



Appropriate Assessment Screening Report
Proposed SHD Development Aikens Village (Woodside) And
Kilgobbin, Stepside, Co. Dublin

prepared for Ironborn Real Estate Limited

Scott Cawley, College House, 71 – 73 Rock Road, Blackrock, Co. Dublin, A94 F9X9, Ireland

Tel+353(1)676-9815 Fax +353(1) 676-9816

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

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1 Introduction

- 1 This report, which contains information required for the competent authority (in this instance An Bord Pleanála) 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 2 contiguous sites, at 'Sector 3', Aikens Village in the Townlands of Woodside and Kilgobbin, Stepside, Co. Dublin (refer to Figure 1 for location). The proposed development consists of a strategic housing development of 438no. 'Build-to-Rent' apartment units.
- 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 in light of their site specific conservation objectives.

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)
 - *Communication from the Commission on the precautionary principle* (European Commission, 2000), and

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).

- *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 significant 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 of the relevant European site 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:



- 7 If the conclusions at the end of screening are that there is no likelihood of significant effects occurring on any European sites in light of their conservation objectives 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 objectives³.
- 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 principle⁴. 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 July 2022):
 - Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie⁵, 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_2022_04 and SPA_ITM_2021_10.

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

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 1st June 2022 by Kristie Watkin-Bourne following the methodology described in *Best Practice Guidance for Habitat Survey and Mapping*⁶. All habitat types were classified using the *Guide to Habitats in Ireland*⁷, recording the indicator species and abundance using the DAFOR scale⁸ and recording any species of conservation interest. Vascular and bryophyte plant nomenclature generally follow that of *The National Vegetation Database*⁹, having regard to more recent taxonomic changes to species names after the *New Flora of the British Isles*¹⁰ and the British Bryological Society's *Mosses and Liverworts of Britain and Ireland: A Field Guide*¹¹. Annex I habitat types were classified after the *Interpretation manual of European Union Habitats EUR28*¹² 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*¹³.

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 The DAFOR scale is an ordinal or semi-quantitative scale for recording the relative abundance of plant species. The name DAFOR is an acronym for the abundance levels recorded: Dominant, Abundant, Frequent, Occasional and Rare.

⁹ 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.

¹⁰ Stace, C. (2019) *New Flora of the British Isles. 4th Edition*. C&M Floristics.

¹¹ Atherton, I., Bosanquet, S. & Lawley, M. (2010) *Mosses and Liverworts of Britain and Ireland: A Field Guide*. Latimer Trend & Co., Plymouth.

¹² CEC. (Commission of the European Communities) (2013) *Interpretation manual of European Union Habitats EUR28*. European Commission, DG Environment.

¹³ 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

- 15 A terrestrial fauna survey was undertaken on the 1st June 2022 by Kristie Watkin-Bourne. 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. Surveys to check for the presence of badger setts and otter holts within the study area, and to record any evidence of use, were undertaken on this date.
- 16 The proposed development site is outside of the natural range of Ireland's only species of bat that is listed on Annex II of the Habitats Directive, the lesser horseshoe bat *Rhinolophus hipposideros*, which is confined to counties Mayo, Galway, Clare, Limerick, Cork and Kerry¹⁴. As the proposed development site is outside of the range of this species, and as no other Irish bat species are included on Annex II of the Habitats Directive, bats fall outside of the scope of this report and are not examined further. For clarity, the ecological impact on bats is comprehensively addressed in the Ecological Impact Assessment Report which accompanies the proposed development application.

2.4.2.2 Breeding Birds

- 17 Breeding bird surveys were undertaken on the 6th May 2022 and the 1st June 2022 by Kristie Watkin-Bourne using a methodology adapted from the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species*¹⁵. Given limited habitat for birds within the footprint of the proposed development the methodology and duration of surveys is considered robust. The study area covered the lands within and immediately adjacent to the proposed development site. 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.

3 Provision of Information for Screening for Appropriate Assessment

- 18 The following sections provide information to facilitate the Appropriate Assessment screening of the proposed development to be undertaken by the competent authority.
- 19 A description of the proposed development and the receiving environment is provided to identify the potential ecological impacts. The environmental baseline conditions are discussed, as relevant to the assessment of ecological impacts where they may highlight potential pathways for impacts associated with the proposed development to affect the receiving ecological environment (e.g. geological, hydrogeological and hydrological data).
- 20 The potential impacts are examined in order to define the potential zone of influence of the proposed development on the receiving environment. This then informs the assessment of whether the proposed development 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.

¹⁴ NPWS (2018). *Conservation objectives supporting document – lesser horseshoe bat (Rhinolophus hipposideros) Version 1*. National Parks and Wildlife Service, Dublin, Ireland. Published January 2018. Available online at [Lesser horseshoe bat supporting document Jan 2018 V1.pdf \(npws.ie\)](#) [Accessed 22/08/2022]

¹⁵ Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods - A Manual of Techniques for Key UK Species*. RSPB: Sandy

3.1 Description of the Proposed Development

- 21 Ironborn Real Estate Limited, intend to apply to An Bord Pleanála for Permission for a Strategic Housing Development at 2no. contiguous sites (c. 3.39 Ha), at ‘Sector 3’, Aikens Village in the Townlands of Woodside and Kilgobbin, Stepside, Co. Dublin.
- 22 The site for proposed residential development is generally bounded by Thornberry Road to the north, by Atkinson Drive and the adjoining open space lands to the west, Sandyford Hall residential development adjacent Ferncarraig Avenue to the east and by Village Road and Griannan Fidh residential development to the south (Townland of Woodside). The site for proposed below ground wastewater storage tank is on open space lands generally bounded Griannan Fidh residential development to the north, Sandyford Hall residential development to the east and open space lands (including detention basin) to the south and west (Townland of Kilgobbin).
- 23 The development will consist of: -
- 438no. ‘Build-to-Rent’ apartment units (154no. 1 bedroom units and 284no. 2 bedroom units) arranged in 9no. blocks ranging in height from 2 – 8 storeys over 2no. independent single level basements. Private patios / terraces and balconies are provided for some apartment units (not all units have a patio, terrace or balcony). Upper level balconies are proposed on elevations of all multi-aspect apartment buildings.
 - Blocks A – D are located above Basement 1 (c. 6,002 sq. m gross floor area) and Blocks F – J are above Basement 2 (c. 5,058 sq. m gross floor area).
 - Provision 1no. childcare facility (c. 514.9 sq. m gross floor area) in Block D.
 - Provision of resident amenity space / communal areas (c. 1,455.7 sq. m gross floor area) in Block C and Block G.
- 24 And all associated and ancillary site development, infrastructural, landscaping and boundary treatment works including:
- New vehicular access to / from Basement 1 from Atkinson Drive and new vehicular access to / from Basement 2 from Thornberry Road.
 - Provision of c. 9,799 sq. m public open space, including a public plaza onto Village Road and improvement works to existing open space area to the north of existing Griannan Fidh residential development.
 - Provision of 350no. car parking spaces including basement parking, set down spaces for proposed childcare facility and repositioning of set down area on Atkinson Drive.
 - Provision of 669no. bicycle parking spaces.
 - Provision of 14no. motorcycle parking spaces.
 - Communal bin storage and plant provided at basement level and additional plant provided at roof level.
 - Provision of below ground wastewater storage tank (c. 500m³) and associated connection to the wastewater networks including ancillary above ground kiosk and appropriate landscaping on open space lands to the south of Griannan Fidh residential development.

Construction and Demolition

- 25 The construction works will involve the removal of all existing habitats within the proposed development site. There is no blasting, piling or demolition involved in the construction of the proposed development.
- 26 Construction programme is expected to last up to five years.

Drainage Proposal

- 27 The existing drainage strategy of site consists of an existing 525mm diameter storm water sewer which runs in a southerly direction before connecting to an existing 1113m³ underground concrete attenuation tank located in the south west portion of the subject site. This existing outfall sewer discharges to the Ballyogan Stream / Barnacullia stream via a headwall. It is proposed under this planning application to divert the 525mm sewer traversing the site to accommodate the proposed new development.
- 28 The surface water runoff generated from the proposed development will discharge from site through an existing storm water drainage network and through an existing flow control device (limiting the site runoff to greenfield rates) using an existing connection to the Local Authority storm water drainage network along Village Road. Sustainable Urban Drainage Systems (SuDS) is incorporated to reduce run-off volumes and improve run-off water quality as part of standard design in line with best practice, adherence to Greater Dublin Strategic Drainage Study (GSDSDS) and *Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas; Water Sensitive Urban Design Best Practice Interim Guidance Document*, published in March 2022 (Department of Housing, Local Government & Heritage).
- 29 Surface water attenuation incorporating interception storage in the proposed extensive green roof (on top of blue roof storage system) and attenuation storage in both existing and proposed underground storage tanks is planned for this development. In addition, a vortex type silt trap/debris separator and the proprietary petrol interceptor are proposed to remove any silts, debris and possible hydrocarbons before the storm water runoff leaves the site and enters Local Authority drainage. All private storm drainage will be connected through individual connections to storm water pipes located in the public space.
- 30 The foul sewer works will include new foul sewer network and the relocation of the existing foul sewer serving the existing occupied development to the north. The existing foul sewer is traversing the site in the location of proposed apartment blocks F, G, H and J. It is proposed to relocate the existing foul sewer to the perimeter of the site. An underground overflow storage tank with a volume of 500m³ has been proposed to reduce the foul discharge during extreme storm events therefore reducing the flood risk following previous consultations with Irish Water. This will be located at the southern proposed development site.
- 31 The proposed foul sewer network was designed in “Flow” hydraulic modelling package to the capacity and effluent velocity requirements set out in the latest Irish Water Code of Practice for Wastewater Infrastructure.
- 32 The peak wastewater discharge is calculated at 14.092 l/s for hydraulic load (Kavanagh Burke, 2022) and the maximum organic load is 367 kg DBO/day (Kavanagh Burke, 2022) which is equal to 6.12 PE (1 PE is defined as 60 Kg DBO/ day). The sewage discharge will be licensed by Irish Water, collected in the public sewer and treated ultimately Irish Water’s Shanganagh-Bray WWTP prior to discharge to Killiney Bay

