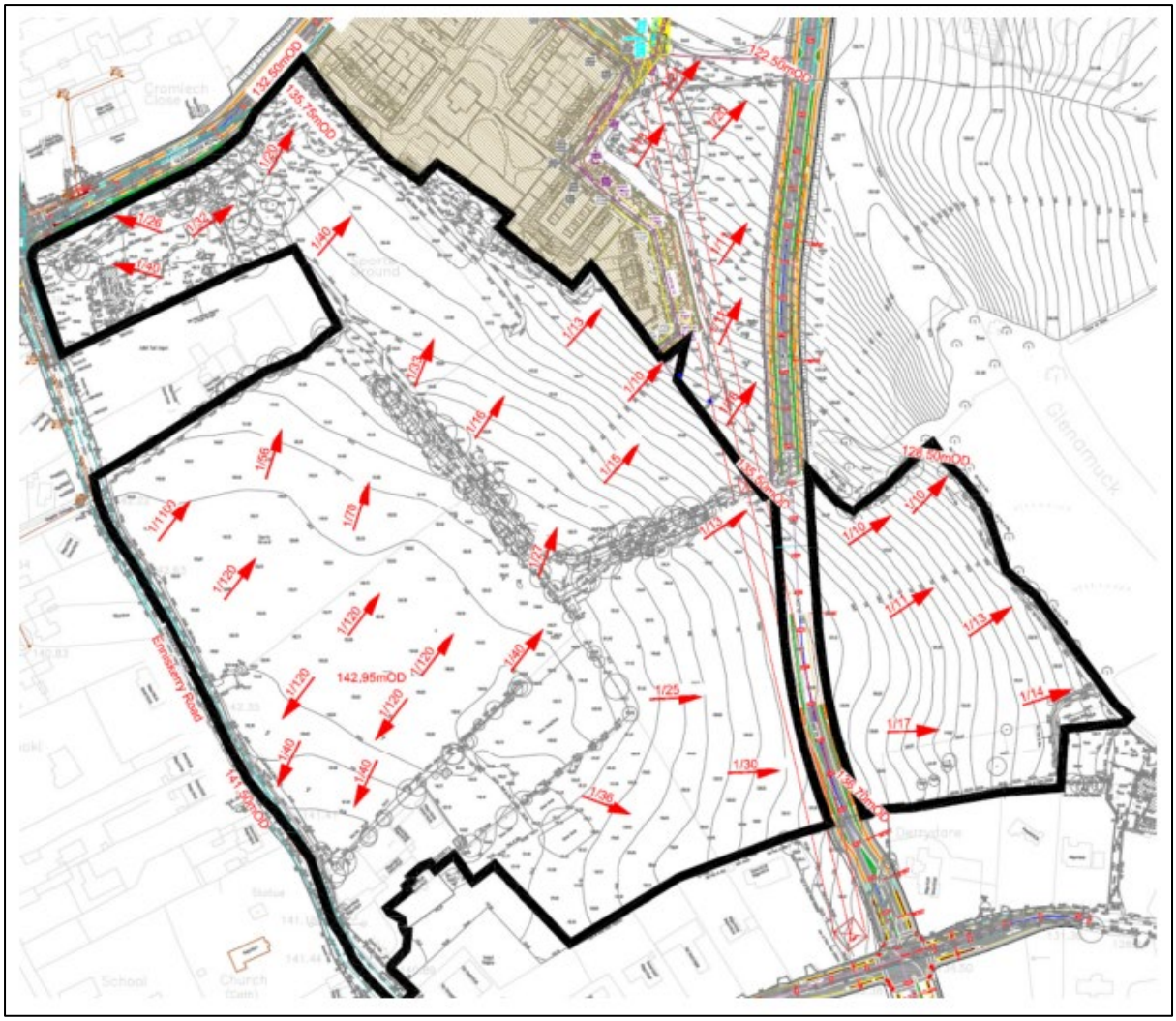

Figure 4-3: Topographic Survey (Roger Mularkey & Associates, 2024a)

4.3 Soil and Geology

The soils beneath the majority of the site are mapped by Teagasc (Teagasc, 2024) as deep well drained mineral (mainly acidic), Acid Brown Earths, Brown Podzolics (IFS Soil Code: AminDW) derived from mainly non-calcareous parent materials described as till derived chiefly from granite (TGr). While the soils beneath the northwest and southern portions of the site are mapped by Teagasc (Teagasc, 2024) as made ground (IFS Soil Code: Made).

The subsoil or quaternary sediments beneath the majority of the site are mapped by the GSI (GSI, 2024) as till derived from granites (TGr). While the subsoil or quaternary sediments beneath the northern portion of the Site and along a small section of the southern site boundary are mapped by the GSI (GSI, 2024) as bedrock outcrop or subcrop.

The bedrock beneath the Site is mapped by the GSI (GSI, 2024) as Type 3 Muscovite Porphyritic (New Code: IDNLGR3) described as granites with muscovite phenocrysts. While no bedrock outcrops are mapped within the site boundary, a cluster of bedrock outcrops is located approximately 0.04 km off the southeast corner of the site (GSI, 2024).

4.3.1 Previous Site Investigation Results

The soils and geology encountered during the previous site investigations (Site Investigations Ltd. (SIL), 2006, Ground Investigations Ireland (GII), 2010, GII, 2017 and GII, 2024 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application) are summarised as follows:

- Topsoil (engineers description) was encountered at all site investigation locations from ground level to depths ranging between 0.2 meters below ground level (mbGL) and 0.3mbGL.
- Brown slightly gravelly sandy CLAY and light yellowish brown slightly gravelly sandy SILT (described as possible weathered bedrock) was encountered below the topsoil to depths ranging between 0.9mbGL and 3.0mbGL.
- Yellowish brown weathered granite was encountered below to CLAY / SILT unit at depths between 0.9 mbGL to 2.4mbGL.

4.4 Hydrogeology

4.4.1 Site Investigation and Groundwater Levels

Groundwater strikes were recorded during drilling of boreholes at the site (SIL, 2006 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application). The groundwater strikes were recorded at depths ranging from 2.5mBGL to 2.9mBGL and typically within the sandy gravelly clays/silts above the granite bedrock. It is noted that a location map for boreholes is not included in the SIL, 2006 report.

4.4.2 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^2 and occupies an area across Co. Dublin, Co. Wicklow and Co. Wexford (GSI, 2024).

Recharge in the vicinity of the site 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% effective rainfall with a capped recharge value of 100mm/year has been assigned to the aquifer at the site (GSI, 2024).

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 2.5mbGL to 2.9mbGL and typically within the sandy gravelly clays / silts above the granite bedrock (SIL, 2006, GII, 2010, GII, 2017 and GII, 2024 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application). Groundwater flow is considered to recharge and discharge on a local scale, with regional groundwater flow directed towards the Irish Sea and local flow towards nearby streams and rivers. Typical groundwater flow paths are on the order of a few hundred meters, with discharge occurring to the closest surface water feature (GSI, 2024).

Locally, groundwater flow within 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.

