Facility Centre for Water Based Activities at Killiney Beach (Final).

Ecological Impact Assessment

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Contract

This report describes work commissioned by Anne Murray of Dún Laoghaire Rathdown County Council, by an email dated 7th of March 2022. Michael Coyle of JBA Consulting carried out this work.

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Purpose

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Abbreviations

AA	Appropriate Assessment
AVDL	Annual Vegetation of Drift Lines
BAP	Biodiversity Action Plan
BoCCI	Birds of Conservation Concern in Ireland
DoEHLG	Department of Environment, Heritage and Local Government
DLRCC	Dun Laoghaire Rathdown County Council
CIEEM	Chartered Institute of Ecology and Environmental Management
EC	European Communities
EcIA	Ecological Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
GIS	Geographical Information Systems
GSI	Geological Survey Ireland
IAQM	Institute of Air Quality Management
IFI	Inland Fisheries Ireland
NBDC	National Biodiversity Data Centre
NPWS	National Parks and Wildlife Service
pNHA	Proposed Natural Heritage Area
PRF	Potential Roost Feature
QI	Qualifying Interest
RBMP	River Basin Management Plan
PVSB	Perennial vegetation on stony banks
SAC	Special Area of Conservation
SEL	Sound Exposure Level
SPA	Special Protection Area
VICE	Visitor, Industry, Community and Environment
SuDS	Sustainable Drainage System
WFD	Water Framework Directive
ZoI	Zone of Influence

1 Introduction

JBA Consulting Engineers and Scientists Ltd (hereafter JBA) has been commissioned by Dún Laoghaire Rathdown County Council (DLRCC) to undertake an Ecological Impact Assessment in relation to a proposed water-sports facility on the coastline of Killiney Beach.

1.1 Aims

The aims of this EcIA are to:

- Establish baseline ecological conditions to enable identification of potentially important ecological features within the zone of influence of the project,
- Determine the ecological value of identified ecological features,
- Assess the significance of impacts of the proposed project on ecological features of value,
- Identify avoidance, mitigation or compensatory measures,
- Identify residual impacts after mitigation and the significance of their effects,
- Identify opportunities for ecological enhancement,

1.2 Site location

The site is located on Killiney beach next to the beach carpark adjacent to Strathmore Road (Figure 1-1). The site is a grassed area that sits on made ground, above the beach and protected from the sea by gabions.

The site has public transport links with the adjacent Killiney DART station. To the south of the site, there is pedestrian access via an existing footpath that extends northwards from the DART station. There is a surface pay-and-display car park and bathroom facility, operated by Dún Laoghaire-Rathdown County Council, at the DART station on Station Road. Pedestrian access from the northern end of the Killiney DART station carpark is under an arched bridge.

Within the site, there is an on-beach carpark, with access off Strathmore Road. This is free-to-use and will remain in operation during the works however is anticipated to experience a reduced capacity due to the presence of the contractor's compound during the construction phase. Vehicular, cyclist, and pedestrian access via Strathmore Road is under an existing overhead train line, via a height-restricted underpass. Just outside site boundary to the south, there is single open shower.

Figure 1-1: Site Location

2 Project Description

2.1 Proposed project

The proposed development consists of a single-storey, flat roofed building with associated site works and utility connections. The Facility Centre for Water Based Activities includes 1 no. Accessible Changing Places shower room with WC; 1 no. wheelchair Accessible WC with shower; 3 no. WCs; 5 no. shower/changing cubicles; 4 no. external showers; sheltered demonstration space; storage space; seating, lockers and a drinking fountain. Also included are associated plant / mechanical and electrical spaces, solar panels, bicycle parking (with bicycle repair stand) and external paved terrace areas. All refuelling for machinery will occur outside of the site area, with all fuel also stored away from the site.

The lower sloping ground around the proposed development site is expected to allow the overtopping water to drain back to the sea.

A site strip will be implemented to create a working platform, while imported hardcore material will be utilised as a base for the works. The facility's foundations will extend below the frost zone and be approximately 0.5m - 0.75m below ground level, while drainage pipe trenches will range from 1.2m- 2m below ground level with variation depending on pipe falls and gradients.

Foundations will consist of the following:

- The proposed pile foundations will consist of a grid of driven steel cased mini-piles;
- These piles will be filled with in situ concrete;
- An in situ reinforced concrete raft foundation will be cast on top of the pile grid and span between individual support piles.

The proposed site ground floor plan is found in Figure 2-1, while a full site layout plan can be viewed in Appendix A.