Figure 1 Proposed Development Location

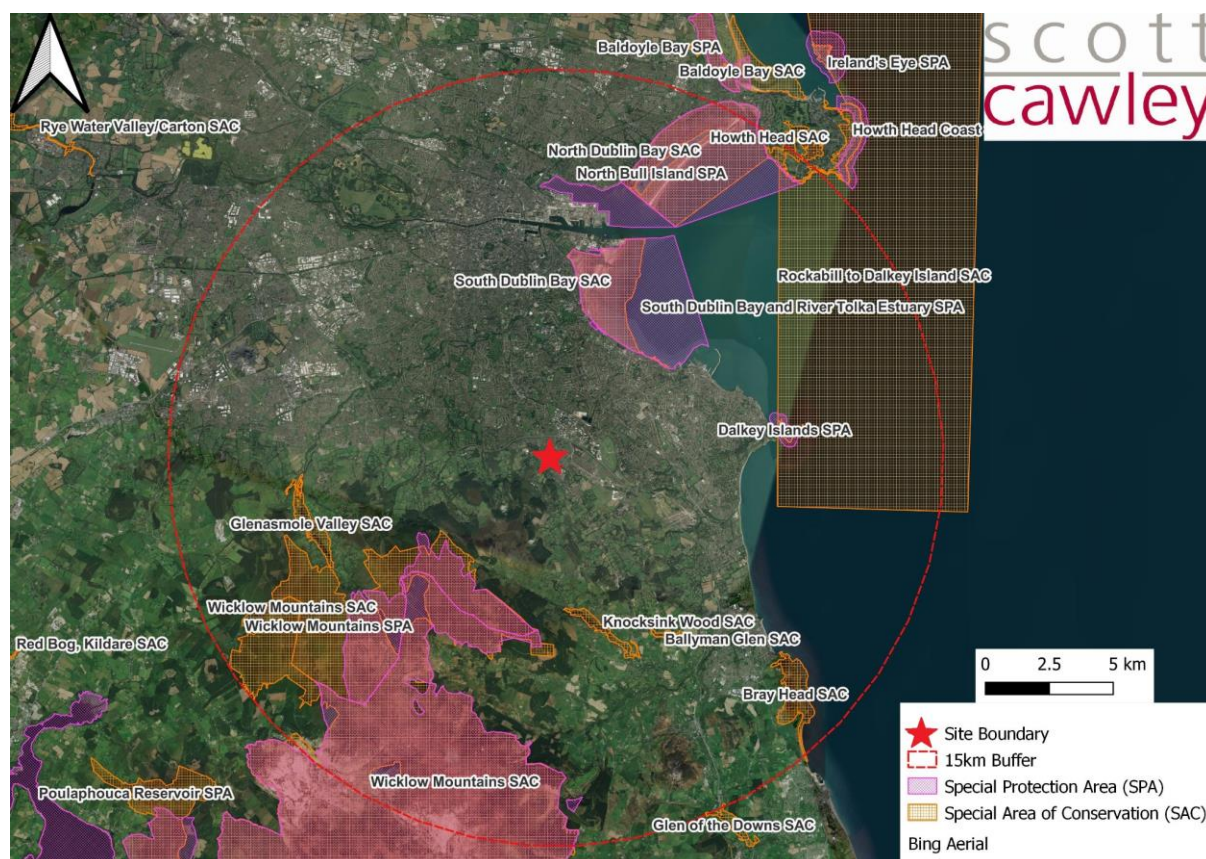


3.2 Overview of the Receiving Environment

3.2.1 European sites

- 33 The proposed development site is not located within or immediately adjacent to any European site. The nearest European site to the proposed development site is the Wicklow Mountains SAC, located c. 5.1km to the south-west.
- 34 The main proposed development site is located c. 160m north of the Barnacullia Stream which ultimately drains to Killiney Bay c. 8km downstream of the proposed development site. The southern proposed development site is located c. 15m of the Barnacullia Stream (also known as the Ballyogan stream). Once built, foul water from the proposed development will be discharged to Shanganagh WWTP for treatment prior to discharge into Killiney Bay. Surface water runoff will be discharged to the Barnacullia Stream which ultimately discharges to Killiney Bay. As such there is a potential hydrological connection between the proposed development and Killiney Bay and European sites therein or in proximity by virtue of the WWTP discharge and the surface water runoff. There is no connection between the proposed development and any other European Sites.
- 35 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

- 36 No records of plant species protected through their inclusion within the Flora (Protection) Order, 2022 were recorded during the field surveys. Furthermore, 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 lands.
- 37 The following non-native species, which are not strictly subject to restrictions in Irish Law, but which are considered to be invasive in some habitats and locations, were also identified within the lands:
- Sycamore *Acer pseudoplatanus*
 - Cherry laurel *Prunus Laurocerasus*
 - Butterfly bush *Buddleja davidii*
- 38 The following habitat types of the Heritage Council classification system (Fossitt, 2000) were identified within the subject lands and are mapped in **Error! Reference source not found.**
- Amenity grassland (GA2)
 - Buildings and artificial surfaces (BL3)
 - Treelines (WL2)
 - Dry meadows and grassy verges (GS2)
 - Soil and bare ground (ED2)
 - Recolonising bare ground (ED3)
 - Earth banks (BL2)

- 39 None of the habitats recorded correspond to Annex I habitats of the EU Habitats Directive, and described within the Interpretation Manual of European Union Habitats (European Commission, 2013).

3.2.3 Flora and Fauna Species

- 40 The desktop study did not find records for any Annex II flora within c. 2km of the proposed development. Field surveys undertaken at the proposed development site did not record any Annex II flora.

Otter

- 41 The desktop study found records for one Annex II species, otter *Lutra lutra*, for which European sites in the vicinity of the proposed development are designated.
- 42 The most recent and closest record for otter (dated 2019) is from c. 800m north of the proposed development site, on the Barnacullia Stream. Otters are also known to use the Carrickmines Stream for foraging and commuting purposes (Macklin, R. & Brazier, B., 2019). No evidence of otter was recorded within the proposed development site during field surveys undertaken in 2022.
- 43 The closest European site for which otter is a QI is the Wicklow Mountains SAC, c. 4.9km south-west of the proposed development site. The Barnacullia stream and the Carrickmines Stream, are located in a separate sub-catchment to any European site designated for otter. The Barnacullia Stream is known to support otter. While otter territories can range up to 20km, there is no direct hydrological connectivity of habitat between the proposed development site and the Wicklow Mountains SAC. Therefore, any otters which may use the downstream river water bodies are not associated with an SAC population. The ecological impact on the local otter population is comprehensively addressed in the Ecological Impact Assessment Report which accompanies the application for the proposed development.

Wintering birds

- 44 The desktop study found records for SCI wintering bird species (of European sites within the vicinity of the development) within c. 2km of the proposed development. A full list of SCI species from the desktop study is represented in Appendix III.
- 45 No dedicated wintering bird surveys were undertaken within the proposed development site, as the lands are considered to be of very low suitability as potential foraging or resting habitat for wintering bird species (see discussion below). Therefore, this is not considered to have posed any significant limitations on the ecological assessment of the subject lands with regard to bird species. Herring gull were recorded flying over the site during the breeding bird surveys however did not land.
- 46 The proposed development is within the normal foraging range of SCI species of European sites. However, although the proposed development site contains amenity grassland, the area of this habitat is very small, and it is relatively cluttered with scattered trees and treelines on its perimeter. Wintering bird species tend to select open sites where potential predators can easily be spotted. The geography of the proposed development site is such that it is unsuitable for foraging wintering bird species. No other SCI species of any European sites were recorded in the vicinity of the proposed development site during field surveys.
- 47 The special conservation interest species Light-bellied brent geese *Branta bernicla hrota* are known to use amenity grassland sites across the Dublin area as inland feeding sites. The closest of which, Sandymount / Naomh Olaf GAA Pitches is located c.1.7km north of the proposed development is a prominent terrestrial feeding site for light-bellied Brent geese, which utilise the grassland pitches for supplementary foraging. No signs of Brent geese (including sightings of birds, presence of feathers, droppings, or grazing signs) were noted within the proposed development site in 2022. The lands are considered to be of very low suitability for wintering birds. The area of amenity grassland within the proposed development site is considered not suitable for this SCI species due to:
- Its very limited extent (*i.e.* c. 0.5ha in total area); and,
 - The enclosed nature of this small area of amenity grassland, which is surrounded by mature trees (mostly contained within the habitat type scattered trees and parkland) – *i.e.* brent geese generally prefer larger, more open expanses of amenity grassland as feeding sites.

Raptors

- 48 The desktop study found records for two SCI raptor species, namely hen harrier *Circus cyaneus* and peregrine falcon *Falco peregrinus*, within c. 2km of the proposed development.
- 49 There is suitable foraging habitat for both of these species within the proposed development site. The nearest SPA designated for hen harrier is the Slieve Bloom Mountains SPA, located c. 80km west of the proposed development. The nearest SPA designated for peregrine falcon is the Wicklow Mountains SPA, located c. 4.9km south of the proposed development. There is no suitable habitat within the lands for foraging hen harrier or peregrine falcon, and furthermore, neither of these species frequent low rise urban areas and are typically found occurring in remote upland habitats, well removed from the site and its vicinity.

Non-native invasive species

- 50 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:
- American Skunk-cabbage *Lysichiton americanus*;
 - Giant hogweed *Heracleum mantegazzianum*;
 - Japanese knotweed *Reynoutria japonica*;
 - Rhododendron *Rhododendron ponticum*;
 - Three-cornered leek *Allium triquetrum*;
 - Water fern *Azolla filiculoides*;
 - Fallow deer *Dama dama*;
 - Sika Deer *Cervus nippon*; and,
 - Eastern grey squirrel *Sciurus carolinensis*.
- 51 All 9 of the species above are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011. (as amended) None of these species were recorded during field surveys.

3.2.4 Hydrology

- 52 The main proposed development site is located c. 160m north of the Barnacullia stream (IE_EA_10C040350), while the proposed new underground water storage tank is located c. 15m north-east of this stream, which is located in the Ovoca-Vartry catchment and Carrickmines Stream_010 river sub-basin. The Barnacullia stream flows east/south east for c. 3km until it reaches the Carrickmines stream. From there the Carrickmines stream flows in a south-easterly direction for c. 3.5km until it reaches the Shanganagh River. The Shanganagh River flows a further c. 2km where it discharges to the Southwestern Irish Sea-Killiney Bay Coastal Waterbody (HA10) at Shanganagh. The Rockabill to Dalkey Island SAC and the Dalkey Island SPA are connected with the Southwestern Irish Sea-Killiney Bay Coastal Waterbody.
- 53 The Barnacullia, Carrickmines, and Shanganagh river waters bodies have a 'Moderate' WFD status for 2013-2018 and are considered to be 'At Risk' of not meeting their WFD objectives. The Irish Sea-Killiney Bay Coastal Waterbody (HA10) is at 'High' status for the 2013-2018 monitoring period and is considered 'Not At Risk' of meeting its WFD objectives.

3.2.5 Hydrogeology

- 54 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 and under "review" of not achieving good status under the Water Framework

Directive. Geological Survey of Ireland (GSI) data indicates that the bedrock is granite with muscovite phenocrysts, and the quaternary sediments are identified as “till derived from limestone”.

3.3 Assessment of Effects on European Sites

3.3.1 Habitat loss and fragmentation

- 55 The proposed development does not overlap with the boundary of any European site. Therefore, there are no European sites at risk of direct habitat loss impacts.
- 56 As the proposed development does not traverse any European sites there is no potential for habitat fragmentation to occur.
- 57 There were no signs of otter present within the site. The proposed development site will be hydrologically connected to the Barnacullia Stream which is known to support otter. The closest European site for which otter is a QI is the Wicklow Mountains SAC, c. 4.9km south-west of the proposed development site however is not hydrologically to the Barnacullia Stream. While otter territories can range up to 20km, there is no direct hydrological connectivity of habitat between the proposed development site and the Wicklow Mountains SAC. Therefore, any otters which may use the downstream river water bodies are not associated with an SAC population.
- 58 The SCI species recorded within the proposed development site are not considered to be linked with the SCI populations of any European site. Herring gull were observed flying over the proposed development during breeding bird surveys. However none were observed using the area. The proposed development is within the normal foraging range of SCI species from European sites however, it comprises of limited areas of suitable foraging habitat (e.g. amenity grassland (GA2 habitat)) due to grasslands being small and enclosed by hedgerows and/or treelines, and due to the absence of suitable wetlands used by wintering SCI species.
- 59 As the proposed development will not result in habitat loss or habitat fragmentation within any European site, 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

- 60 Surface water run-off and discharges from the proposed development will drain to the existing local surface water drainage network. Foul waters from the proposed development will be discharged to Shanganagh-Bray Waste Water Treatment Plant (WWTP) for treatment, via the existing foul water drainage network, prior to discharge into the Southwestern Irish Sea - Killiney Bay WFD coastal waterbody. Therefore, the Zone of Influence (Zoi) of potential effects on water quality from the proposed development could extend to Killiney Bay.