4.4.3 Aquifer Classification

The bedrock aquifer of the Type 3 Muscovite Porphyritic beneath the Site and surrounding areas is mapped by the GSI (GSI, 2024) as a Poor Aquifer which is generally unproductive except for local zones (Pl). Poor aquifers are capable of supplying 'moderate' to 'low' yields (<100m^3/day) and groundwater flows occurs predominantly through a limited and poorly connected network of fractures, fissures and joints (GSI, 2017). The bedrock aquifer map is presented in Figure 4-4 below.

There are no gravel aquifers mapped by the GSI (GSI, 2024) at the site or within a 2.0km radius of the site (GSI, 2024).

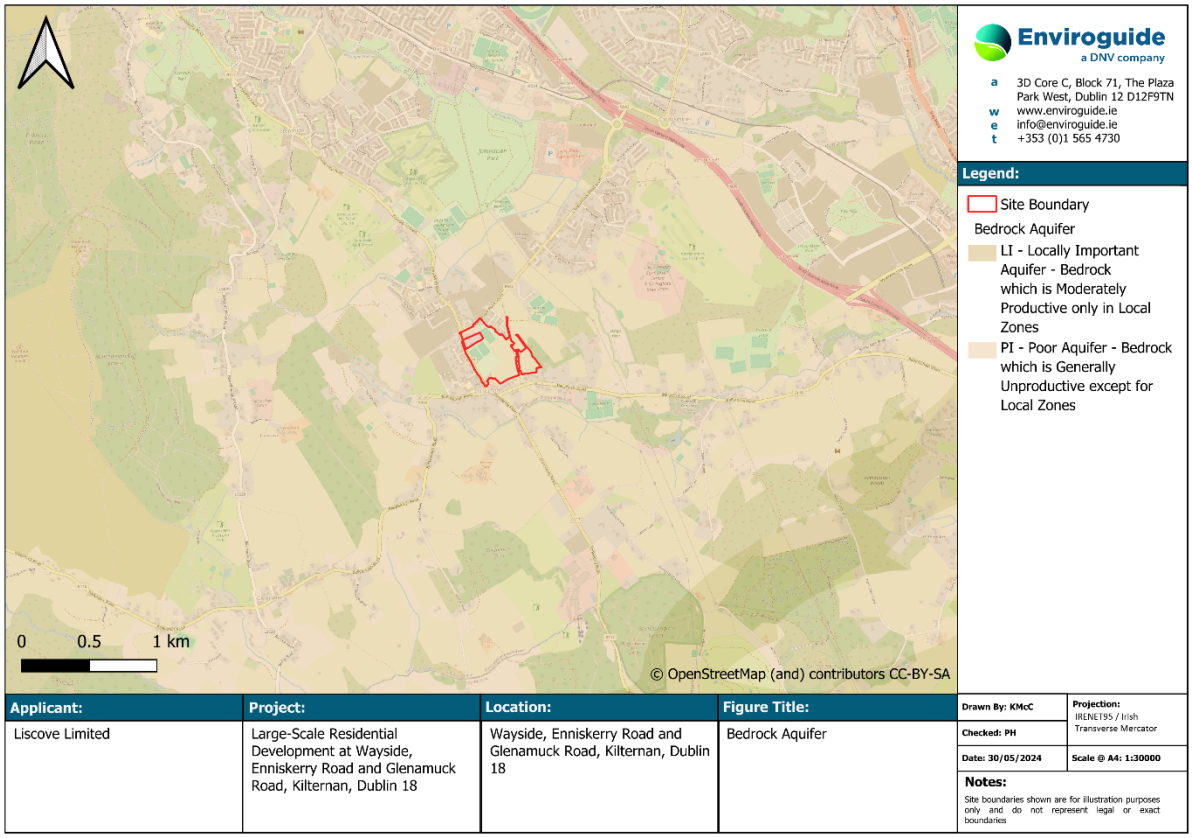

Figure 4-4. Aquifer Classification

4.4.4 Groundwater Vulnerability

The vulnerability categories, and methods for determination, are presented in the Groundwater Protection Schemes publication (DEHLG/EPA/GSI, 1999) and summarised in Table 4-1. The publications state that 'as all groundwater is hydrologically connected to the land surface, it is the effectiveness of this connection that determines the relative vulnerability to contamination. Groundwater that readily and quickly receives water (and contaminants) from the land surface is considered to be more vulnerable than groundwater that receives water (and contaminants) more slowly and in lower quantities. The travel time, attenuation

capacity and quantity of contaminants are a function of the following natural geological and hydrogeological attributes of any area.

Table 4-1. Vulnerability Mapping Criteria (DEHLG/EPA/GSO, 1999)

Subsoil Thickness	Hydrogeological Requirements				
	Diffuse Recharge			Point Recharge	Unsaturated Zone
	Subsoil Permeability & Type			(Swallow holes, losing streams)	(sand & gravel aquifers only)
	High permeability (sand & gravel)	Moderate permeability (sandy subsoil)	Low permeability (clayey subsoil, clay, peat)		
0-3m	Extreme	Extreme	Extreme	Extreme (30m radius)	Extreme
3-5m	High	High	High	N/A	High
5-10m	High	High	Moderate	N/A	High
>10m	High	Moderate	Low	N/A	High
Notes: (i) N/A = not applicable (ii) Permeability classifications relate to the material characteristics as described by the subsoil description and classification method.					

The GSI has assigned a groundwater vulnerability rating of 'High' (H) for the groundwater beneath the majority of the site (GSI, 2024). While the groundwater beneath the eastern boundary of the site is mapped as 'Extreme' (E). The subsoil permeability classification beneath the Site is 'moderate' (GSI, 2024). Based on the moderate permeability and high rating, the depth to bedrock beneath the site is anticipated to be between 0.0mbGL and 10.0mbGL. However, based on the depth to bedrock observed during the site investigations it is considered to be present between 0.9mbGL and 2.4mbGL across the site (SIL, 2006, GII, 2010, GII, 2017 and GII, 2024 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application). Therefore, the groundwater vulnerability can be considered to be 'Extreme' locally beneath the site.

The groundwater vulnerability map is provided in Figure 4-5.