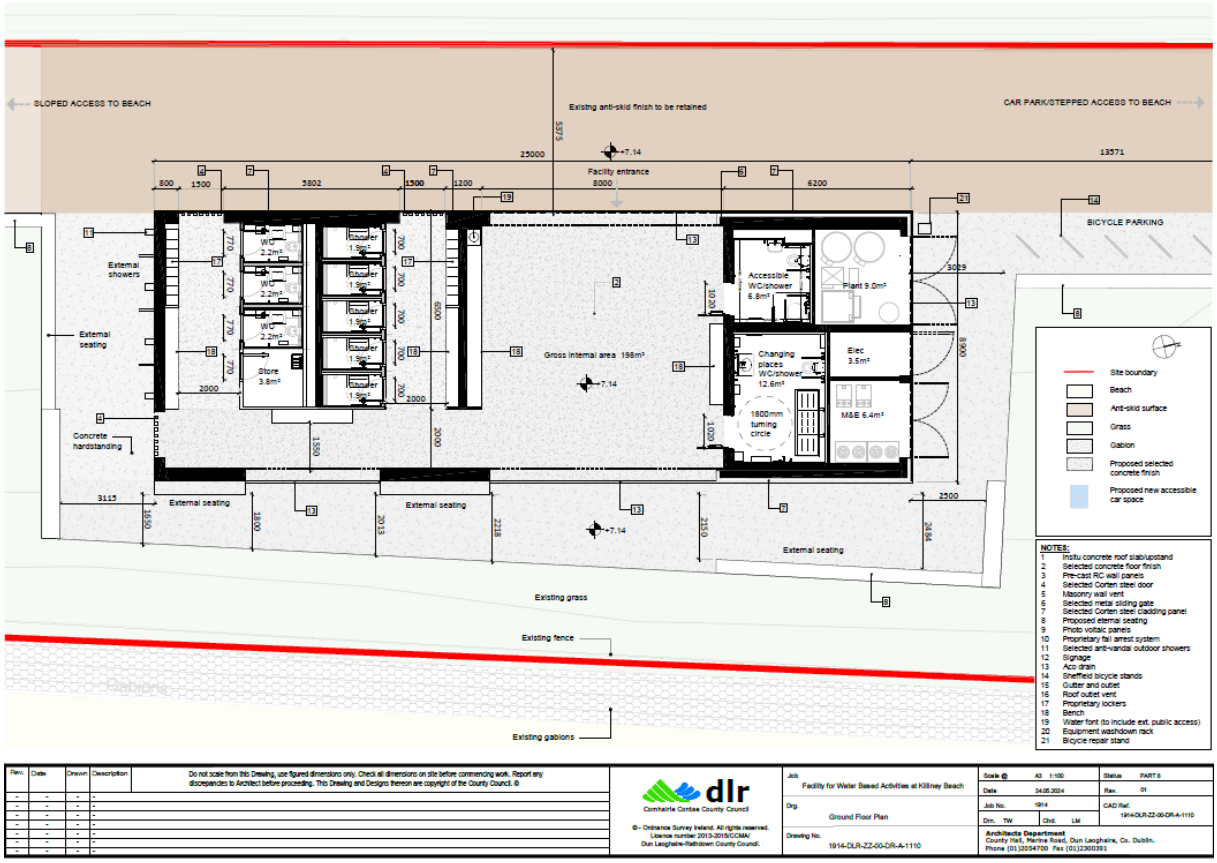

Figure 2-1: Ground floor layout plan (provided by client)

2.1.1 Construction Phase

2.1.1.1 Site Drainage

During the construction phase of the project, the facility will be connected to the existing drainage network as approved by DLR Drainage Department utilising the pumping station on the beach to the south of the site boundary and from there all wastewaters will be pumped to a treatment plant in Shankill.

A pre-connection enquiry was submitted to Uisce Éireann by GK Consulting Engineers on behalf of DLR. Uisce Éireann have advised as follows:

- A Water Connection for the development is feasible subject to upgrades. In order to connect the proposed Development, the Uisce Éireann network has to be extended for approximately 25m from the 160mm HPPE via the train underpass.
- A Wastewater connection for the development is Feasible without infrastructure upgrade by Uisce Éireann.

A non-return valve will be installed at the last manhole before the connection to the public network. In the event of a failure or blockage, this will prevent any surcharging from the public sewer from returning to the facility. This has also been approved by DLR Drainage Dept.

These can be viewed in the Site Drainage Plan that is available in Appendix B.

2.1.2 Traffic Management Plan

A detailed Traffic Management Plan will be developed in advance of any works taking place. Environmental impacts will be a key consideration of the Traffic Management Plan. Temporary Traffic Management Plans for the construction phase and associated method statements will be submitted to Roads Control as part of a road opening licence application and must comply with the requirements of Chapter 8 of the Traffic Signs Manual.

In assessing the licence application, Roads Control will consult with the DLR Beaches Department to ensure appropriate access arrangements are in place for beach goers during construction. Such details will be fully ascertained in conjunction with the appointed contractor.