Surface Water

- 61 Surface water run-off and discharges from the proposed development will enter the downstream receiving environment via the existing surface water drainage network. The surface drainage network will be designed in accordance with the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and attenuation measures include underground attenuation systems, green roof areas, silt traps / petrol interceptors, and permeable paving.
- 62 A Flood Risk Assessment, prepared by JBA Consulting Engineers sets out that the proposed development and the area where the overflow storage tank is proposed are fully within Flood Zone C. This indicates a low risk of fluvial, pluvial, groundwater and coastal flooding (less than 0.1% AEP or 1 in 1000 chance of flooding in a given year). There was previously a risk of flooding identified from the foul water system due to the insufficient capacity of the network which will be avoided through the construction of the proposed underground overflow storage tank.
- 63 A hydrological and hydrogeological qualitative risk assessment report was prepared for the proposed development by Awn Consulting (AWN, 2022) which is appended to this report, see Appendix IV. The assessment was carried out using a conceptual site model (CSM) which was based on an understanding of

the hydrological and hydrogeological environment, plausible sources of impact and knowledge of receptor requirements. This allows possible source-pathway-receptor linkages to be identified. The main proposed development site is located c. 160m north of the Barnacullia stream (IE_EA_10C040350), while the proposed new underground water storage tank is located c. 15m north-east of this stream. Potential sources of impacts during construction and operation are considered in the CSM and all potential sources of contamination entering the Barnacullia stream are considered without taking account of any measures intended to avoid or reduce harmful effects of the proposed development (mitigation measures) i.e. a worst-case scenario. As such, the conclusions of this AA screening report, do not consider, or rely on, these mitigation measures when assessing the potential for habitat degradation as a result of hydrological impacts on European sites.

- 64 Results of the CSM carried out by AWN, which inform this AA screening report, indicate that surface runoff from the proposed development, during both construction and operational phases respectively, will not result in any perceptible impact on water quality in downstream receiving waters in Southwestern Irish Sea - Killiney Bay (and thus in the European sites therein) in the event of contaminated water entering the Barnacullia stream and travelling downstream. This is in light of expected hazard loading, dilution and attenuation within the existing sewer network, and the considerable distance between the proposed development site and Southwestern Irish Sea - Killiney Bay.
- 65 In line with good practice, measures such as Sustainable Urban Drainage Systems (SuDS), have been included in the construction design, management of construction programme and during the operational phase of the proposed development. However, it must be noted that these are included in the design, not for the purposes of avoiding or reducing any potential harmful effects to any European sites but are required for new developments under the objectives of the Greater Dublin Strategic Drainage Study, and *Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas; Water Sensitive Urban Design Best Practice Interim Guidance Document* and also the Dún Laoghaire-Rathdown County Development Plan. As stated, the CSM prepared by AWN was run without taking any of these design measures into account, i.e. the CSM was based on a worst-case scenario.
- 66 Considering the above, there is no possibility of the proposed development undermining the achievement of the conservation objectives of any of the Qualifying Interests or Special Conservation Interests of the European sites in, or associated with, Southwestern Irish Sea - Killiney Bay as a result of surface water runoff or discharges.

Foul Water

- 67 The foul sewer works will include new foul sewer network and the relocation of the existing foul sewer serving the existing occupied development to the north. The proposed foul sewer network was designed in "Flow" hydraulic modelling package to the capacity and effluent velocity requirements set out in the latest Irish Water Code of Practice for Wastewater Infrastructure. An underground overflow storage tank with a volume of 500m³ will be constructed as part of the proposed development to reduce the foul discharge during extreme storm events therefore reducing the flood risk. The peak wastewater discharge is calculated at 14.092 l/s (Kavanagh Burke, 2022) and the maximum daily organic load is calculated as 6.12 PE. The foul discharge from the site will join the public sewer and will be treated at the Irish Water Shanganagh-Bray WWTP prior to subsequent discharge to Southwestern Irish Sea. This WWTP is required to operate under an EPA licence and must meet environmental legislative requirements as set out in such licence.
- 68 This plant operates under an EPA licence (D0038-01). The most recent Annual Environmental Report (AER 2020¹⁶) shows it is currently operating for a current maximum hydraulic load of 85,360 m³/day (988 l/s), which is less than the peak hydraulic capacity as constructed (108,000 m³/day or 1,250 l/s). Similarly, the 2020 EAR highlights that the plant is currently operating under a peak load of 129,335 PE (peak week) which

¹⁶ Irish Water (2020) Annual Environmental Report 2020, Shanganah D0038-02

is less than the constructed for a maximum organic capacity of 186,000 PE the plant was designed for. Therefore there is adequate capacity to treat additional loads from the proposed development. Furthermore, the Southwestern Irish Sea - Killiney Bay (HA10) is currently classified as 'High' WFD status for the EPA 2013-2018 monitoring period.

- 69 Without the attenuation of the proposed underground foul tank, there is a potential direct pathway between the proposed development and the Barnacullia Stream in the event of this tank fails. Results of the CSM carried out by AWN, which inform this AA screening report, indicate that the contribution of the development to the potential discharged overflow from the tank is considered to be low (worst case of 14.092 l/s), considering that it would occur during heavy rainfall events, indicating significant attenuation and dilution within the river network before reaching the Irish Sea. It is concluded the development will have no measurable impact on the water quality at the waterbodies that host European sites
- 70 The CSM also considered in-combination effects and concluded that there would be no perceptible impact on water quality as a result of the proposed development in-combination with surface water arisings from other developments.
- 71 *In-Combination*
- 72 There is potential for "in-combination" effects on water quality in the Barnacullia Stream and other aquatic features downstream of the Barnacullia Stream from any other projects carried out within the functional areas of the Dún Laoghaire-Rathdown County Development Plan 2022-2028 (DLRCC, 2022)¹⁷, or any other land use plans which could influence conditions in the Barnacullia Stream and other aquatic features downstream of the Barnacullia Stream.
- 73 The Northern & Western Regional Assembly, Regional Spatial & Economic Strategy 2020-2032¹⁸ (Northern & Western Regional Assembly, 2020) includes a range of policy objectives relevant to the protection of European sites and the protection of water quality, to which the relevant planning authorities must have regard to in the preparation and adoption of their development plans (included in Appendix II).
- 74 The planning authority for the proposed development is Dún Laoghaire-Rathdown County Council. Plans and developments within Dún Laoghaire-Rathdown must comply with the policy objectives of the Dún Laoghaire-Rathdown County Development Plan 2022-2028 (DLRCC, 2022) relevant to the protection of European sites and the protection of water quality are included in Appendix II of this report.
- 75 There are no other local authority areas discharging into the Barnacullia Stream, Carrickmines Stream or the Shanganagh River. Plans and developments within other local authority areas which could influence conditions in the Southwestern Irish Sea - Killiney Bay (HA10), c. 7.9km downstream of the Proposed Development and other downstream aquatic features, also must comply with the policies and objectives relevant to the protection of European sites and water quality. This includes the Wicklow County Development Plan 2016-2022 (Wicklow County Council, 2022) and its proposed replacement, the Draft Wicklow County Development Plan 2022-2028 (Wicklow County Council, 2022). The relevant policies and objectives in those plans for the protection of European sites and water quality are included in Appendix II.
- 76 As noted under the surface water and foul water sections above, the proposed development will not result in any measurable effect on water quality to downstream water bodies. The CSM also considered in-combination effects on surface water quality during the construction and operational phases of the Proposed Development. The CSM concluded that the in-combination effects of surface water arising from the Proposed Development taken together with that of other permitted developments will not be significant based on the in-combination low potential chemical and sediment expected loading, and dilution effects during their pathway through the river network. The CSM has also considered the effect of

¹⁷ DLRCC (2022) *Dún Laoghaire-Rathdown Council Development Plan 2022-2028*

¹⁸ Northern & Western Regional Assembly (2020) *Regional Spatial & Economic Strategy 2020-2032*

cumulative events, such as release of sediment laden water combined with a hydrocarbon leak on site (1,000 litres as a worst case scenario during the construction phase) and concludes that there is adequate assimilation and dilution between the proposed development site and European sites within the Southwestern Irish Sea - Killiney Bay.

- 77 The sewage discharge will be treated ultimately Irish Water's Shanganagh-Bray WWTP prior to discharge to Killiney Bay. The peak foul discharge calculated for the proposed development is well within the capacity of the WWTP. The proposed development peak effluent discharge and maximum daily organic load (PE) will amount to 1.13%, and 0.003% of the licensed discharge at Shanganagh-Bray WWTP. The CSM concluded that the cumulative or in-combination effects of effluent arising from the Proposed Development with that of other permitted proposed developments, or with development planned pursuant to statutory plans in the greater Dublin, Meath and Kildare areas, which will be discharged into Shanganagh-Bray WWTP will not be significant having regard to the size of the calculated discharge from the Proposed Development and having regard to the following:
- The Shanganagh-Bray WWTP ensures compliance with Water Framework Directive requirements;
 - All new developments are required to comply with SuDS which ensures management of run-off rate within the catchment of Shanganagh-Bray WWTP; and,
 - The natural characteristics of Southwestern Irish Sea - Killiney Bay result in enriched water rapidly mixing and degrading such that the plume has no appreciable effect on water quality at European sites.
- 78 The control and operation of all public wastewater infrastructure falls within the remit of Irish Water and wastewater treatment is subject to compliance with the standards and licencing requirements for public wastewater treatment facilities set out by the EPA, as the competent authority with the responsibility for undertaking AA of those licence applications and permissions.
- 79 Furthermore, the operation of all wastewater treatment infrastructure will be subject to compliance with the protective environmental policies and objectives set out in the overarching land use plans, including wastewater infrastructure policy and objectives, to ensure that neither existing or future development will not adversely affect the integrity of any European sites.
- 80 There are also protective policies and objectives in place at a strategic planning level to protect water quality in the Barnacullia Stream and other rivers that are hydrologically connected to European sites.
- 81 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, the Barnacullia Stream, or any waterbodies located downstream of the Barnacullia Stream can be excluded.

3.3.3 *Habitat degradation as a result of hydrogeological impacts*

- 82 The proposed development lies within the Wicklow Groundwater body (Wicklow IE_EA_G_076) which is currently classified as 'Good' status for the 2013-2018 EPA WFD period. There are two European sites within 15km of the proposed development that are designated for groundwater dependant habitats; Knocksink Wood SAC and Ballyman Glen SAC.
- 83 Ballyman Glen SAC is located within a different GWB to the proposed development, namely, Enniskerry Gravels GWB. Knocksink Wood SAC is partially located in the same GWB as the proposed development; the Wicklow GWB. The proposed development does not entail any significant de-watering, or operational activities which would result in an alteration to groundwater levels.
- 84 Results of the CSM carried out by AWN (see Appendix IV), which inform this AA screening report, conclude that the potential for impact on the aquifer is low based on the absence of any bulk chemical storage on site. The overburden thickness, low permeability nature of till and a lack of fracture connectivity within the granite bedrock aquifer will minimise the rate of off-site migration for any indirect discharges to ground at the site. As such there is no potential for a change in the groundwater body status or significant source pathway linkage through the aquifer to any European site.

- 85 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the qualifying interests or special conservation interests of any European sites, either alone or in combination with any other plans or projects, as a result of hydrogeological effects.

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

- 86 No Third Schedule non-native invasive species were recorded within the proposed development site, and therefore there is no risk of their accidental spread or introduction to habitats within European sites.

3.3.5 Disturbance and displacement impacts

- 87 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 150m¹⁹. 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 There are no European sites within the disturbance Zol. There are also no habitat areas within the disturbance Zol of the proposed development that support populations of qualifying/special conservation interest species of any European site.²¹

Otter

- 88 The Barnacullia Stream is known to support otter, an Annex II mammal species. The nearest SAC to the proposed development site for which otter has been designated is Wicklow Mountains SAC which is located c. 4.9km to the south. While otter territories can range up to 20km, there is no direct hydrological connectivity of habitat between the proposed development site and the Wicklow Mountains SAC. Therefore, any otters which may use the downstream river water bodies are not associated with an SAC population.
- 89 As the proposed development will not result in the disturbance/displacement of the Qualifying/Special Conservation Interest species of any European site, there is no potential for any in combination effects to occur in that regard.