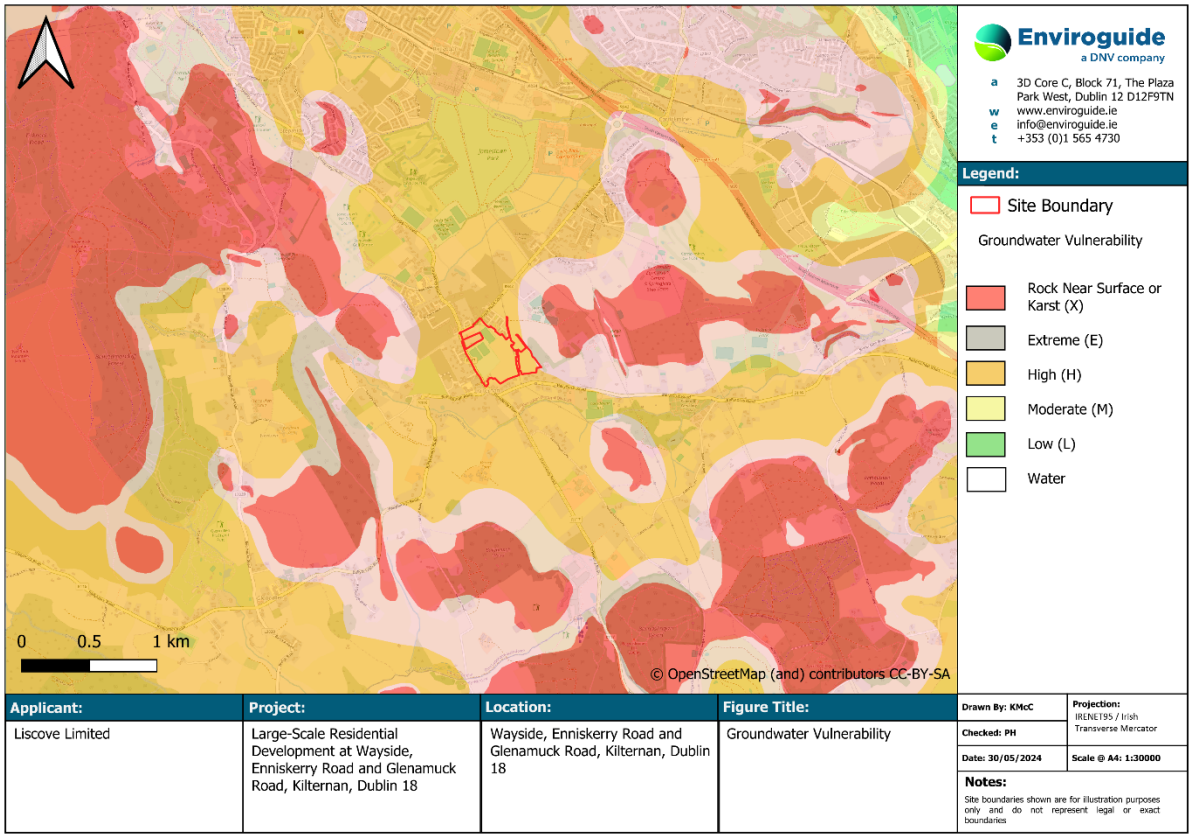

Figure 4-5: Groundwater Vulnerability

4.5 Hydrology

4.5.1 Surface Water Drainage

The site has been mapped by the EPA (EPA, 2024) to be within the Ovoca-Vartry WFD Catchment (ID: 10), the Ovoca-Vartry Hydrometric Area (HA10) and the Dargle_SC_010 Sub-Catchment, (Sub-Catchment ID: 10_5). The majority of the site has been mapped by the EPA (EPA, 2024) to be within the Carrickmines Stream_010 WFD River Sub Basin (IE_EA_10C040350), while the southern portion of the site is mapped within the Shanganagh_010 WFD River Sub Basin (IE_EA_10S010600).

The closest surface water feature is recorded on the EPA database (EPA, 2023) as the Shanganagh River (IE_EA_10S010600), named locally as the Loughlinstown River, which is located approximately 0.3km south / southeast of the 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 site and flows eastwards before converging with the Carrickmines Stream (IE_EA_10C040350) approximately 2.0km northeast 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, 2023). 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 site are presented in Figure 4-6.

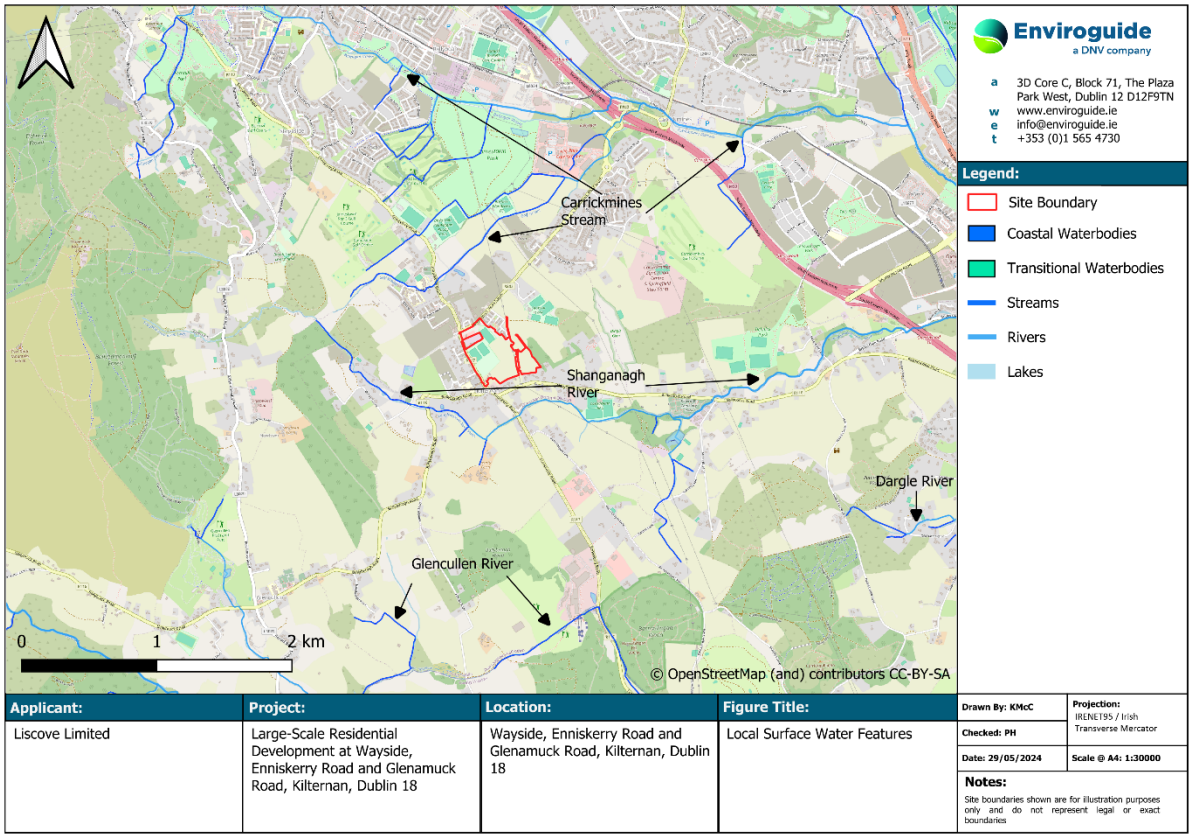

Figure 4-6. Surface Water Features within a 2km Radius of the Site

4.5.2 Existing Surface / Storm Drainage

There is no surface water drainage at the site and no direct hydraulic connection with any water courses.

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.

4.6 Flood Risk

A site-specific flood risk assessment (SFRA) was produced for the subject site and Proposed Development (Roger Mullarkey & Associates, 2024b submitted with the planning application). It assessed the potential flood risk associated with fluvial, groundwater, coastal and pluvial flooding.