The detailed design for the facility will involve consultation with the Beaches, Roads Control and Traffic teams to incorporate the permanent traffic management plan and ensure appropriateness of access and signage, and consistency with existing traffic management and signage arrangements within the area. It is not envisaged that the new facility will have significant implications or alterations to existing traffic management arrangements. All existing pedestrian, cyclist and vehicular access routes will remain unchanged whilst there will be some limited alterations to the beach carpark layout as part of this project.

The Traffic Management Plan will include details of temporary hoarding, compounds and signage to guide visitors through the site during construction. This will be addressed under a road opening licence application and assessed by the Roads Control, Traffic and Beaches section to ensure its appropriateness to the location.

2.1.3 Site Compounds

There will be two site compounds in use during the construction of the project. A primary compound which will be located within the car park for the DART approximately 50m west from the south-west tip of the site boundary, and a smaller secondary compound located in the north of the site boundary, in the existing car parking area.

The site will be accessed through either Strathmore Road or from the DART car park, both access routes going underneath the DART line.

Site compound locations for construction phase can be seen in Appendix C.

2.1.4 Duration of the Works

The envisaged timeframe of the project's construction is approximately 25 weeks.

2.1.5 Operation Phase

2.1.5.1 Site Drainage

During the operation phase of the project, the facility will continue to be connected to the existing drainage network, including the pumping station on the beach to the south of the site boundary, and from there all wastewaters will be pumped to a treatment plant in Shankill.

A pre-connection enquiry was submitted to Uisce Éireann by GK Consulting Engineers on behalf of DLR. Uisce Éireann have advised as follows:

- A water connection for the development is feasible subject to upgrades. In order to connect the proposed development, Uisce Éireann network has to be extended for approximately 25m from the 160mm HPPE via the train underpass.
- A wastewater connection for the development is feasible without an infrastructure upgrade by Uisce Éireann.

This confirms that there is adequate capacity in the existing pumping station to service the new development during the operational phase.

The non-return valve that will be installed during the construction phase will continue to be used during the operational phase such that, during operation, any surcharging from the public sewer from returning to the facility will be prevented by these valves.

The external showers will drain into the closed system via drainage outlets in the shower area. The base of the shower area will be set at a lower level with graded falls towards the outlets to ensure the grey water from the showers is directed into the closed system. The surface water run-off will be separated from the shower with the surface levels outside the shower area falling away from the showers.

Additionally, facilities management will discourage the use of soap/ shampoo at external showers by providing signage to that effect as has been provided in other external showers in the area.

2.1.6 Site Landscape Plan

The building has been designed to sit within the existing landscape and make use of the existing path. A new concrete external terrace will be provided around three sides of the building with a series of concrete bench seats providing a sense of enclosure. No new landscape planting is proposed as part of the development.

When constructed, the proposed development will be low in landscape and visual impact for surrounding visual receptors. The building is low with only one storey, and the proposed finishes will be in keeping with the rock and exposed materials along the cliffs in the area. A pebble roof finish to relate to the beach surface is proposed which will reduce visual impact of the roof, which will be visible from the railway line. A green roof will also be considered to further minimise visual impact of the roof.

These can also be seen in the Site Layout Plan which can be viewed in Appendix A

2.1.7 Traffic Management Plan

A small quantity of information and wayfinding signage will be provided when the facility is operational. The Beaches and Traffic sections will be consulted to ensure consistency with existing signage and compliance with relevant standards.

2.1.8 Visitation Rates during Operation Phase

A Pedestrian Survey undertaken by IDASO in 2021 shows the average number of weekly visitors to Killiney Beach in the summer months is 11,972. Visitor numbers are heavily weather dependent and on a peak week, the survey showed that visitor numbers increase to 32,305.

The overall objective of this scheme is the provision of permanent facilities to support the delivery of water sports activities which are all based on the internationally recognised VICE Model (Visitor, Industry, Community and Environment) for Sustainable Tourism Development (DoTCAGSM, 2019) and have full consideration for the UN Sustainable Development Goals.

The objective is not about greatly increasing visitor numbers, it is more focused on extending the tourism season into 'off-peak' times, supporting existing activity operators by providing enhanced facilities, improving the quality and accessibility of existing locations, making activity tourism more attractive and improving the overall visitor experience.

The proposed water sports facility has a specific sport function, taking small groups out on the water. In addition to providing an improved experience for existing visitors, it is anticipated that the facility will also attract some additional visitors for water sports activities. However, in the context of existing visitor numbers, it is not anticipated that the new facility will result in a significant overall uplift in visitors to Killiney beach.

There is zoning in place within the bathing area at Killiney Beach, prohibiting boats from entering these waters. As boats are not permitted to land at Killiney Beach, the new facilities will have no impact on the number of boats in Killiney Bay.