SCI Bird Species

- 90 SCI species, herring gull were recorded flying over the proposed development site during breeding bird surveys. The nearest SPA to the proposed development site designated for wintering special conservation interest species is the South Dublin Bay and River Tolka Estuary SPA, located c. 5.1km north-east of the proposed development. The proposed development is within the normal foraging range of SCI species of this European site; however it has no suitable habitat (i.e. open amenity grasslands) for wintering SCI species such as light-bellied Brent goose *Branta bernicla hrota*. The available grasslands within the

¹⁹ This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual Zol of construction related disturbance likely to be much less in reality.

²⁰ The disturbance zone of influence for waterbirds 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.

²¹ There is a need to consider use of habitat areas outside of an SPA by SCI bird species where they support the SCI populations and the site's conservation objectives. These habitat areas can comprise alternative roosting sites, foraging areas, staging grounds or migration routes and can, but not necessarily exclusively, be situated within the immediate hinterland of the SPA, or in areas ecologically connected to it.

proposed development site are considered small in size, and too enclosed by other habitats (treelines, ornamental planting and buildings) for foraging and/or roosting wintering SCI species. Light-bellied Brent geese and wintering waders regularly use Dublin’s amenity parks and sports grounds for foraging (Benson, 2009; Scott Cawley, 2017; Enviroguide, 2019). The nearest known light-bellied Brent goose site is Sandyford / Naomh Olaf GAA Pitches is located c.1.7km north (Scott Cawley Ltd., 2017²²). No light-bellied Brent geese were recorded within the proposed development site during any of the field surveys. Given that there is no suitable foraging habitat, i.e. open amenity grassland within the site boundary, the proposed development site is unsuitable for light-bellied Brent goose, and/or other SCI wintering bird species that use similar habitat for foraging within County Dublin.

- 91 As the proposed development will not result in the disturbance/displacement of the qualifying/special conservation interest species of any European site, there is no potential for any in combination effects to occur in that regard.

3.3.6 Summary

- 92 The potential impacts associated with the proposed development do not have the potential to affect the receiving environment and, consequently, do not have the potential to affect the conservation objectives supporting the qualifying interest/special conservation interests of any European sites. Therefore, the proposed development is not likely to have significant effects on any European sites.
- 93 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 provided in Appendix II, 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.
- 94 The potential impacts of the proposed development on the receiving environment, their Zol, and the European sites at risk of significant effects are summarised in Table 1 below. In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

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

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
Habitat loss Habitat loss will be confined to the lands within the proposed development boundary.	No There are no European sites within the proposed development boundary
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
Habitat degradation as a result of hydrogeological impacts	No

²² Scott Cawley (2017). *Natura Impact Statement- Information for Stage 2 Appropriate Assessment. Proposed Residential Development, St. Paul’s College, Sybil Hill Road, Raheny, Dublin 5.*

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
Groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the proposed development site.	There are no European sites at risk of hydrogeological effects associated with the proposed development
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 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 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 qualifying interest species to disturbance effects	No There are no European sites within the potential zone of influence of disturbance effects associated with the construction or operation of the proposed development

4 Conclusions of Screening Assessment Process

- 95 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.
- 96 Therefore, it is the professional opinion of the authors of this report that the proposed development does not require an Appropriate Assessment and therefore the preparation of a Natura Impact Statement (NIS) is not required.

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)	
<p>Wicklow Mountains SAC [002122]</p> <p>3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p> <p>3160 Natural dystrophic lakes and ponds</p> <p>4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>4030 European dry heaths</p> <p>4060 Alpine and Boreal heaths</p> <p>6130 <i>Calaminarian</i> grasslands of the <i>Violetalia calaminariae</i></p> <p>6230 Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)</p> <p>7130 Blanket bogs (* if active bog)</p> <p>8110 Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)</p> <p>8210 Calcareous rocky slopes with chasmophytic vegetation</p> <p>8220 Siliceous rocky slopes with chasmophytic vegetation</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>1355 <i>Lutra lutra</i> (Otter)</p> <p>NPWS (2017) <i>Conservation Objectives: Wicklow Mountains SAC 002122</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>c. 4.9km from the proposed development</p>
<p>South Dublin Bay SAC [000210]</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p> <p>2110 Embryonic shifting dunes</p> <p><i>S.I. No. 525/2019 - European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019</i></p> <p>NPWS (2013) <i>Conservation Objectives: South Dublin Bay SAC 000210</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 5km from the proposed development</p>
<p>Knocksink Wood SAC [000725]</p> <p>7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)*</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)*</p> <p><i>S.I. No. 93/2019 - European Union Habitats (Knocksink Wood Special Area Of Conservation 000725) Regulations 2019</i></p>	<p>c. 6km from the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>NPWS (2021) <i>Conservation Objectives: Knocksink Wood SAC 000725. Version 1.</i> National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	
<p>Ballyman Glen SAC [000713] 7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)* 7230 Alkaline fens</p> <p><i>S.I. No. 92/2019 - European Union Habitats (Ballyman Glen Special Area Of Conservation 000713) Regulations 2019</i></p> <p>NPWS (2019) <i>Conservation Objectives: Ballyman Glen SAC 000713. Version 1.</i> National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	<p>c. 7.3km from the proposed development</p>
<p>Glenasmole Valley SAC [001209] 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) 6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) 7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)*</p> <p><i>S.I. No. 345/2021 - European Union Habitats (Glenasmole Valley Special Area of Conservation 001209) Regulations 2021</i></p> <p>NPWS (2021) <i>Conservation Objectives: Glenasmole Valley SAC 001209. Version 1.</i> National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	<p>c. 9.3km from the proposed development</p>
<p>Rockabill to Dalkey Island SAC [003000] 1170 Reefs 1351 Harbour porpoise <i>Phocoena phocaena</i></p> <p><i>S.I. No. 94/2019 - European Union Habitats (Rockabill To Dalkey Island Special Area Of Conservation 003000) Regulations 2019</i></p> <p>NPWS (2013) <i>Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 9.9km downstream of the proposed development</p>
<p>North Dublin Bay SAC [000206] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 1395 Petalwort <i>Petalophyllum ralfsii</i> 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes) 2190 Humid dune slacks</p>	<p>c. 10.1km from the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p><i>S.I. No. 524/2019 - European Union Habitats (North Dublin Bay Special Area of Conservation 000206) Regulations 2019</i></p> <p>NPWS (2013) <i>Conservation Objectives: North Dublin Bay SAC 000206</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>Howth Head SAC [000202]</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>4030 European dry heaths</p> <p><i>S.I. No. 524/2021 - European Union Habitats (Howth Head Special Area of Conservation 000202) Regulations 2021</i></p> <p>NPWS (2016) <i>Conservation Objectives: Howth Head SAC 000202</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>c. 14.1km from the proposed development</p>
Special Protection Area (SPA)	
<p>South Dublin Bay and River Tolka Estuary SPA [004024]</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A999 Wetland and Waterbirds</p> <p><i>S.I. No. 212/2010 - European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.</i></p> <p>NPWS (2015) <i>Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 5.1km from the proposed development</p>
<p>Wicklow Mountains SPA [004040]</p> <p>A098 Merlin <i>Falco columbarius</i></p> <p>A103 Peregrine <i>Falco peregrinus</i></p> <p><i>S.I. No. 586/2012 - European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012.</i></p> <p>NPWS (2022) <i>Conservation objectives for Wicklow Mountains SPA [004040]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>c. 5.3km from the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>North Bull Island SPA [004006]</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A052 Teal <i>Anas crecca</i> A054 Pintail <i>Anas acuta</i> A056 Shoveler <i>Anas clypeata</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A169 Turnstone <i>Arenaria interpres</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A999 Wetlands & Waterbirds</p> <p><i>S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.</i> NPWS (2015) <i>Conservation Objectives: North Bull Island SPA 004006</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>c. 9.1km from the proposed development</p>
<p>Dalkey Islands SPA [004172]</p> <p>A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i></p> <p><i>S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010.</i> NPWS (2022) <i>Conservation objectives for Dalkey Islands SPA [004172]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>c. 11.2km downstream of the proposed development</p>

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.²³

Regional Policy Objective 10.12

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

Regional Policy Objective 10.15

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

Regional Policy Objective 10.16

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

Regional Policy Objective 10.18

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

Dublin City Development Plan 2016-2022

S12:

To support and facilitate Irish Water to ensure the upgrading of wastewater infrastructure, in particular the upgrading of the Ringsend Wastewater Treatment Plant, and to support the development of the Greater Dublin Regional Wastewater Treatment Plant, the North Docklands Sewage Scheme, the Marine Outfall and orbital sewer to be located in the northern part of the Greater Dublin Area to serve the Dublin region as part of the Greater Dublin Strategic Drainage Strategy.

S13:

To ensure that development is permitted in tandem with available water supply and wastewater treatment and to manage development, so that new schemes are permitted only where adequate capacity or resources exists or will become available within the life of a planning permission.

S17:

To promote the progressive reduction of pollution of groundwater and prevent its further pollution

S117:

To require an environmental assessment of all proposed flood protection or flood alleviation works

S118:

To require the use of Sustainable Urban Drainage Systems in all new developments, where appropriate, as set out in the Greater Dublin Regional Code of Practice for Drainage Works. The following measures will apply:

- The infiltration into the ground through the development of porous pavement such as permeable paving, swales, and detention basins

²³ The Greater Dublin Drainage Project, the Ringsend Wastewater Treatment Plant Project, the Athlone Main Drainage Project and the Upper Liffey Valley Sewerage Scheme

- The holding of water in storage areas through the construction of green roofs, rainwater harvesting, detention basins, ponds, and wetlands
- The slow-down of the movement of water.

GI2:

That any plan/project, either individually or in combination with other plans or projects that has the potential to give rise to significant effect on the integrity of any European site(s), shall be subject to an appropriate assessment in accordance with Article 6(3) and 6(4) of the EU Habitats Directives

GI23:

To protect flora, fauna and habitats, which have been identified by Articles 10 and 12 of Habitats Directive, Birds Directive, Wildlife Acts 1976–2012, the Flora (Protection) Order 2015 S.I No. 356 of 2015, European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

GI23:

To protect flora, fauna and habitats, which have been identified by Articles 10 and 12 of Habitats Directive, Birds Directive, Wildlife Acts 1976–2012, the Flora (Protection) Order 2015 S.I No. 356 of 2015, European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

GI26:

To have regard to the conservation and enhancement of significant non-designated areas of ecological importance in accordance with development standards set out in this plan

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 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.

Fingal Development Plan 2017-2023

Objective NH10

Ensure that the Council takes full account of the requirements of the Habitats and Birds Directives, as they apply both within and without European Sites in the performance of its functions.

Objective NH11

Ensure that the Council, in the performance of its functions, takes full account of the objectives and management practices proposed in any management or related plans for European Sites in and adjacent to Fingal published by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Objective NH15

Strictly protect areas designated or proposed to be designated as Natura 2000 sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); also known as European sites) including any areas that may be proposed for designation or designated during the period of this Plan.

Objective SW04

Require the use of sustainable drainage systems (SuDS) to minimise and limit the extent of hard surfacing and paving and require the use of sustainable drainage techniques where appropriate, for new development or for extensions to existing developments, in order to reduce the potential impact of existing and predicted flooding risks.

Objective WQ01

Strive to achieve 'good status' in all waterbodies in compliance with the Water Framework Directive, the Eastern River Basin District Management Plan 2009-2015 and the associated Programme of Measures (first cycle) and to cooperate with the development and implementation of the second cycle national River Basin Management Plan 2017-2021.