The SFRA, which takes into account the impacts of climate change by allowing a 10% increase in rainfall to drainage, 20% increase in flood flow to rivers and a 0.5m sea level rise, identifies that the Site of the Proposed Development is located within Flood Zone C where there is a low risk of flooding (Roger Mullarkey & Associates, 2024b).

The SFRA concludes that the Proposed Development is appropriate at the site and with an overall low risk of fluvial, groundwater, coastal and pluvial flooding (Roger Mullarkey & Associates, 2024b).

4.7 Water Use and Source Protection

The site of the Proposed Development is located within an area serviced by mains water supply. The GSI groundwater wells and springs database (GSI, 2024) lists one (1No.) source within a 2km radius of the site as follows:

- Borehole TW 4 (GSI name: 3221NWW002) is located approximately 0.9km south of the site. The well was drilled to 55mbGL in August 1990 and bedrock was encountered at 11.0mbGL. The source use for the well is domestic, the yield classified is poor with a daily yield of 5.4m^3/day.

The site of the Proposed Development is located in an area serviced by mains water supply. There is an existing 300mm water supply main located along the Enniskerry Road and an existing 250mm water supply main located along Glenamuck Road (refer to Figure 3-2).

There are no Groundwater Source Protection Areas (SPAs) mapped by the GSI (GSI, 2024) within a 2km radius of the site. The closest Groundwater SPAs is the Ballyfolan Spring source located 15.1km southwest of the site.

The Shanganagh River which is located approximately 0.3km south of the site, at its closest point, is mapped by the EPA (EPA, 2024) as a surface water drinking water source under Article 7 of the Water Framework Directive. There are no other surface water drinking sources identified by the EPA (EPA, 2024) within a 2km radius of the site.

4.8 Water Quality

4.8.1 EPA Water Quality- Q Values

The EPA Q-Value assessment 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 values for the operational and historical EPA monitoring locations along the Carrickmines Stream and the Shanganagh River (EPA, 2024) is presented in Table 4-2.

Table 4-2. Relevant EPA Monitoring Stations and Q-Values

River I.D. & Locations	Sample Locations	Monitoring Station	Q-Value & Year
Shanganagh River (0.63km upstream)	Shanganagh Middle Bridge Cabinteely Park	RS10S010100	3 (Poor) in 1990
Shanganagh River (0.27km downstream)	Shanganagh Kilternan Bridge Enniskerry Road	RS10S010440	3-4 (Moderate) in 2000
Shanganagh River (1.45km downstream)	Shanganagh Bridge North of Ballycorus Lead Works	RS10S010450	4 (Good) in 1994
Shanganagh River (4.6km downstream)	At Commons Road	RS10S010600	4 (Good) in 2020
Shanganagh River (5.3km downstream)	SHANGANAGH - Br E of Glebe Ho	RS10S010500	3-4 (Moderate) in 1990
Carrickmines Stream (2.0km downstream)	Carrickmines Stream Glenamuck Road Bridge (Friarsland / Priorsland)	RS10C040200	3 (Poor) in 2003

River I.D. & Locations	Sample Locations	Monitoring Station	Q-Value & Year
Carrickmines Stream (2.9km downstream)	Carrickmines Stream Bridge near Glendruid House	RS10C040300	3-4 (Moderate) in 1990
Carrickmines Stream (3.7km downstream)	Carrickmines Stream Upstream Overpass	RS10C040350	4 (Good) in 2020
Carrickmines Stream (3.9km downstream)	Carrickmines Stream Bridge at Loughlinstown	RS10C040400	3 (Poor) in 2003

4.8.2 EPA Water Quality

The EPA surface water quality monitoring database (EPA, 2024) was consulted. A summary of the most recent published EPA water quality monitoring data (EPA, 2024) for waterbodies which have a potential hydraulic connection to the Site is presented in Table 4-3. It is noted that there is no listed surface water quality data for the Carrickmines Stream river waterbody.

Table 4-3. Surface Water Quality

River Waterbody	Location	EPA WFD Parameter Quality Trend Analysis			
		Parameter	Indicative Quality	Trend	Baseline Concentration (2017) (mg/l)
Shanganagh_010	Br at Friarsland (0.5km upgradient)	Ammonia- Total (as N)	High	Upwards	0.032
		Total Oxidised Nitrogen (as N)	Good	Downwards	1.427
		Ortho-phosphate (as P) – unspecified	Poor	Upwards	0.069
	Br SSW at Carns (Heron Ford Lane) (2.4km downs gradient)	Ammonia- Total (as N)	High	Upwards	0.022
		Total Oxidised Nitrogen (as N)	Good	Downwards	1.310
		Ortho-phosphate (as P) – unspecified	Moderate	Upwards	0.056
	At Commons Road (4.6km downgradient)	Ammonia- Total (as N)	High	None	0.015
		Total Oxidised Nitrogen (as N)	Good	Downwards	1.380
		Ortho-phosphate (as P) – unspecified	Poor	Upwards	0.061

4.8.3 Receiving Water Quality – Shanganagh WWTP (Wastewater Treatment Plant)

Foul water from the site will discharge via the Shanganagh WWTP to the Southwestern Irish Sea - Killiney Bay (HA10). The WWTP is operated under relevant statuary approvals. The most recent available Annual Environmental Report (AER) for the Shanganagh WWTP is 2023 (Irish Water, 2024). The AER identified that the final effluent was compliant with the Emission Limit Values (ELV) specified in the discharge license (D0039-02).

The AER confirms the capacity of the plant will not be exceeded in the next three years. Importantly, the AER notes the following in relation to significance of results:

'The coastal/transitional ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the

Surface Water Regulations 2009.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

The discharge from the wastewater treatment plant does have an observable impact on the coastal/transitional water quality.

The discharge from the wastewater treatment plant does not have an observable impact on the bathing water quality.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.'

4.9 Water Framework Directive

The WFD status for river, lake, groundwater, transitional and/or coastal water bodies that have a potential hydraulic connection to the subject site as recorded by the EPA (EPA, 2024) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) are provided in Table 4-4 and the locations shown in Figure 4-7.

It is noted that the Glenamuck North and Carrickmines rivers are both part of the Carrickmines Stream_010 WFD sub-catchment.