2.1.9 Future Proofing of the site with climate change

The site is already located within an elevated area adjacent to the beach and fronted by gabion basket protection. As part of the most recent walkover surveys conducted under the Coastal Defence Strategy study review, the gabion baskets are noted as being in good condition. Given the high amenity value of the area within which the facility is to be located, the council will continue to monitor the area, with a view to ongoing and further protection as and when deemed necessary.

With this in mind, given the good condition of the previously installed gabion baskets, there is nothing to suggest the area is immediately under threat and no climate change measures are anticipated.

2.1.10 Site lighting

No additional public lighting will be provided along the public path.

Low level lighting (in the order of 1 – 2 lux / 4 – 5 Watts; lighting design to be developed a detailed design stage) will be provided inside the building. Light fittings will be recessed downlights to minimise light spill onto surrounding areas.

Lighting design will be in line with environmental best practice whilst meeting legal obligations around Health and Safety.

2.2 Marine Protection

As outlined within Objective GLB7 of the DLR Development Plan (DLRCC, 2022a), Dun Laoghaire Council supports the policies and objectives appropriate and relevant to the National Marine Planning Framework respective of the conservation, management and protection for a sustainable future for the marine area. This in turn is related to the quality of the waters of Killiney Bay in regard to the varied importance and diversity of habitats along the coast. In specific regard to ecology and upholding the National Marine Planning Framework it sets out to maintain biological diversity in line with the quality and occurrence of habitats and distribution of species.

Killiney Bay is also a Blue Flag bathing area. Under the Bathing Water regulations 2008, the Water Framework Directive, and the Marine Strategy Framework Directive, the bay will be protected from any contaminants and pollutants that will reduce the overall environmental and ecological status of the water.

As part of the council's development plan National Marine Planning Framework, and the Directives and Regulations relevant to the protection of coastal bathing waters, the project will inherently be constructed and operated in a way that will prevent the deterioration of the bathing waters within Killiney Bay.

2.3 Site Selection

In response to a call from Fáilte Ireland, Dún Laoghaire-Rathdown County Council submitted an Expression of Interest in the Fáilte Ireland Platforms for Growth 2 scheme.

In September 2020, an Ecological Opportunities / Constraints Assessment was completed by CAAS Ltd on behalf of Fáilte Ireland. Sites in both Dún Laoghaire Harbour and Killiney Beach were assessed

using the Phase 1 – Site Selection Matrix. Both locations were screened as having no obvious ecological constraints.

Of the two sites, the site at Killiney Beach was deemed more favourable, following a desktop assessment and a series of site walks. The objective was to pinpoint a beachside location that was in a place with good public footfall to provide passive surveillance for the Facility Centre. Killiney Beach is exceptionally well-served by public electrical sustainable transport with Killiney DART station nearby. There are also two public surface car parks at Killiney Beach.

Between the DART line and the beach, lies an elevated area of made ground above the beach and protected from the sea by gabion baskets. This is the primary arrival point for visitors to the beach from the car parks and the location of the Lifeguard's Hut. This location was identified as having potential as it would involve building on existing made ground and not directly onto the beach.

Option 1 – Area to the North of Killiney Beach Parking off Strathmore Road

This site was found to be in relatively close proximity to an EU Annex I Habitat to the north increasing the risk of environmental impacts. It lacked services infrastructure and universal accessibility and therefore substantial services upgrades and associated interventions on the site would be required. It was also challenging to accommodate the required facilities in an appropriate manner and a small quantity of trees and shrubs would likely have to be cleared to facilitate construction. Due to the distance from the existing ramped access to the beach a new ramp to the beach would likely have been required increasing the level of intervention in the area.

Option 2 – Area to the South of Killiney Beach Parking off Strathmore Road

The central area of the made ground between the two car parks and Adjacent to the Lifeguards Hut, is well served by the existing pedestrian path and ramped access to the beach negating the need for a new ramp to be constructed. The site is more remote from the EU Annex I Habitat to the north so would reduce any potential environmental impacts here. The site is protected by gabion baskets and can connect to the existing drainage network without the need to install an additional pump. The facilities can be accommodated in a sympathetic rectilinear structure between the existing path and the beach. KIY-JBAI-XX-XX-RP-BD-0003-S3-P02-AA_Scr_Killiney_SF_Main_Works 11

Conclusion

Site Option 2 makes better use of the existing visitor activity, site features, services on the site and is further removed from sensitive EU Annex I Habitats.

3 Methodology

3.1 The EcIA Team

This EcIA was completed by JBA Ecologist Michael Coyle, BA (Hons), MSc and the report has been reviewed by JBA Chief Ecologist Kieran Sheehan BSc, MSc, PGCE, CEnv, MCIEEM, MIfL.

These staff members thus fulfil the Environmental Impact Assessment (EIA) Directive personnel requirements of 'competent persons'.