Objective WQ04

Protect existing riverine wetland and coastal habitats and where possible create new habitats to maintain naturally functioning ecosystems whilst ensuring they do not impact negatively on the conservation objectives of any European Sites.

Objective WT01

Liaise with and work in conjunction with Irish Water during the lifetime of the plan for the provision, extension and upgrading of waste water collection and treatment systems in all towns and villages of the County to serve existing populations and facilitate sustainable development of the County, in accordance with the requirements of the Settlement Strategy and associated Core Strategy.

Objective WT02

Liaise with Irish Water to ensure the provision of wastewater treatment systems in order to ensure compliance with existing licences, EU Water Framework Directive, River Basin Management Plans, the Urban Waste Water Directive and the EU Habitats Directive.

South Dublin County Development Plan 2022-2028

Policy NCBH3 Natura 2000 Sites

Conserve and protect Natura 2000 sites and achieve and maintain favourable conservation status for habitats and species that are considered to be at risk through the protection of the Natura 2000 network from any plans or projects that are likely to have a significant effect on their coherence or integrity

NCBH3 Objective 1

To prevent development and activities that would adversely affect the integrity of any Natura 2000 site located within or adjacent to the County and promote the favourable conservation status of the habitats and species integral to these sites.

NCBH3 Objective 2

To ensure that plans, including land use plans, will only be adopted, if they either individually or in combination with existing and / or proposed plans or projects, will not have a significant adverse effect on a European Site, or where such a plan is likely or might have such a significant adverse effect (either alone or in combination), South Dublin County Council will, as required by law, carry out an appropriate assessment as per requirements of Article 6(3) of the Habitats Directive 92 / 43 / EEC of the 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as transposed into Irish legislation. Only after having ascertained that the plan will not adversely affect the integrity of any European site, will South Dublin County Council adopt the plan, incorporating any necessary mitigation measures. A plan which could adversely affect the integrity of a European site may only be adopted in exceptional circumstances, as provided for in Article 6(4) of the Habitats Directive as transposed into Irish legislation.

NCBH3 Objective 3

To ensure that planning permission will only be granted for a development proposal that, either individually or in combination with existing and / or proposed plans or projects, will not have a significant adverse effect on a European Site, or where such a development proposal is likely or might have such a significant adverse effect (either alone or in combination), the planning authority will, as required by law, carry out an appropriate assessment as per requirements of Article 6(3) of the Habitats Directive 92 / 43 / EEC of the 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as transposed into Irish legislation. Only after having ascertained that the development proposal will not adversely affect the integrity of any European site, will the planning authority agree to the development and impose appropriate mitigation measures in the form of planning conditions. A development proposal which could adversely affect the integrity of a European site may only be permitted in exceptional circumstances, as provided for in Article 6(4) of the Habitats Directive as transposed into Irish legislation.

G11 Objective 3

To facilitate the development and enhancement of sensitive access to and connectivity between areas of interest for residents, wildlife and biodiversity, and other distinctive landscapes as focal features for linkages

between natural, semi natural and formalised green spaces where feasible and ensuring that there is no adverse impact (directly, indirectly or cumulatively) on the conservation objectives of Natura 2000 sites and protected habitats outside of Natura 2000 sites

IE2 Objective 1

To work in conjunction with Irish Water to protect existing water and drainage infrastructure and to promote the ongoing upgrade and expansion of water supply and wastewater services to meet the future needs of the County and the Region.

Policy IE3 Surface Water and Groundwater

Manage surface water and protect and enhance ground and surface water quality to meet the requirements of the EU Water Framework Directive.

IE3 Objective 1

To maintain, improve and enhance the environmental and ecological quality of our surface waters and groundwater by implementing the relevant programme of measures set out in the River Basin Management Plans.

IE3 Objective 2

To maintain and enhance existing surface water drainage systems in the County and to require Sustainable Drainage Systems (SuDS) in new development in accordance with objectives set out in section 4.2.2 of this Plan including, where feasible, integrated constructed wetlands, at a local, district and County level, to control surface water outfall and protect water quality.

Wicklow County Development Plan 2016-2022

NH2

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

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

NH3

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

- EU Directives, including the Habitats Directive (92/43/EEC, as amended)⁷, the Birds Directive (2009/147/EC)⁸, the Environmental Liability Directive (2004/35/EC)⁹, the Environmental Impact Assessment Directive (85/337/EEC, as amended), the Water Framework Directive (2000/60/EC) and the Strategic Environmental Assessment Directive (2001/42/EC).
- National legislation, including the Wildlife Act 1976¹⁰, the European Communities (Environmental Impact Assessment) Regulations 1989 (SI No. 349 of 1989) (as amended), the Wildlife (Amendment) Act 2000, the European Union (Water Policy) Regulations 2003 (as amended), the Planning and Development Act 2000 (as amended), the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011) and the European Communities (Environmental Liability) Regulations 2008¹¹.
- National policy guidelines (including any clarifying Circulars or superseding versions of same), including the Landscape and Landscape Assessment Draft Guidelines 2000, the Environmental Impact Assessment Sub-Threshold Development Guidelines 2003, Strategic Environmental Assessment Guidelines 2004 and the Appropriate Assessment Guidance 2010.

- Catchment and water resource management Plans, including Eastern and South Eastern River Basin Management Plan 2009-2015 (including any superseding versions of same).
- Biodiversity Plans and guidelines, including Actions for Biodiversity 2011-2016: Ireland's 2nd National Biodiversity Plan (including any superseding version of same).
- Ireland's Environment 2014 (EPA, 2014, including any superseding versions of same), and to make provision where appropriate to address the report's goals and challenges.

NH4

All projects and plans arising from this plan¹² (including any associated improvement works or associated infrastructure) will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and a Stage 2 Appropriate Assessment where necessary, that:

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

NH5

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

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

WI2

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

WI12

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

WI6

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

WI7

Permission will be considered for private wastewater treatment plants for single rural houses where:

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

WI9

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

- Irish Water has confirmed the site is due to be connected to a future public system in the area or Irish Water have confirmed there are no plans for a public system in the area;
- it can clearly demonstrated that the proposed system can meet all EPA / Local Authority environmental criteria; and
- an annually renewed contract for the management and maintenance of the system is contracted with a reputable company / person, details of which shall be provided to the Local Authority.

Appendix III

Records of SCI species from the desktop study in the vicinity of the study area

Common Name/ Scientific Name	Legal Status ²⁴	Red List Status ²⁵	Source
Birds			
Black-headed Gull <i>Larus ridibundus</i>	WA	Amber	NBDC online database record
Brent Goose <i>Branta bernicla</i>	WA	Amber	NBDC online database record
Common Coot <i>Fulica atra</i>	WA	Amber	NBDC online database record
Common Greenshank <i>Tringa nebularia</i>	WA	Green	NBDC online database record
Common Kingfisher <i>Alcedo atthis</i>	WA, BD_I	Amber	NBDC online database record
Common Pochard (<i>Aythya ferina</i>	WA	Red	NBDC online database record
Common Redshank <i>Tringa totanus</i>	WA	Red	NBDC online database record
Corn Crake <i>Crex crex</i>	WA, BD_I	Red	NBDC online database record
Eurasian Curlew <i>Numenius arquata</i>	WA, BD_II (II)	Red	NBDC online database record
Eurasian Oystercatcher <i>Haematopus ostralegus</i>	WA	Red	NBDC online database record
Eurasian Teal <i>Anas crecca</i>	WA, BD_II (I) III (II)	Amber	NBDC online database record
European Golden Plover <i>Pluvialis apricaria</i>	WA, BD_I, II (II),	Red	NBDC online database record
Great Cormorant <i>Phalacrocorax carbo</i>	WA	Amber	NBDC online database record
Grey Heron <i>Ardea cinerea</i>	WA	Green	NBDC online database record
Hen Harrier <i>Circus cyaneus</i>	WA, BD_I	Amber	NBDC online database record
Herring Gull <i>Larus argentatus</i>	WA	Amber	NBDC online database record
Lesser black-backed gull <i>Larus fuscus</i>	WA	Amber	NBDC online database record
Little grebe <i>Tachybaptus ruficollis</i>	WA	Green	NBDC online database record
Mallard <i>Anas platyrhynchos</i>	WA, BD_II (I), III (I)	Amber	NBDC online database record
Merlin <i>Falco columbarius</i>	WA, BD_I	Amber	NBDC online database record
Mew gull <i>Larus canus</i>	WA	Amber	NBDC online database record
Northern lapwing <i>Vanellus vanellus</i>	WA, BD_II (II)	Red	NBDC online database record

²⁴ HD_II/IV/V = Habitats Directive Annexes II/IV/V; WA = Wildlife Acts; BD_I/II/III = Birds Directive Annex I/II/III; OSPAR = Convention for the protection of the marine environment of the North-east Atlantic 1992

²⁵ Birds from Gilbert, G., Stanbury, A. & Lewis, L. (2021) Birds of Conservation Concern in Ireland 4: 2020-2026. *Irish Birds* 43: 1-22.

Common Name/ Scientific Name	Legal Status ²⁴	Red List Status ²⁵	Source
Northern shoveler <i>Anas clypeata</i>	WA, BD_II (I), III (III)	Red	NBDC online database record
Peregrine falcon <i>Falco peregrinus</i>	WA, BD_I	Green	NBDC online database record
Tufted duck <i>Aythya fuligula</i>	WA, BD_II (I), III (II)	Amber	NBDC online database record

Appendix IV

Hydrological and Hydrogeological Qualitative Risk Assessment for a Proposed SHD Development on Proposed SHD Development Aikens Village (Woodside) And Kilgobbin, Stepside, Co. Dublin (AWN, 2022)

**HYDROLOGICAL &
HYDROGEOLOGICAL
QUALITATIVE RISK
ASSESSMENT**

for

**A PROPOSED SHD
DEVELOPMENT AIKENS
VILLAGE (WOODSIDE) AND
KILGOBBIN, STEPASIDE,
CO. DUBLIN**

Technical Report Prepared For

Ironborn Real Estate Limited

Technical Report Prepared By

Marcelo Allende BSc, BEng,
Senior Environmental Consultant
(Hydrologist)

Our Reference

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Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

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1.0 INTRODUCTION

1.1 Background

AWN have been requested by Ironborn Real Estate Ltd. to carry out a Hydrological and Hydrogeological Qualitative Risk Assessment for a strategic housing development at 2no. contiguous sites (c. 3.39 Ha), at 'Sector 3', Aikens Village in the Townlands of Woodside and Kilgobbin, Stepside, Co. Dublin.

The development will consist of:

- 438no. 'Build-to-Rent' apartment units (154no. 1 bedroom units and 284no. 2 bedroom units) arranged in 9no. blocks ranging in height from 2 – 8 storeys over 2no. independent single level basements. Private patios / terraces and balconies are provided for some apartment units (not all units have a patio, terrace or balcony). Upper level balconies are proposed on elevations of all multi-aspect apartment buildings.
- Blocks A – D are located above Basement 1 (c. 6,002 sq. m gross floor area) and Blocks F – J are above Basement 2 (c. 5,058 sq. m gross floor area).
- Provision 1no. childcare facility (c. 514.9 sq. m gross floor area) in Block D.
- Provision of resident amenity space / communal areas (c. 1,455.7 sq. m gross floor area) in Block C and Block G.

And all associated and ancillary site development, infrastructural, landscaping and boundary treatment works including:

- New vehicular access to / from Basement 1 from Atkinson Drive and new vehicular access to / from Basement 2 from Thornberry Road.
- Provision of c. 9,799 sq. m public open space, including a public plaza onto Village Road and improvement works to existing open space area to the north of existing Griannan Fidh residential development.
- Provision of 350no. car parking spaces including basement parking, set down spaces for proposed childcare facility and repositioning of set down area on Atkinson Drive.
- Provision of 669no. bicycle parking spaces.
- Provision of 14no. motorcycle parking spaces.
- Communal bin storage and plant provided at basement level and additional plant provided at roof level.
- Provision of below ground wastewater storage tank (c. 500m³) and associated connection to the wastewater networks including ancillary above ground kiosk and appropriate landscaping on open space lands to the south of Griannan Fidh residential development.