Table 4-4. Water Framework Directive Status

Waterbody Name	Waterbody EU Code	Location from Site	Distance from Site (km)	WFD Status (2016-2021)	WFD Risk	Hydraulic Connection to the Site
Surface Water Bodies						
Carrickmines Stream_010	IE_EA_10C040350	North	0.50	Good	Not at risk	Yes, via groundwater and surface water drainage from the Proposed Development
Shanganagh_010	IE_EA_10S010600	South	0.31	Good	Not at Risk	Yes, via groundwater and downstream of the Carrickmines Stream_010 river waterbody
Coastal Water Bodies						

Southwestern Irish Sea - Killiney Bay	IE_EA_100_0000	East	5.4	High	Not at risk	Yes, downstream of the Shanganagh_010 and Carrickmines Stream_010 river waterbodies. Also receives treated effluent from the Shanganagh WWTP.
Groundwater Bodies						
Wicklow	IE_EA_G_076	Underlying Aquifer	n/a	Good	At risk	Yes, underlying the Site

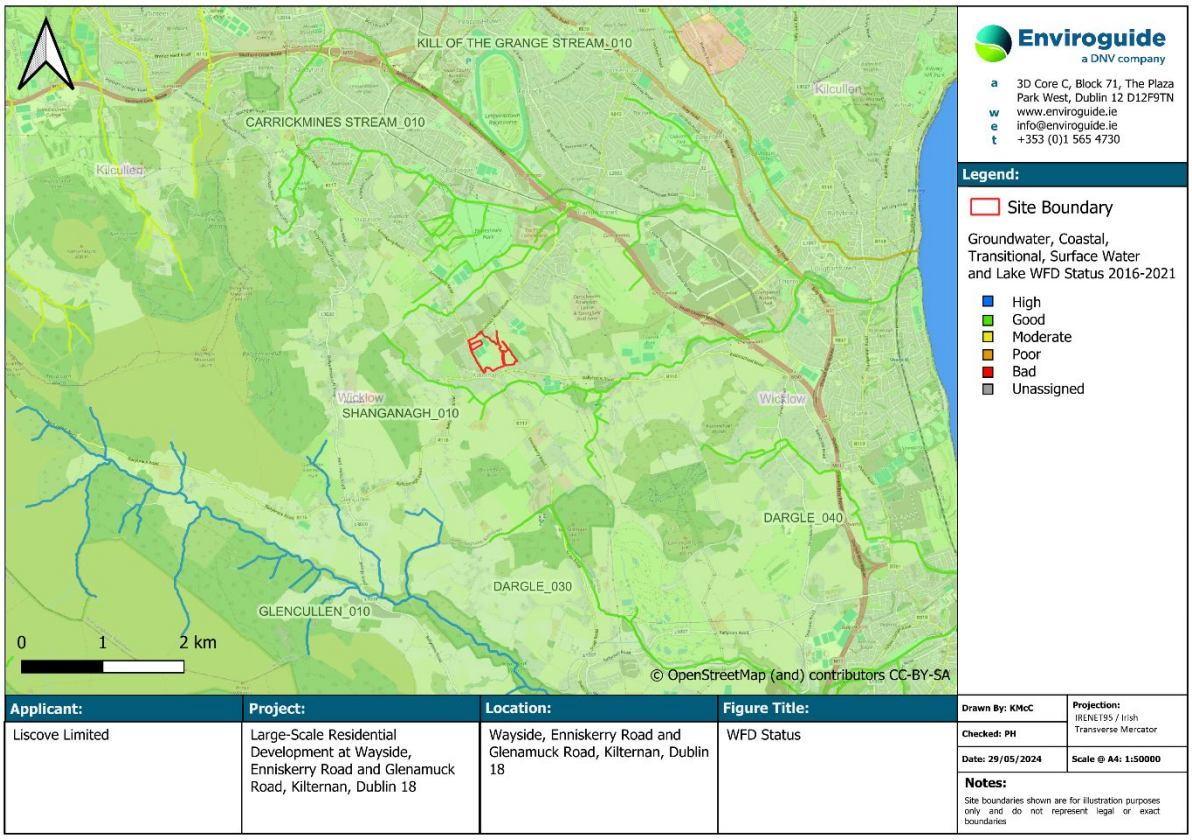

Figure 4-7. Water Framework Directive Status (2016-2021)

4.10 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).

National Heritage Areas (NHAs) are designations under the Wildlife Acts to protect habitats, species, or geology of national importance. The boundaries of many of the NHAs in Ireland overlap with SAC and/or SPA Sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning policy which normally requires that planning authorities give recognition to their ecological value.

The Natura 2000 sites and other protected and designated site identified with a potential hydraulic connection to the site and Proposed Development are summarised in Table 4-5 and presented in Figure 4-8.

Table 4-5. Natura 2000 sites with a Potential Hydraulic Connection to the Site

Site Code	Site Name	Distance and Direction from the Site	Potential for Hydraulic Connection
Special Areas of Conservation (SACs)			
000714	Bray Head SAC	8.01km Southeast	Potential hydraulic connection via the Irish Sea. However, located 5.92km south along the coast from the point of discharge from the Shanganagh River.
003000	Rockabill to Dalkey Island SAC	6.60km East	Potential hydraulic connection via the Irish Sea. However, located 1.50km east from the point of discharge from the Shanganagh River.
Special Protection Areas (SPAs)			
004172	Dalkey Island SPA	7.67km Northeast	Potential hydraulic connection via the Irish Sea. However, located 3.11km north along the coast from the point of discharge from the Shanganagh River.
Proposed Natural Heritage Areas (pNHAs)			
001207	Dingle Glen pNHA	0.52km East	Typical groundwater flow paths are on the order of a few hundred meters, with discharge occurring to the closest surface water feature (i.e., Carrickmines Stream and the Shanganagh River). Therefore, there is no identified hydraulic connection via groundwater.
001211	Loughlinstown Woods pNHA	3.64km East	Indirect hydraulic connection via the Shanganagh_010 and Carrickmines Stream_010 river waterbodies.
001206	Dalkey Coastal Zone And Killiney Hill pNHA	5.04km East	Indirect hydraulic connection via the Shanganagh_010 and Carrickmines Stream_010 river waterbodies and discharges of treated effluent from the Shanganagh WWTP.
000714	Bray Head pNHA	8.01km Southeast	Potential hydraulic connection via the Irish Sea. However, located 5.92km south along the coast from the point of discharge from the Shanganagh River.