3.2 Policy and Legislation

The biodiversity assessment included a comprehensive review of the following documents:

- The Planning & Development Act 2000 & the Planning and Development (Amendment) Act, 2010 (as amended) hereafter referred to as the Planning Acts.
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive);

- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive);
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 on the assessment of the effects of certain public and private projects on the environment;
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (as amended);
- EU Water Framework Directive (2000/60/EC) and European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003);
- OPR Practice Note PN02 Environmental Impact Assessment Screening (OPR, June 2021);
- Guidelines for planning authorities and An Board Pleanála on carrying out environmental impact assessment (Department of Housing, Planning and Local Governments, August 2018);
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (Draft) Environmental Protection Agency (EPA, 2022);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);
- Wildlife Acts 1976-2021, and Wildlife (Amendment) Act 2023;
- Flora (Protection) Order, 2022 (S.I. No. 235 of 2022);
- Guidelines on the Protection of Fisheries during construction works in and adjacent to water. (Inland Fisheries Ireland, 2016).
- National Biodiversity Plan 2023-2030, Department of Housing, Local Government and Heritage (DHLGH) 2024;
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (EU 2013);
- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, (CIEEM, 2018);
- Bat Mitigation Guidelines for Ireland (Marnell et al., 2022);
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (2008), NRA 2008;
- Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads, NRA 2010;

3.3 Methods

This EcIA assesses the ecological features present within the site and its surrounding area (the Zone of Influence (ZoI)) in relation to the proposed works. This allows for identification of the potential impacts of the proposed works upon the ecological features of the site at an early stage, whilst identifying the potential ecological constraints upon the proposed works. The assessment is based on a desk-based assessment, which determines the baseline conditions at the site of the proposed works, and site surveys, which provided information on the habitats and species present on the site and its surroundings.

This EcIA will outline the findings of the desk-based assessment and the surveys and identify any potential impacts of the proposed works on ecological features within the ZoI of the site; and propose mitigation measures to avoid or reduce impacts where necessary.

3.4 Guidance

This assessment was conducted in accordance with the following guidance documents:

- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

- Guidelines on the information to be contained in Environmental Impact Assessment Reports Environmental Protection Agency (EPA, 2022).
- Best Practice Guidance for Habitat Survey and Mapping, The Heritage Council. (Smith et al., 2011b).
- European Commission, Directorate-General for Environment, (2021) The strict protection of animal species of Community interest under the Habitats Directive : guidance document : a summary. Publications Office of the European Union. https://data.europa.eu/doi/10.2779/3123

3.5 Baseline

To determine the baseline conditions at the site a review of all available information was made. When determining the pre-work conditions on-site, including the presence or absence of protected habitats and/ or species, the precautionary principle was used where limited information was available.

A desk-based assessment was carried out to collate information regarding protected/ notable species and statutorily designated nature conservation sites in, or within close proximity to, the study area. This included a data search for protected and notable species using the National Biodiversity Data Centre (NBDC) Mapping System (NBDC, 2023). A customised 2km polygon was created to extract all the species data from the project site and its surrounding area, while an extended customised 5km polygon was created to extract all species data in the set Zone of Influence for this project.

Information for statutory designated sites including Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Ramsar Sites, Natural Heritage Areas (NHAs) and proposed NHAs (pNHA) was collected from the online resources provided by the National Parks and Wildlife Service (NPWS).

Other information on the local area was obtained, including:

- EPA, 2023a. EPA Catchments.ie [online]. Available online at: https://www.catchments.ie/maps/
- EPA, 2023b. EPA Maps [online], Next Generation EPA Maps. Available online at: https://gis.epa.ie/EPAMaps/
- GSI, 2023. Geological Survey Ireland Spatial Resources website, available at https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228
- IFI, 2022. Water Framework Directive Fish Ecological Status 2008-2021 Available online at: https://opendata-ifigis.hub.arcgis.com/datasets/IFIgis::water-framework-directive-fish-ecological-status-2008-2021/explore?location=53.365760%2C-6.414157%2C14.45
- NPWS, 2019a. The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- NPWS, 2019b. The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitats Assessment. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neil. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- NPWS, 2019c. The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessment. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neil. . National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- Online data available from Irish Wetland Bird Survey (I-Webs, available https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88) and Irish Birding (Available https://www.irishbirding.com/birds/web) for Killiney Bay
- Aerial photography available from www.osi.ie and Google Maps http://maps.google.com/ ;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie
- National Biodiversity Data Centre, 2023 – Species Distribution Maps; Available online at www.biodiversityireland.ie Accessed on various dates;

- All Ireland Red Data lists for vascular flora, mammals, butterflies, non-marine molluscs, dragonflies & damselflies, amphibians and fish;
- Water Framework Directive water maps (available online at http://www.wfdireland.ie/maps.html and https://www.catchments.ie/); and
- International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species (available online at http://www.iucnredlist.org).