The potential impacts on the receiving water environment considered are:

- Connection to foul sewer and stormwater sewer during operation.
- Management of foul, surface water run-off and accidental oil leaks during construction. Management of overflow foul water tank during operation (no bulk oil storage during operation).

1.2 Hydrological Setting

The site for proposed residential development is located approximately 700m south of the M50 in Aiken's Village, Stepside, Dublin 18. The site is a brownfield site currently used as a storage yard. The site is generally bounded by Thornberry Road

to the north, by Atkinson Drive and the adjoining open space lands to the west, Sandyford Hall residential development adjacent Ferncarraig Avenue to the east and by Village Road and Griannan Fidh residential development to the south (Townland of Woodside). The site for proposed below ground wastewater storage tank is on open space lands generally bounded Griannan Fidh residential development to the north, Sandyford Hall residential development to the east and open space lands (including detention basin) to the south and west (Townland of Kilgobbin). The development site is gradually sloping from north west to south east, dropping from a level of c. 129 mOD to c. 121 mOD

The Ballyogan Stream (EPA Name: Barnaculla Stream) flows eastwards c. 170 m to the south of the subject site (Woodside). The proposed underground wastewater storage tank is located adjacent to the Ballyogan Stream on its north bank (refer to Figure 1.1 below). The Carrickmines Stream is located c. 350 m to the west of the site.



Figure 1.1 Site Location and Hydrological Environment

The Ballyogan joins the Carrickmines Stream c. 2.8 Km to the southeast of the site after crossing the M50 motorway. The Carrickmines Stream joins the Shanganagh River at Cherrywood which in turns outfalls into the Irish Sea (Southwestern Irish Sea – Killiney Bay coastal waterbody) c. 7.3 km from the subject site.

A review of the EPA (2022) on-line database indicates that the nearest designated land to the site is the Fitzsimon's Wood pNHA (Site Code: 001753) at c.630m to the north of the subject site. As this site is located upstream of the proposed development, there is no potential for a source pathway linkage.

The nearest Natura 2000 Sites with potential hydrological link are Rockabill to Dalkey Island Special Area of Conservation (SAC), Dalkey Islands Special Protection Area (SPA) sites which are c. 8.5 km to the east of the site offshore

within the Southwestern Irish Sea – Killiney Bay and the Bray Head SAC, located in Bray c. 11 km to the southeast of the site. There will be an indirect discharge to the Irish Sea waterbody from the Proposed Development site through the stormwater and foul water site drainage as described in Section 1.4 below.

1.3 Objective of Report

The scope of this desktop review is to assess the potential for any likely significant impacts on receiving waters and protected areas during construction or post development, in the absence of taking account of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. design or mitigation measures).

In particular, this review considers the likely impact of construction and operation impacts (construction run-off and domestic sewage) from the proposed development on water quality and overall water body status within the Irish Sea and Killiney Bay (where the relevant European Sites are located), including bathing water locations. The assessment relies on information regarding construction and design provided by Ironborn Real Estate Ltd. as follows:

- Drainage Design Report for Residential Development at Sector 3, Aiken's Village, Stepside, Dublin 18. Kavanagh Burke Consulting Engineers, August 2022.
- Flood Risk Assessment. Sector 3, Aiken's Village, Stepside, Dublin 18. JBA Consulting. August, 2022.
- Ground Investigation Report. Project Ironborn, Stepside, Dublin 18. IGSL. July, 2018 (included as Appendix F of Drainage Design Report).

This report was prepared by Marcelo Allende (BSc, BEng), and Teri Hayes (BSc MSc PGeol EurGeol). Marcelo is a Water Resources Engineer with over 15 years of experience in environmental consultancy and water resources studies. Marcelo is an Environmental Consultant with AWN Consulting, a member of the International Association of Hydrogeologists (Irish Group) and a member of Engineers Ireland (MIEI). Teri is a hydrogeologist with over 25 years of experience in water resource management and impact assessment. She has a Masters in Hydrogeology and is a former President of the Irish Group of the Association of Hydrogeologists (IAH) and has provided advisory services on water related environmental and planning issues to both public and private sector bodies. She is qualified as a competent person as recognised by the EPA in relation to contaminated land assessment (IGI Register of competent persons www.igi.ie). Her specialist area of expertise is water resource management eco-hydrogeology, hydrological assessment and environmental impact assessment.

1.4 Description of Current and Proposed Drainage

Current and Proposed Surface Water Drainage

There is an existing 525mm diameter storm water sewer which runs in a southerly direction through the eastern portion of the subject site before connecting to an existing 1,113m³ underground concrete attenuation tank located in the south west portion of the subject site. This existing outfall sewer continues through the park area (west of the Village Road) for approximately 215m before discharging to the Ballyogan Stream via a headwall. Refer to Drainage Design Report (Kavanagh Burke, 2022) for further details. It is proposed under this planning application to divert the 525mm sewer traversing the site to accommodate the proposed new development.

The surface water runoff generated from the proposed development will discharge from site through an existing storm water drainage network and through an existing flow control device (limiting the site runoff to a greenfield rate) using an existing connection to the Local Authority storm water drainage network along Village Road.

Surface water attenuation incorporating interception storage in the proposed extensive green roof (on top of blue roof storage system) and attenuation storage in both existing and proposed underground storage tanks is planned for this development. To allow for maintenance of the underground attenuation system, manholes are provided for access for removal of any possible debris in the event of such debris passing through the proposed trapped gullies.

In addition, as part of the design, vortex type silt trap/debris separator and the proprietary petrol interceptor are proposed to remove any silts, debris and possible hydrocarbons before the storm water runoff leaves the site and enters Local Authority drainage.

All private storm drainage will be connected through individual connections to storm water pipes located in the public space.

The design include Sustainable Urban Drainage Systems (SuDS) which will be incorporated to reduce run-off volumes and improve run-off water quality. The SuDS features comprise green roofs, permeable paving, petrol interceptors and an underground attenuation system. These features will be provided to cater for up to a 1-in-100 year rainfall event and 20% climate change. Refer to Drainage Design Report (Kavanagh Burke, 2022) for further details. It should be noted that these SuDS measures have not been taken into account in the subsequent analysis.

A Flood Risk Assessment, prepared by JBA Consulting Engineers sets out that the proposed development and the area where the overflow storage tank is proposed are fully within Flood Zone C. This indicates a low risk of fluvial, pluvial, groundwater and coastal flooding (less than 0.1% AEP or 1 in 1000 chance of flooding in a given year). There was previously a risk of flooding identified from the foul water system due to the insufficient capacity of the network which will be mitigated with the implementation of the proposed underground overflow storage tank.

Therefore, any flood events will not cause flooding of the Proposed Development, and the development will not affect the flood storage volume or increase flood risk elsewhere.

Current and Proposed Foul Water Drainage

The proposed foul sewer works will include new foul sewer network and the relocation of the existing foul sewer serving the existing occupied development to the north. The existing foul sewer is traversing the site in the location of proposed apartment blocks F, G, H and J. It is proposed to relocate the existing foul sewer to the perimeter of the site.

A letter of “Design Acceptance” and “Confirmation of Feasibility” have been received from Irish Water and can be seen in the Drainage Design Report (Kavanagh Burke, 2022).

Currently, there is a risk of flooding from the foul water system due to the current capacity of the local network. In order to reduce the risk of flooding from the foul water system, upgrades to the network are required. An underground overflow

storage tank with a volume of 500m³ has been proposed to reduce the foul discharge during extreme storm events therefore reducing the flood risk. The tank will provide additional capacity in the wastewater network facilitating this development and others in the area to avoid downstream flooding as a result of storm water inflow through urban development creep entering the foul system. The site of the storage tank is at low risk of flooding. Once planning permission is granted a connection application to Irish Water will be made who will then proceed to install the tank.

The underground concrete foul storage tank in the location indicated on Figure 1.1 above is proposed to provide overflow storage to reduce the volume contributing to the treatment plant caused by surface water entering the foul system during extreme storm events. Therefore, flooding from the foul water system can occur if the system capacity is exceeded.

Following consultations with Irish Water Engineers a Confirmation of Feasibility letter was received on 19-07-2022 which states that "a storage tank (c. 500m³) to mitigate the impact of storm water in the network is required. The storage tank will be required to cater for future development in the area arising from modelling carried out of the potential future zoned development lands within the collection catchment over a 10 – 15 year time horizon. These upgrade works are not currently on the Irish Water investment plan therefore, the applicant will be required to fund these upgrades".

It should be noted that the development site will not contribute to the potential stormwater overflow to be collected and stored by the foul tank since, as explained above, its surface water drainage is designed to cater for up to a 1-in-100 year rainfall event and 20% climate change.

The foul water from the proposed development eventually discharges to the Shanganagh-Bray Waste Water Treatment Plant (WWTP).

2.0 ASSESSMENT OF BASELINE WATER QUALITY, RIVER FLOW AND WATER BODY STATUS

A reliable Conceptual Site Model (CSM) requires an understanding of the existing hydrological and hydrogeological setting. This is described below for the proposed development site and surrounding hydrological and hydrogeological environs.

2.1 Hydrological Catchment Description

The proposed development site lies within the Avoca-Vartry Catchment 10 and Dargle-SC-010 WFD sub-catchment 10-5 (Carrickmines Stream 010 WFD River Sub Basin; EPA, 2022).

The Environmental Protection Agency (EPA, 2022) on-line mapping presents the available water quality status information for water bodies in Ireland. The Ballyogan Stream belongs to the 'Carrickmines Stream_010' WFD surface waterbody (WFD code IE_EA_10C040350) which has a 'Moderate' Status (EPA, 2022) and its WFD risk score is 'At risk of not achieving good status'. The most recent surface water quality data for the Carrickmines Stream (2020) indicate that it is 'Unpolluted'. The macroinvertebrate fauna indicated a welcome improvement to good ecological conditions in June 2020 the first time since monitoring commenced at this site in 2006, however excessive siltation of the substratum was observed (refer to www.catchments.ie).

The Southwestern Irish Sea - Killiney Bay WFD coastal waterbody (WFD code IE_EA_100_0000) has been classified by the WFD (2013-2018 period) as having 'High' status and 'Not at risk'. This means this WFD is 'Unpolluted', i.e. there have been no breaches of the EPA's threshold values for nutrient enrichment, phytoplankton and invertebrate status/potential or disturbance of the level of phosphorous and dissolved oxygen normally present.

The Killiney Bay hosts the Killiney beach swimming location which protected by the bathing water directive 2006/7. Water quality data is collected for the Killiney bathing area and is reported by the EPA on www.beaches.ie. The EPA bathing status is not based on single events, rather it is based on a review of data over 4 years (based on data collected during the bathing season only). Bathing classes are determined as Excellent (highest cleanest class), Good (Generally good water quality), Sufficient (The water quality meets the minimum standard) and Poor (The water quality has not met the minimum standard). A review of this data for the last four years, shows that despite these temporary overflows in flood conditions, the current EPA (2022) Bathing Water Quality report has classified Killiney beach as 'Excellent' during 2021 and 2020 and as 'Good' for the previous three years 2017-2019. The Killiney bathing area is located c. 1.0 Km to the north of the outlet of the Shanganagh River.