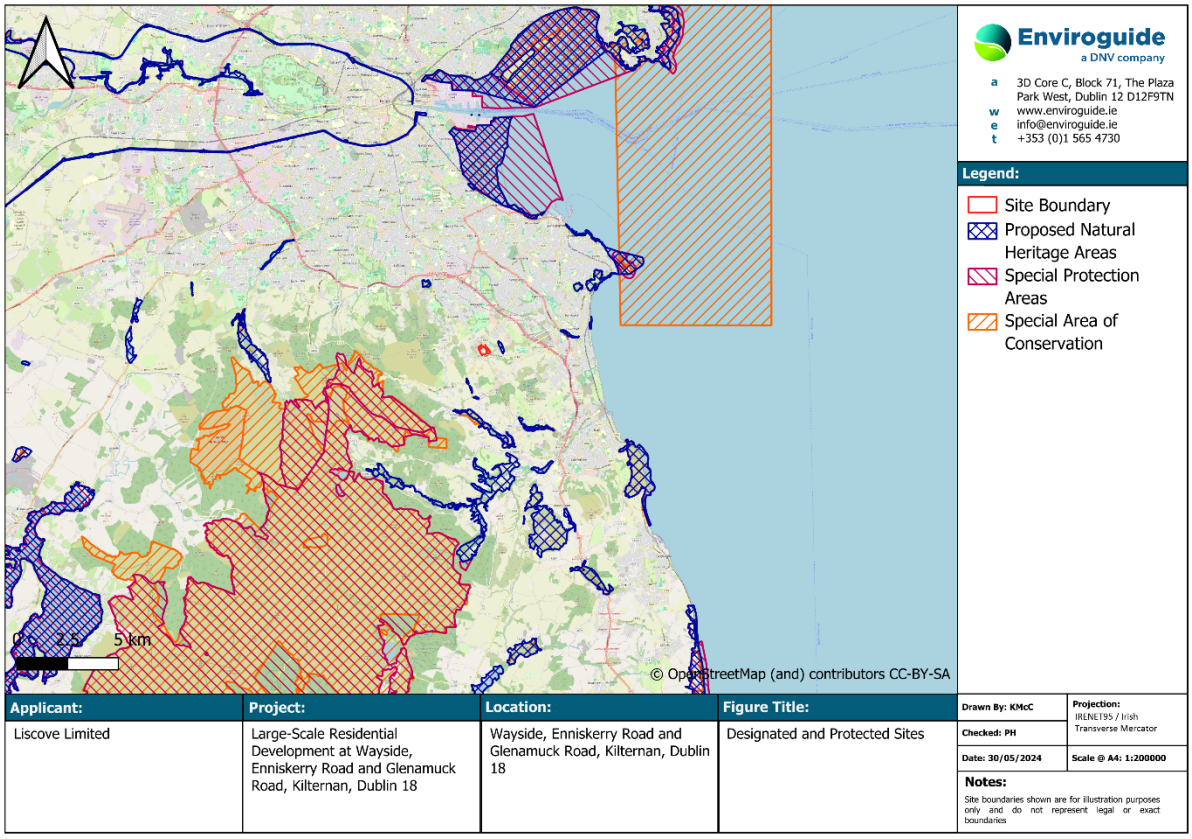

Figure 4-8. Designated and Protected Sites

5 ASSESSMENT OF POTENTIAL IMPACTS

5.1 Conceptual Site Model

As outlined in Section 2.4, the conceptual site model (CSM) represents the characteristics of the site and identified the possible relationship and potential risk between the contaminant sources, pathways and receptors.

The preliminary CSM and identified sources, pathways and receptors associated with the site and Proposed Development are outlined in Section 5.1.1, Section 5.1.2 and Section 5.1.3.

5.1.1 Potential Sources

The potential sources associated with the Proposed Development during construction and operational phase s are discussed 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.

Based on the finding of the previous site investigations (SIL, 2006, GII, 2010, GII, 2017 and GII, 2024 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application), shallow groundwater is not anticipated and therefore there will be no requirement for dewatering of groundwater during the construction of building foundations and utility infrastructure. However, there may be a requirement for management of surface water (rainwater), 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 of the Proposed Development.

Foul water discharge from the temporary welfare units at the site during the construction phase of the Proposed Development will be either tankered offsite in accordance with waste management legislation or discharged under temporary consent to the UE mains foul network for treatment at Shanganagh WWTP subject to agreement with UE.

Potential sources of contamination that could impact on water quality during the construction phase of the Proposed Development based on the design of the site include:

- Storage and use of fuel, oils and chemicals used during construction which in the event of an accidental release through the failure of secondary containment or a materials handling accident could infiltrate to the underlying groundwater.
- Use of concrete and cementitious materials during construction in particular for installation of below ground infrastructure and foundations where shallow groundwater may be encountered.
- Suspended sediment and other contaminants entrained in runoff arising from groundworks, stockpiling of materials and other constructions works at the site.
- Sediment or other material on construction vehicles could potentially be tracked offsite to external public roads.

- Accidental release of wash-water or foul water from facilities at the subject site (e.g., wheel wash and temporary welfare facilities).
- Release of foul water from existing foul water drainage during connection to live sewers.

5.1.1.2 Operational Phase

During the Operational Phase, there will be limited recharge to ground via unpaved, permeable areas due to the low infiltration potential at the Site (GII, 2010, GII, 2017 and GII, 2024 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application).

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

Foul water from the Proposed Development will be connected to the will eventually discharge to the Shanganagh WWTP via the UE foul drainage network, which was identified to have sufficient capacity to accept foul water from the Proposed Development. The UE CoF dated the 14th June 2024 (UE Reference: CDS24004528) notes that the foul and water supply connections are feasible without infrastructure upgrades by UE. Furthermore, the SODA subsequently received from UE on the 17th June 2024 (UE Reference: CDS24004528) confirms that UE has no objections to the foul water design proposals.

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 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 a short-term event in a worst-case scenario and while unlikely to occur, this scenario is considered in this assessment.
- Suspended sediment entrained in runoff is considered a low-risk source of contamination at the site for the operational phase of the Proposed Development.

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 Waterbodies**

  The site is underlain by a Poor Aquifer (Pl) within the granite bedrock with limited capacity to accept recharge and only localised flow paths in the order of a couple of hundred metres. 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 Watercourses to Downstream Surface Waterbodies**

There is no direct pathway via surface runoff (open water courses, drainage etc.) to any surface waterbody for the construction phase and operational phase of the Proposed Development. This pathway is therefore not considered further in this assessment.

- **Groundwater Discharge to Mains Sewer and Downstream Receiving Surface Waterbodies**

  Based on the finding of the previous site investigations (SIL, 2006, GII, 2010, GII, 2017 and GII, 2024 included in the Roger Mullarkey & Associates, 2024a Drainage Infrastructure Report submitted with the planning application), shallow groundwater is not anticipated and therefore there will be no requirement for dewatering of groundwater during the construction of building foundations and utility infrastructure. This pathway is therefore not considered further in this assessment.

- **Surface Water Discharge to Mains Sewer and Downstream Receiving Surface Waterbodies**

  There may be a requirement for management of surface water (rainwater) during the construction phase and operational phase of the Proposed Development. Therefore, there will be a pathway for surface water runoff (rainwater) discharged via onsite drainage network during the construction phase and operational phase of the Proposed Development.

  There will be a pathway for surface water runoff discharged via onsite drainage network during the operational phase:

  - Where required, surface water runoff (rainwater) during the construction phase will be discharged offsite in accordance with the necessary discharge licences issued by Irish Water under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer (and ultimately the Irish Sea via the Shanganagh WWTP) or from DLRCC under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water (and ultimately the Glenamuck North Stream, the Carrickmines Stream, the Shanganagh River and downstream receiving waterbodies).
  - During the operational phase, attenuated and treated surface water runoff from Catchment 1, Catchment 2, Catchment 3 and Catchment 4 of the Proposed Development will ultimately outfall 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 are considered valid for this assessment.

- **Foul Water Discharge to Main Sewer and Receiving Surface Waterbodies**

  Foul water during the construction phase of the Proposed Development will be either removed by tanker in accordance with waste management legislation and managed accordingly or discharged under consent to the mains UE foul drainage network. Foul water during the operational phase of the Proposed Development will also be discharged to the UE foul drainage network infrastructure and ultimately discharged to

the South Western Irish Sea - Killiney Bay coastal waterbody 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
  - Underlying poor bedrock aquifer (Pl) which is part of the Wicklow (GWB)
- Surface Waterbodies:
  - Glenamuck North Stream.
  - Carrickmines Stream.
  - Shanganagh River.
- Coastal Water Bodies:
  - South Western Irish Sea - Killiney Bay.
- Natura 2000 sites:
  - Rockabill to Dalkey Island SAC.
  - Loughlinstown Woods pNHA.
  - Dalkey Coastal Zone And Killiney Hill pNHA.