3.5.1 Zone of Influence

The project will primarily affect the site only, but a wider Zone of Influence (ZoI) is utilised for impacts relating to noise disturbance (300m); air pollution (250 as per the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)); groundwater and surface water pollution (5km), with an additional 15km buffer for hydrologically connected transitional and coastal waters.

3.5.2 Field Surveys

A general ecological site walkover, including habitat mapping, mammal and preliminary bat roost surveys were conducted on the 14th of June 2023 by Ecologists Mark Desmond and Patricia Byrne, with a follow up survey conducted on the 3rd of May 2024 by Ecologist Michael Coyle.

The ecological walkover surveys recorded habitats and protected species, following guidance outlined in the documents below:

- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009a)
- *Best Practice Guidance for habitat Survey and Mapping.* The Heritage Council. (Smith et al., 2011)
- *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2009b).
- Collins, J. (Ed.), 2023. *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th Edition)

Aerial photographs and site maps assisted the habitat survey. Habitats have been named and described following *A Guide to Habitats in Ireland* by Fossitt (2000). Nomenclature for higher plants follows that given in *The New Flora of the British Isles 4th Edition* (Clive Stace 2019). Identification of Irish plants generally follows Webb's An Irish Flora (Parnell and Curtis, 2012).

3.5.3 Water Framework Directive

In response to the increasing threat of pollution and the increasing demand from the public for cleaner rivers, lakes and beaches, the EU developed the Water Framework Directive (WFD). This Directive is unique in that, for the first time, it establishes a framework for the protection of all waters including rivers, lakes, estuaries, coastal waters and groundwater, and their dependent wildlife/habitats under one piece of environmental legislation for all European member states.

The WFD (Directive 2000/60/EC) is a substantial piece of EU water legislation that came into force in 2000. The overarching objective of the WFD is for the water bodies in Europe to attain Good or High Ecological Status. The Environment Protection Agency (EPA) is the competent authority in Ireland responsible for delivering the WFD. River Basin Management Plans (RBMP) have been created which set out measures to ensure that water bodies in the country achieve 'Good Ecological Status'.

Good Ecological Quality will depend on the quality of the individual quality elements on which the Ecological status is scored; namely the biological, chemical and morphological condition in a particular water body. Any reduction in any of these elements will result in a reduction of the overall ecological status.

3.5.4 Water Framework Status and Objectives

It is understood that Draft River Basin Management Plan for Ireland (2022-2027) has been adopted by all local authorities in order to achieve the aims of the WFD. The Plan sets out the new approach that Ireland will take to enhance protection, prevention, and monitoring of Irish waterbodies. The main actions include:

- Improve waste water treatment;
- Conservation and leakage reduction;
- Scientific assessment of water bodies and implementation of local measures;
- A new collaborative Sustainability and Advisory Support Programme;
- Dairy Sustainability Initiative;
- Development of water and planning guidance for local authorities;
- Extension of Domestic Waste Water Treatment Systems grant Schemes; and
- A new Community Water Development Fund

Regardless of their current quality, surface waters should be treated the same in terms of the level of protection and mitigation measures employed, i.e., there should be no negative change in status.

The third and current cycle aims to build principally on the initiatives of the second cycle, particularly the governance and implementation structures, and to improve the establishment of Irish Water, An Fóram Uisce (The Water Forum), the Local Authority Waters Programme and the Agricultural Sustainability Support and Advisory Programme.

3.6 Screening of Ecological Features

The ecological features identified during the walkover surveys and from desk-based assessments were reviewed.

An informal screening process is presented at the start of the results section to ensure that the assessment focuses only on features where the impact could have important consequences for biodiversity (valued ecological features). Any features which are important beyond the site level were identified for further evaluation. Ecological features with little or no value beyond the site level were screened out and a short statement explaining this is given in the screening section.

An Appropriate Assessment (AA) Screening Report has been produced separate to this EcIA (JBA, 2024), to assess the potential for effects on Designated Natura 2000 sites. The AA Screening Report concluded there was **no potential for adverse significant effects on European sites** arising from the proposed development, either alone or in-combination with other plans or projects.

3.7 Assessment of the Effects on Features

Ecological features include nature conservation sites, habitats, species assemblages/ communities, populations or groups of species. The assessment of the significance of predicted impacts on ecological features is based on both the 'value' of a feature, and the nature and magnitude of the impact that the project will have on it. The impact is based on the project which includes a certain amount of designed-in mitigation, including construction best practice measures that will be implemented with a high degree of certainty.

3.8 Valuation of Receptors

The value of designated sites, habitats and species populations is assessed with reference to:

- Their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations).
- Any social benefits that habitats and species deliver (e.g., relating to enjoyment of flora and fauna by the public).
- Any economic benefits that they provide.