As the Proposed Development will have no additional stormwater run-off, when compared with the current situation, during a stormwater event, the development will, therefore, have no measurable impact on the water quality in any overflow situation at Shanganagh-Bray WWTP apart from a minor contribution from foul sewage. As explained in Section 3.4 below, the maximum contribution of foul sewage (peak flow of 14.092 l/s) from the Proposed Development is 1.13% of the peak hydraulic capacity at Shanganagh-Bray WWTP. The proposed stormwater and foul water networks within the site will be entirely independent systems and rainfall will have no impact on foul flows to the WWTP.

It should be noted that the bathing status has no direct relevance to the water quality status of the Natura 2000 sites due to rapid mixing and dilution resulting in no measurable change in water quality within the overall water body.

2.2 Aquifer Description & Superficial Deposits

Mapping from the Geological Society of Ireland (GSI, 2022 <http://www.gsi.ie>, accessed on 04-08-2022) classifies the bedrock beneath the site and the surrounding area as dominated by granite rocks from the Caledonian system. The site is located over rock Type 3 muscovite porphyritic (Rock Unit new code: IDNLGR3) which is described as Pale grey fine to coarse-grained granite with muscovite phenocrysts. The GSI also classifies the principal aquifer types in Ireland as:

- Lk - Locally Important Aquifer - Karstified
- LI - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
- PI - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive
- Rkd - Regionally Important Aquifer (karstified diffuse)

Presently, from the GSI (2022) National Bedrock Aquifer Map, the GSI classifies the bedrock aquifer beneath the subject site as a 'Poor Aquifer – Bedrock which is Generally Unproductive except for Local Zones'. The proposed development is within the 'Wicklow' groundwater body (Ground Waterbody Code: IE_EA_G_076) and is classified under the WFD Status 2013-2018 (EPA, 2021) as having 'Good status'. The WFD Risk Score system for this GWB is under review.

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. The GSI (2022) guidance presently classifies the bedrock aquifer in the region of the subject site as having 'High' and 'Extreme' vulnerability which indicates a general overburden depth potential 0-5 m, indicating that the aquifer is moderately protected by low permeability tills. The site investigation carried out by IGSL in 2018 is consistent with this classification as granite bedrock was encountered at depths between 2.7m and 4.2m BGL. The GSI The aquifer vulnerability class in the region of the site is presented as Figure 2.1 below.

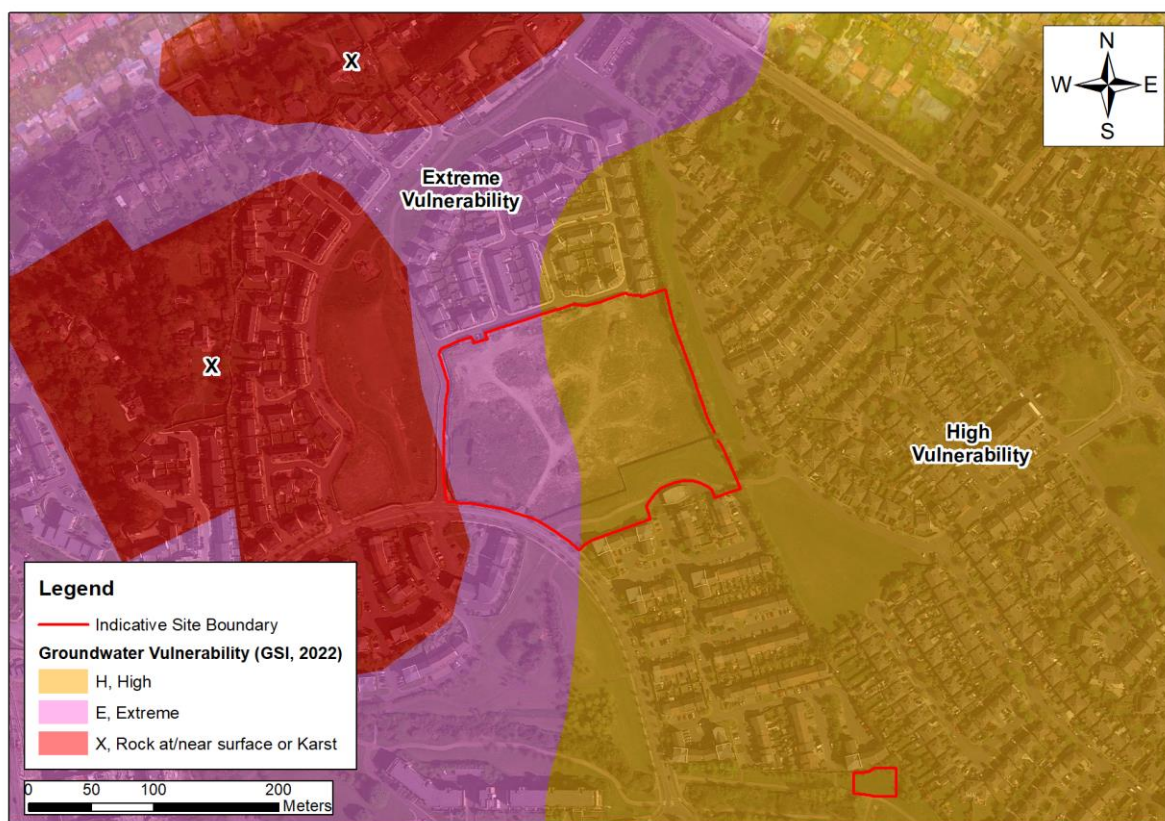


Figure 2.1 Aquifer Vulnerability (source: GSI, 2022)

The GSI/ Teagasc (2022) mapping database of the quaternary sediments in the area of the subject site indicates the principal subsoil type in the residential area comprises till Carboniferous (TLs and TGr, i.e. Till derived from limestones and granites, respectively). This is consistent with the subsoils described in the Site Investigation Report (IGSL, 2018).

3.0 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is developed based on a good understanding of the hydrological and hydrogeological environment, plausible sources of impact and knowledge of receptor requirements. This in turn allows possible Source Pathway

Receptor (S-P-R) linkages to be identified. If no S-P-R linkages are identified, then there is no risk to identified receptors.

3.1 Assessment of Plausible Sources

Potential sources during both the construction and operational phases are considered. For the purposes of undertaking the potential of any hydrological/hydrogeological S-P-R linkages, all potential sources of contamination are considered *without taking account of* any measures intended to avoid or reduce harmful effects of the proposed project (mitigation measures) i.e. a worst-case scenario. Construction sources (short-term) and operational sources (long-term) are considered below.

Construction Phase

The following potential sources are considered plausible risk scenarios for the proposed construction site:

- (i) Hydrocarbons or any hazardous chemicals will be stored in specific bunded areas. Refuelling of plant and machinery will also be carried out in bunded areas to minimise risk of any potential being discharged from the site. As a worst-case scenario, a rupture of a 1,000-litre tank to ground is considered in this analysis which disregards the effect of bunding. This would be a single short-term event.
- (ii) Leakage may occur from construction site equipment. As a worst-case scenario an unmitigated leak of 300 litres is considered. This would be a single short-term event.
- (iii) Use of wet cement is a requirement during construction. Run-off water from recent cemented areas will result in highly alkaline water with high pH. As this would only occur during particular phases of work this is again considered as a single short-term event rather than an ongoing event.
- (iv) Construction requires soil excavation and removal. Unmitigated run-off could contain a high concentration of suspended solids and contaminants such as hydrocarbons during earthworks, given the presence of contamination beneath the site according to site investigations. These could be considered intermittent short-term events, i.e. on the basis that adequate mitigation measures which are already incorporated in the Construction Environmental Management Plan (CEMP) fail.
- (v) During the excavations for foundations and basements, no significant dewatering is expected given the low permeability overburden underlying the site.

Operational Phase

The following sources are considered plausible post construction:

- (i) The Proposed Development does not require any bulk chemical storage and therefore the potential for water quality impact is negligible.
- (ii) Leakage of petrol/ diesel fuel may occur from individual cars in parking areas; run-off may contain a worst-case scenario of 70 litres for example. Any corresponding risk here will be mitigated by the proposed oil/ petrol interceptor at the site. Within the basement carpark area, any rainwater entering the

sealed system as a result of snow melt or raindrops from cars will pass through a petrol interceptor providing treatment before discharging to the foul sewer.

- (iii) The stormwater drainage system follows SuDS measures that comprises green roofs, permeable paving, petrol interceptors and an underground attenuation system. This system has been designed in order to discharge following the characteristics of a greenfield run-off into the public sewer. As such the potential for silt laden runoff is low. It should be noted that the worst-case scenario (70 litres) under consideration here disregards the effect of SuDS and petrol interceptors.
- (iv) The 500m³ underground foul tank is located adjacent to the Ballyogan Stream. As mentioned above, this tank is designed to reduce the foul discharge during extreme storm events, thereby reducing the flood risk from the foul water network. In the event that this tank potentially fails, a worst-case scenario is considered, where the overflow from the foul network is discharged directly into the stream. In this case, the foul peak flow estimated from the development (14.092 l/s) is considered.
- (v) The development will be fully serviced with separate foul and stormwater sewers which will have adequate capacity for the facility and discharge limits as required by Irish Water licencing requirements (refer to the Drainage Design Report for a COF reference). Discharge from the site to the public foul sewer will be sewage and grey water only due to the residential nature of the Proposed Development. The foul discharge from the site will join the public sewer and will be treated at the Irish Water Shanganagh-Bray WWTP prior to subsequent discharge to Southwestern Irish Sea. This WWTP is required to operate under an EPA licence and must meet environmental legislative requirements as set out in such licence.

This plant operates under an EPA licence (D0038-01). The most recent Annual Environmental Report (AER 2020) shows it is currently operating for a current maximum hydraulic load of 85,360 m³/day (988 l/s), which is less than the peak hydraulic capacity as constructed (108,000 m³/day or 1,250 l/s). Its maximum organic capacity as constructed is 186,000 PE (people equivalent).

3.2 Assessment of Pathways

The following pathways have been considered within this assessment with impact assessment presented in Section 3.4:

The potential for offsite migration due to any construction discharges is low as there is no significant pathway in the aquifer or through land ditches or streams.

- (i) Vertical migration to the underlying Granite is moderately minimised due to the recorded 'High' to 'Extreme' vulnerability present at the site. However, the site is underlain by [generally low permeable] Granite which the GSI classifies as a *Poor Aquifer (PI), i.e. Bedrock which is Generally Unproductive except for Local Zones*. Flow paths are generally not connected and limited to within the upper weathered zones identified. As such any potential for offsite migration through the underlying granite is considered low.
- (ii) There is no direct hydrological linkage for construction and operation run-off or any small hydrocarbon leaks from the site to the identified surface waterbodies located farther down-gradient (Ballyogan Stream) or the Irish

Sea. There is an indirect connection as stormwater discharges into an existing public sewer which ultimately discharges to the Ballyogan Stream and ultimately into the Irish Sea.

- (iii) There is an indirect pathway for foul sewage to Natura Sites in within Irish Sea 'indirect pathway' through the public foul sewer which ultimately discharges to the Shanganagh-Bray WWTP prior to final discharge to Southwestern Irish Sea post treatment. In addition, there could be a direct pathway in the event of failure of the underground overflow foul tank. In this case, the overflow would not be pumped/ collected by the public foul network and would discharge directly into the adjacent Ballyogan Stream.

3.3 Assessment of Receptors

The receptors considered in this assessment include the following:

- (i) Underlying Granite bedrock aquifer;
- (ii) Rockabill to Dalkey Island Special Area of Conservation SAC (site code: 003000); Dalkey Islands Special Protection Area SPA (site code: 004172) and Bray Head Special Area of Conservation SAC (site code 000714).