It is noted that there are other Natura 2000 sites with a potential hydraulic connection to the site (refer to Table 4-5) 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

A risk-based assessment of the Source-Pathway-Receptor Model and the potential risk linkages associated with the construction phase and operational phase of the Proposed Development was undertaken. The results were evaluated to determine if the Proposed Development could potentially impact any potential receptors associated with the Site.

Table 5-1. Conceptual Site Model (Source- Pathway Receptor) and Risk Evaluation

Source	Pathway	Receptor	Risk Evaluation and Avoidance
Construction Phase			
Discharge of Contaminants to Ground / Groundwater	Vertical and Lateral Groundwater Migration in Bedrock Aquifer	Underlying Bedrock Aquifer Receiving surface waterbodies (i.e., the Glenamuck North Stream, the Carrickmines Stream, the Shanganagh River and the South Western Irish Sea - Killiney Bay) Natura 2000 Sites	Low to Moderate Risk (worst-case unmitigated scenario) During groundworks and excavations, the groundwater vulnerability will be increased and there will be a more direct pathway for surface contaminants to enter the underlying bedrock aquifer and migrate towards downgradient receiving surface water bodies. However, based on the relatively low recharge potential, it is considered that there is some protection of groundwater from migration of dissolved phase contaminants to the aquifer which will likely be confined to the immediate vicinity of the Site.

Source	Pathway	Receptor	Risk Evaluation and Avoidance
			In a worst-case scenario during the construction phase (e.g., accidental release of fuels, chemicals or oils through the failure of secondary containment or a materials handling accident) 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. However, 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, 2023) it is considered that there is a negligible risk to watercourses within the catchments of the Carrickmines Stream and the Shanganagh River and associated waterbodies and Natura 2000 sites via groundwater flow from the Site. Appropriate design avoidance and mitigation measures in accordance with the CEMP will prevent any potential impact to the receiving water quality.
Discharge of Surface Water Runoff (i.e., Rainwater)	Discharge to Mains Sewer	Receiving surface waterbodies (i.e., the Glenamuck North Stream, the Carrickmines Stream, the Shanganagh River and the South Western Irish Sea - Killiney Bay) Natura 2000 Sites	Low Risk Surface water runoff (rainwater) during the construction phase will be discharged to the existing drainage network (foul or surface water) following appropriate treatment (e.g., settlement or hydrocarbon interceptor) in accordance with the necessary discharge licences issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations or by DLRCC under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 and ultimately discharged to the receiving surface waterbodies (i.e., the Glenamuck North Stream or the South Western Irish Sea - Killiney Bay via Shanganagh WWTP).
Foul Water Discharge	Discharge to Mains Sewer	Receiving surface waterbodies (i.e., the South Western Irish Sea - Killiney Bay)	Low Risk Foul water during the construction phase of the Proposed Development will be either removed by tanker in accordance with waste management legislation and managed accordingly or discharged

Source	Pathway	Receptor	Risk Evaluation and Avoidance
		Natura 2000 Sites	under consent to the mains UE drainage network and ultimately discharged to the receiving surface waterbodies (i.e., the South Western Irish Sea - Killiney Bay via Shanganagh WWTP). Foul water from the site will only be discharged to the UE network under the appropriate consents from UE and therefore, the Proposed Development will not cause a potential impact at any receiving waterbody or Natura 2000 sites associated with discharges from the site.
Operational Phase			
Discharge of Surface Water Runoff	Discharge to Surface Water Drainage Network	Receiving surface waterbodies (i.e., the Glenamuck North Stream, the Carrickmines Stream, the Shanganagh River and the South Western Irish Sea - Killiney Bay) Natura 2000 Sites	Low to Moderate Risk (worst-case unmitigated scenario) During the operational phase of the Proposed Development, there is limited potential for discharge of any contaminated runoff to the receiving water courses associated with surface water runoff from the Site which will be managed and treated in accordance with SUDS and pass through petrol interceptor and attenuation tanks prior to discharging offsite. However, in a worst-case scenario during the operational phase (e.g., failure of SuDS) in the absence of any mitigation measures there is potential for discharge of contaminants from Catchment 1 and Catchment 3 impacting 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. Surface water from Catchment 2 and Catchment 4 (and eventually Catchment 1) of the Proposed Development will be

Source	Pathway	Receptor	Risk Evaluation and Avoidance
			discharged to the mains drainage network within the GLDR/GDRS roads project. The EIAR (DBFL, 2019) prepared for the GLDR/GDRS roads project identified that discharges from the GLDR/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 and Catchment 4 (and eventually Catchment 1) would be treated and attenuated within the GLDR/GDRS surface water drainage network prior to discharging to receiving waters and there would be no impact on the receiving water quality downstream of the site.
Discharge of Contaminants to Ground / Groundwater	Vertical and Lateral Groundwater Migration in Bedrock Aquifer	Underlying Bedrock Aquifer Receiving surface waterbodies (i.e., the Glenamuck North Stream, the Carrickmines Stream, the Shanganagh River and the South Western Irish Sea - Killiney Bay) Natura 2000 Sites	No Identified Risk Based on the design of the Proposed Development there is limited potential sources of contamination during the operational phase and there will be limited potential for discharge of contaminants associated with surface water runoff to ground via unpaved, permeable areas due to the low infiltration potential at the site. Surface water will be managed in accordance with the principles and objectives of SuDS and the GDSDS to treat and attenuate water prior to discharging offsite. Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be incorporated into the overall management strategy for the Proposed Development. This will ensure that there are no impacts on water quality during the operational phase of the Proposed Development.
Foul Water Discharge	Discharge to Mains Sewer	Receiving surface waterbodies (i.e., the South Western Irish Sea - Killiney Bay) Natura 2000 Sites	Low Risk Foul water during the operational phase of the Proposed Development will be discharged to the UE drainage network and ultimately discharged to the South Western Irish Sea - Killiney Bay via the Shanganagh WWTP. Foul water from the site will only be discharged to the UE network under the appropriate consents from UE, and therefore, the Proposed Development will not cause a potential impact at any receiving waterbody or Natura 2000 sites associated with discharges from the site.

5.2.1 Design Avoidance and Mitigation

The assessment of the potential impacts on the receiving environment takes account of the embedded design avoidance measures and standard good practice construction methods to reduce the potential for impacts to the water environment. These are outlined below together with additional specific measures based on the findings of this assessment.