The valuation of designated sites considers different levels of statutory and non-statutory protection. Assessment of habitat depends on several factors, including the size of the habitat, its conservation status and quality. The assessment also takes account of connected off-site habitat that may increase the value of the on-site habitat through association. Valuation of species depends on a number of factors including distribution, status, rarity, vulnerability, and the population size present.

Designated sites, habitats and species populations have been valued using the scale in Table 3-1.

Table 3-1: Examples of criteria used to define the value of ecological features (based on NRA, 2008, rev. 2009)

Level of Value	Examples of Criteria
International	An internationally important site e.g. Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar (or a site considered worthy of such designation). A regularly occurring substantial population of an internationally important species (listed on Annex IV of the Habitats Directive). Designated shellfish waters. Major fisheries area.
National	A nationally designated site e.g. Natural Heritage Area (NHA), a proposed Natural Heritage Area (pNHA), statutory Nature Reserve, or a site considered worthy of such designation. A viable area of a habitat type listed in Annex I of the Habitats Directive or of smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring substantial population of a nationally important species, e.g. listed on The Wildlife Act 1976 or The Wildlife (Amendment) Act 2023. A species included in the Irish Red Data Lists/Books. Significant populations of breeding birds.
Regional/County (County Dublin)	Species and habitats of special conservation significance within County Dublin. An area subject to a project/initiative under the County's Biodiversity Action Plan. A regularly occurring substantial population of a nationally scarce species.
Local (works site and its vicinity)	Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. A good example of a common or widespread habitat in the local area. Species of national or local importance, but which are only present very infrequently or in very low numbers within site area.
Less than local	Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. Common and widespread species.

Guidance published by CIEEM (2018) recommends breaking down the importance of ecological features in a geographic context similar to the NRA guidance shown in Table 3-1 with the following frame of reference to be adapted to local circumstances.

- International and European
- National
- Regional
- Metropolitan, County, vice-county or other local authority-wide area
- River Basin District
- Estuarine system/Coastal cell
- Local

The NRA (2009) guidance is congruent with this CIEEM (2018) guidance and includes a ‘Less than local’ level. The NRA (2009) guidance on geographic criteria for ecological valuation, as described in Table 3-1 is followed in this report.

Ecological Valuation may also be considered of Local Importance (higher value) or Local Importance (lower value) (Table 3-2).

Table 3-2: Examples of criteria used to define the value of ecological features of local importance (NRA, 2009)

Level of Value	Examples of Criteria
Local Importance (higher value)	Locally important populations of priority species or habitats or natural heritage features identified in the Local Biodiversity Action Plan (BAP), if this has been prepared. Resident or regularly occurring populations (assessed to be important at the Local level) of the following: *Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; *Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; *Species protected under the Wildlife Acts; and/or *Species listed on the relevant Red Data List. Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality. Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
Local Importance (lower value)	Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; Sites or features containing non-native species that are of some importance in maintaining habitat links.

3.8.1 Magnitude of Impacts

Ecological effects or impacts can be described and categorised in a number of ways. Examples of relevant terms are listed in the table below.

Table 3-3: Categories of Effects (derived EPA, 2022a).

Description	Categories of Effects
Quality of Effects	**Positive Effects** A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/ adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Describing the Significance of Effects	**Imperceptible** An effect capable of measurement but without significant consequences.
	Not Significant

Description	Categories of Effects
	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.
Describing the Extent and Context of Effects	**Extent** Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
	Context Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?).
Describing the Probability of Effects	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects	**Momentary Effects** Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).

Description	Categories of Effects
Describing the Types of Effects	**Indirect Effects (a.k.a. Secondary or Off-site Effects)** Effects on the environment. Which are not a direct result of the project, often produced away from the project site of because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	Do-nothing Effects The environment as it would be in the future should the subject project not be carried out.
	Worst Case Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

3.8.2 Significance of impacts

The overall significance of an impact can be derived from the total description of the effect compared against the sensitivity and significance (value) of the receptor as shown overleaf in Figure 3-1 which is taken from the EPAs EIAR Guidelines (EPA, 2022). The context and character of the receptor must also be assessed, such as its position in relation to the effect and its connectivity to the effect, however, this should be determined before assessing the significance of the impact.

The total description of the effect includes the character, magnitude, probability and consequences of the effect as described in Table 3-4 which are combined to give a general description of the effect on an ordinal scale from Negligible to High. The sensitivity and significance of the receptor is also described on an ordinal scale from Negligible to High.

The placement of the general description of the effect, and the sensitivity/ significance of the receptor on this scale is determined by a Competent Person (a qualified ecologist in this case) as they interpret the qualities of the effect from the categories listed in Figure 3-1 and the receptors sensitivity and significance. Level of significance, also described as value of the receptor is previously set out in sub-section 3.8 above. Sensitivity of the receptor is assessed by the Competent Person based on the receptor's characteristics and how susceptible to impact they are from the type of effect.