Other Natura 2000 Sites within Irish Sea or Dublin Bay that may be hydrologically connected to the proposed development site, but are located further away (South Dublin Bay SAC, site code: 210 and the South Dublin Bay and River Tolka Estuary SPA, site code: 4024) were excluded from the assessment due to their distance from the subject site, the potential loading of contaminant from the site (risk scenarios presented in Section 3.1) and significant dilution through its pathway.

3.4 Assessment of Source Pathway Receptor Linkages

Table 3.1 below summarises the plausible pollutant linkages (S-P-R) considered as part of the assessment and a review of the assessed risk is also summarised below.

The potential for impact on the aquifer is low based on the absence of any bulk chemical storage on site. The overburden thickness, low permeability nature of till and a lack of fracture connectivity within the granite bedrock aquifer will minimise the rate of off-site migration for any indirect discharges to ground at the site. As such there is no potential for a change in the groundwater body status or significant source pathway linkage through the aquifer to any Natura 2000 site.

During construction phase, there is no direct open-water pathway between the site and Natura 2000 sites within Irish Sea. However, there is an indirect pathway through the public surface sewer which discharges into the Ballyogan Stream. Should any silt-laden stormwater from construction or hydrocarbon-contaminated water from a construction vehicle leak/tank leak manage to enter into the surface water sewer, the suspended solids will naturally settle within the sewer; however, in the event of a worst case hydrocarbon leak of 1,000 litres this would be diluted to background levels (water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019) by the time the stormwater reaches the nearest Natura 2000 Sites (c 8.5 km downgradient, offshore within the Killiney Bay).

During operation, it should be noted that there is a potential direct pathway between the underground foul tank and the Ballyogan Stream in the event of this tank fails. However, the contribution of the development to the potential discharged overflow from the tank is considered to be low (worst case of 14.092 l/s), considering that it would occur during heavy rainfall events, indicating significant attenuation and dilution within the river network before reaching the Irish Sea. Therefore, there is no

likely impact above water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019) in a worst case scenarios considered, consisting of a simultaneous overflow situation and failure of the foul tank, and the development will have no measurable impact on the water quality at the waterbodies that hosts the Natura 2000 sites mentioned above.

Likewise, from the residential development area, the potential for a release is low as there is no bulk fuel/chemical storage and no silt laden run-off. Stormwater will be collected by a drainage system which includes SuDS measures, an attenuation system and oil/ petrol interceptors prior to discharge off-site (albeit these measures have been disregarded for this analysis). In addition, the potential for hydrocarbon discharge is quite minimal based on an individual vehicle (70 litres) leak being the only source for hydrocarbon release. However, even if the operation of the proposed SuDS and interceptor systems are excluded from consideration, there is no likely impact above water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019) in the worst case scenarios described above at section 3.2 and there will be no significant effect on any European site. The volume of contaminant release is low and combined with the significant attenuation within the stormwater drainage network, hydrocarbons will dilute to background levels with no likely impact above water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019 at any Natura 2000 sites.

It can be concluded that the in-combination effects of surface water arising from the Proposed Development taken together with that of other permitted developments will not be significant based on the in-combination low potential chemical and sediment expected loading. This may also apply to the overflow from the proposed underground foul water; the combined overflow from other development is not expected to be significant in terms of impacting receiving waters as this scenario would occur during heavy rainfall events suggesting considerable dilution during their pathway through the river network. Therefore, based on the loading of any hazardous material considered in the worst case scenarios mentioned in Section 3.1 above during construction and operation phases, there is subsequently no potential for impact on downgradient Natura 2000 habitats (located c. 8.5 km from the site, within Southwestern Irish Sea).

The peak wastewater discharge is calculated at 14.092 l/s and the maximum organic load is 367 kg DBO/day (Kavanagh Burke, 2022) which is equal to 6.12 PE (1 PE is defined as 60 Kg DBO/ day). The sewage discharge will be licensed by Irish Water, collected in the public sewer and treated ultimately Irish Water's Shanganagh-Bray WWTP prior to discharge to Killiney Bay. This WWTP is required to operate under an EPA licence (D0038-02) and to meet environmental legislative requirements. The peak foul discharge calculated for the proposed development is well within the capacity of the WWTP.

Even without treatment at the Shanganagh-Bray WWTP, the peak effluent discharge and maximum daily organic load, calculated for the proposed development as 14.092 l/s and 6.12 PE respectively (which would equate to 1.13% and 0.003% of the licensed discharge at Shanganagh-Bray WWTP [peak hydraulic capacity and organic capacity as constructed, respectively]), would not have a measurable impact on the overall water quality within Southwestern Irish Sea and Killiney Bay and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive). The most recent water quality assessment of Killiney Bay WFD Waterbody undertaken by the EPA also shows that Killiney Bay on the whole, currently has an 'Unpolluted' water quality status (refer to www.catchments.ie).

The assessment has also considered the effect of cumulative events, such as release of sediment laden water combined with a hydrocarbon leak on site (1,000 litres as a worst case scenario during the construction phase). As there is adequate assimilation and dilution between the site and the Natura 2000 sites (located c. 8.5 km downgradient, offshore within the Killiney Bay), it is concluded that no perceptible impact on water quality would occur at the Natura 2000 sites as a result of the construction or operation of this Proposed Development. It can also be concluded that the cumulative or in-combination effects of effluent arising from the Proposed Development with that of other permitted proposed developments, or with development planned pursuant to statutory plans in the greater Dublin, Meath and Kildare areas, which will be discharged into Shanganagh-Bray WWTP will not be significant having regard to the size of the calculated discharge from the Proposed Development and having regard to the following:

- The Shanganagh-Bray WWTP ensures compliance with Water Framework Directive requirements.
- All new developments are required to comply with SuDS which ensures management of run-off rate within the catchment of Shanganagh-Bray WWTP.
- The natural characteristics of Southwestern Irish Sea and Killiney Bay result in enriched water rapidly mixing and degrading such that the plume has no appreciable effect on water quality at Natura 2000 sites.

A list of the project assessed as part of the cumulative assessment is included in Appendix A of the EIA Screening Assessment.

As the Proposed Development will have no additional stormwater run-off during a stormwater event over and above the current level, surface water run-off from the development in the operational phase will therefore have no impact on the current water quality in any overflow situation at Southwestern Irish Sea and Killiney Bay.

It should also be noted that the bathing status has no direct relevance to the water quality status of the Natura sites due to rapid mixing and dilution resulting in no measurable change in water quality within the overall water body.

In addition, there is no long term discharge planned which could have an impact on the status of the water body. In the scenario of an accidental release (unmitigated leaks mentioned above) there is potential for a temporary impact only which would not be of a sufficient magnitude to effect a change in the current water body status.

Finally, in a worst-case scenario of an unmitigated leak and not considering the operation of the SuDS and interceptor already included in the design, as well as a failure of the underground foul tank during an overflow event, no perceptible risk to any Natura 2000 Sites is anticipated given the distance from source to protected areas (>8.5 km). Potential contaminant loading will be attenuated, diluted and dispersed near source area.

Table 3.1 below presents a summary of the risk assessment undertaken.

Source	Pathways	Receptors considered	Risk of Impact
Construction Impacts (Summary)			
Unmitigated leak from an oil tank to ground/ unmitigated leak from construction vehicle (1,000 litres worst case scenario).	Bedrock protected by <5m low permeability overburden. Low fracture connectivity within the granite will limit any potential for offsite migration	Granite bedrock aquifer (Poor Aquifer)	Low risk of migration through poorly connected fracturing within the granite rock mass (Poor Aquifer). No likely impact on the status of the aquifer/off site migration due to low potential loading, natural attenuation within overburden and discrete nature of fracturing reducing off site migration.
Discharge to ground of runoff water with High pH from cement process/ hydrocarbons from construction vehicles/run-off containing a high concentration of suspended solids	Indirect pathway through stormwater drainage and river network to Southwestern Irish Sea and Killiney Bay waterbody (distance source-receptor: >8.5km)	Dalkey Island SAC/ SPA Bray Head SAC	Potential for local temporary exceedances of statutory water quality standards at outfall. However, no perceptible risk to water requirements for the Natura 2000 sites in Irish Sea based on loading and high level of dilution in the surface water sewer and on the distance of c. 8.5 km between the source and Irish Sea.
Operational Impacts (Summary)			
Foul effluent discharge to sewer	Indirect pathway to Southwestern Irish Sea through public sewer	Dalkey Island SAC/ SPA Bray Head SAC	No perceptible risk – Even without treatment at Shanganagh-Bray WWTP, the peak effluent discharge (14.092 l/sec which would equate to 1.13% of the licensed discharge at Shanganagh-Bray WWTP); would not impact on the overall water quality within Irish Sea and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive).
Overflow from underground foul tank to Ballyogan Stream (14.092 l/s worst case scenario)	Indirect pathway through Ballyogan Stream and river network to Southwestern Irish Sea and Killiney Bay waterbody (distance source-receptor: >8.5km)	Dalkey Island SAC/ SPA Bray Head SAC	No perceptible risk – taking into account the extent of loading of contaminant, distance between the source and Irish Sea is c. 8.5 km and significant dilution in the river network (as this scenario only would occur during heavy rainfall events) will ensure any released contaminants are at background levels (i.e., with no likely impact above water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019).

Operational Impacts (Summary, cont.)			
Discharge to ground of hydrocarbons from carpark leak (70 litres worst case scenario)	Indirect pathway through stormwater drainage and river network to Southwestern Irish Sea and Killiney Bay waterbody (distance source-receptor: >8.5km)	Dalkey Island SAC/ SPA Bray Head SAC	No perceptible risk – taking into account the extent of loading of contaminant, distance between the source and Irish Sea is c. 8.5 km and significant dilution in the surface water sewer will ensure any released hydrocarbons are at background levels (i.e., with no likely impact above water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019).

Table 3.1 *Pollutant Linkage Assessment (without mitigation)*

4.0 CONCLUSIONS

A conceptual site model (CSM) has been prepared following a desk top review of the site and surrounding environs. Based on this CSM, plausible Source-Pathway-Receptor linkages have been assessed assuming an absence of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures) in place at the proposed development site.

During construction and operation phases there is no direct source pathway linkage between the proposed development site and open waters. There is no direct source pathway linkage between the Proposed Development site and any Natura 2000 sites (i.e. Dalkey Island SAC/SPA and Bray Head SAC). There are indirect source pathway linkage from the Proposed Development through the public stormwater sewer, and the foul sewer which will eventually discharges to the Shanganagh-Bray WWTP and ultimately discharges to Southwestern Irish Sea. The future development has a peak foul discharge that would equate to 1.13% of the licensed discharge at Shanganagh-Bray WWTP (peak hydraulic capacity).

In addition, in the event of a scenario where the underground foul tank fail during an overflow events, the contribution of the development to the potential discharged overflow from the tank is considered to be low, considering that it would occur during heavy rainfall events, indicating significant attenuation and dilution within the river network before reaching the Irish Sea.

Even disregarding the operation of design measures including an attenuation system and petrol interceptors on site, it is concluded that there will be imperceptible impacts from the proposed development to the water bodies due to emissions from the site stormwater drainage infrastructure to the wider drainage network. It should be noted the proposal also includes an attenuation system and petrol interceptors as part of best practice project design, and these features will provide additional filtration from the site to the drainage network.

It is concluded that there are no pollutant linkages as a result of the construction or operation of the Proposed Development which could result in a water quality impact which could alter the habitat requirements of the Natura 2000 sites within Southwestern Irish Sea and Killiney Bay.

Finally, and in line with good practice, appropriate and effective mitigation measures will be included in the construction design, management of construction programme and during the operational phase of the proposed development. With regard the

construction phase, adequate mitigation measures will be incorporated in the Construction Environmental Management Plan (CEMP). These specific measures will provide further protection to the receiving soil and water environments. However, the protection of downstream European sites is in no way reliant on these measures and they have not been taken into account in this assessment.

5.0 REFERENCES

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