5.2.1.1 Construction Phase

During the construction phase, all works will be undertaken in accordance with the Construction Management Plan (CMP) (Atkins, 2024 submitted with the planning application) and the Construction Environmental Management Plan (CEMP) (EGC, 2024 submitted with the planning application). Following appointment, the contractor will be required to further develop the CMP and CEMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001). The CMP and CEMP will be implemented for the duration of the Construction Phase, covering construction and waste management activities that will take place during the construction phase of the Proposed Development. Mitigation works will be adopted as part of the construction works for the Proposed Development. These measures will address the main activities of potential impact which include:

- Control and Management of surface water runoff.
- Control and management of shallow groundwater during excavation and dewatering (if required).
- Management and control of soil and materials.
- Appropriate fuel and chemical handling, transport and storage.
- Management of accidental release of contaminants at the Site.

Surface water runoff management will be required to prevent runoff entering excavations during construction. Surface water will require diversion around the open excavations using standard temporary drainage methods to ensure that surface water is effectively conveyed around works areas.

Where water must be pumped from the excavations during the construction phase of the Proposed Development, water will be discharged by the contractor, following appropriate treatment (e.g., settlement or hydrocarbon interceptor) to sewer in accordance with the necessary discharge licences issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from FCC under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water. Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released to ground or to drains. Where required, all public sewers will be protected to ensure that any untreated wastewater generated onsite enters the public sewers.

Pumping of concrete will be monitored to ensure that there is no accidental discharge. All work will be carried out in the dry and effectively isolated from any onsite drains. A suitable risk assessment for wet concreting will be completed prior to works being carried out. There will be no mixer washings or excess concrete discharged onsite. All excess concrete is to be removed from site and all washout of concrete chutes to be captured in a tank which shall be removed offsite for disposal at an authorised waste facility.

All below ground drainage infrastructure will be constructed in accordance with current UE requirements to ensure that there are no potential impacts to groundwater quality.

Welfare facilities have the potential, if not managed appropriately, to release organic and other contaminants to ground or surface water courses. Foul drainage from temporary welfare facilities during the construction phase of the Proposed Development will either be discharged to temporary holding tank(s), the contents of which will periodically be tankered off site to a licensed facility or discharged to public sewer in accordance with the necessary temporary discharge licences issued by UE.

The Shanganagh WWTP is operated in accordance with relevant statutory approvals issued by UE. The AER identified that the final effluent was compliant with the ELVs specified in the discharge license (D0039-02). Furthermore, the AER confirms that the WWTP does not have an observable impact on the water quality, nor does it have an observable negative impact on the Water Framework Directive status. The AER also confirms the capacity of the plant will not be exceeded in the next three years. The increase discharge to the Shanganagh WWTP as a result of the Proposed Development is considered to be insignificant in terms of the overall scale of the facility. The increased load does not have the capacity to alter the effluent released from the WWTP to such an extent as to result in likely significant effects on its receiving waters. Foul water from the Site will only be discharged to the UE network under the appropriate consents from UE and therefore, the Proposed Development will not cause a potential impact at any Natura 2000 sites associated with discharges from the site.

5.2.1.2 Operational Phase

Based on the design of the Proposed Development there is limited potential sources of contamination during the operational phase and there will be limited potential for discharge of contaminants associated with surface water runoff to ground via unpaved, permeable areas due to the low infiltration potential at the Site. Furthermore, the proposed attenuation design does not allow for infiltration due to its proximity to building foundations. Surface water will be managed in accordance with the principles and objectives of SuDS and the GDSDS to treat and attenuate water prior to discharging offsite. Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be incorporated into the overall management strategy for the Proposed Development. This will ensure that there are no impacts on water quality and quantity (flow regime) during the Operational Phase of the Proposed Development.

Foul water during the operational phase of the Proposed Development will ultimately discharge via the Shanganagh WWTP to the South Western Irish Sea - Killiney Bay under the appropriate consents from UE. As mentioned above, the Shanganagh WWTP, does not have an observable impact on the water quality, nor does it have an observable negative impact on the Water Framework Directive status. Foul water from the site will only be discharged to the UE network under the appropriate consents from UE, and therefore, the Proposed Development will not cause a potential impact at any Natura 2000 sites associated with discharges from the site.

5.2.2 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 and other protected and designated sites in particular the Rockabill to Dalkey Island SAC, and Dalkey Island SPA, Loughlinstown Woods pNHA and Dalkey Coastal Zone and Killiney Hill pNHA individually or in-combination.

5.2.3 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 and with the Carrickmines Stream_010 river waterbody (i.e., within the Glenamuck North Stream and locally within the Carrickmines Stream). There is no identified potential impact to the Shanganagh_010 river waterbody, and the Southwestern Irish Sea - Killiney Bay coastal waterbody attributed to the separation distances and anticipated assimilation capacity of the receiving water bodies taking account of the existing baseline conditions and WFD Status.

The mitigation measures as outline above, including the implementation of the CEMP during the construction phase of the Proposed Development and the incorporation of SUDS in accordance with the GDSDS in the design of the operation phase of the Proposed Development, will prevent any impact on the receiving groundwater and surface water environment. Hence, the Proposed Development will not have any impact on compliance with the EU Water Framework Directive, European Communities (Environmental Objectives) Surface Water Regulations, 2009 (SI 272 of 2009, as amended 2012 (SI No 327 of 2012), and the European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010), as amended 2012 (SI 149 of 2012) and 2016 (S.I. No. 366 of 2016).

The Proposed Development will not cause a deterioration in the status of waterbodies hydraulically connected with the Proposed Development, taking account of design avoidance and mitigation measures that will be implemented. The Proposed Development will not jeopardise the objective to achieve ‘good’ surface water status or good ecological potential.

There will be no impact to the existing WFD status of water bodies associated with the Proposed Development including the Carrickmines Stream_010 and the Shanganagh_010 river waterbodies, the Southwestern Irish Sea - Killiney Bay coastal waterbody 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 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.

The 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:

- Assuming a worst-case scenario (e.g., accidental release of fuels, chemicals or oils through the failure of secondary containment or a materials handling accident during the construction phase or SuDS failure during the operational phase) at the site and taking account of the local hydrogeological regime, there is a potential risk of impact to local groundwater quality, however 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 and Catchment 3 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 Southwestern Irish Sea - Killiney Bay.
- There is no potential risk associated with the indirect (mains drainage) discharge of surface water runoff from Catchment 2 and Catchment 4, and eventually Catchment 1, of the Proposed Development which will be 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 the Proposed Development that will ultimately be discharged to the Southwestern Irish Sea - Killiney Bay via Shanganagh WWTP under appropriate consent from UE.
- The appropriate standard design measures for the construction phase and operational phase of the Proposed Development including implementation of the CEMP and SuDS measures within the drainage design will prevent, limit and mitigate any 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 and other protected and designated

sites in particular the Rockabill to Dalkey Island SAC, and Dalkey Island SPA, Loughlinstown Woods pNHA and Dalkey Coastal Zone and Killiney Hill pNHA associated with Proposed Development individually or in-combination.

- There is no identified impact to the existing WFD status of water bodies associated with the Proposed Development including the Carrickmines Stream_010 and the Shanganagh_010 river waterbodies, the Southwestern Irish Sea - Killiney Bay coastal waterbody and the Wicklow GWB as a result of the Proposed Development taking account of design avoidance and mitigation measures that will be implemented as described.

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