The overall significance of an effect is then categorised into one of the following seven classifications:

- Imperceptible
- Not Significant
- Slight
- Moderate
- Significant
- Very Significant
- Profound

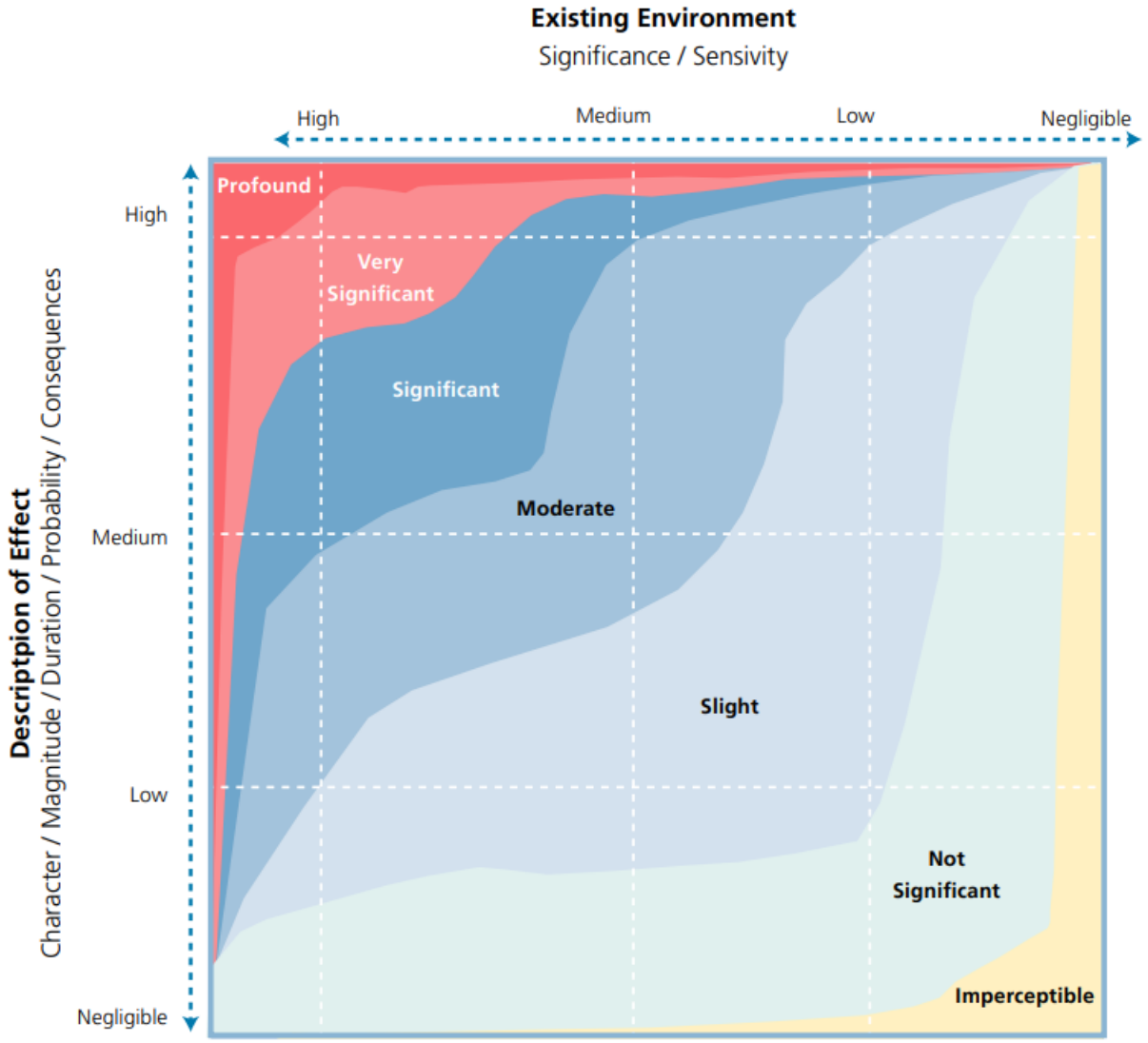

Figure 3-1: Chart showing the typical classifications of the significance of effects (EPA, 2022)

This chart has been adapted and derived into Table 3-4 as a representative "significance of impacts matrix", the scale has been ordered into an upper and lower bound for each qualitative category, so that degrees of significance within subcategories have been summarised and represented. The significance of impacts is distributed along a spectrum and this matrix has been adapted for easily referral by the Competent Person, however, on a case-by-case basis the significance of impact may be different as to what is listed below. .

Table 3-4: Significance of impacts matrix (derived from Figure 3-1, re EPA, 2022). Note: this table is an approximate interpretation of Figure 3-1

Magnitude of impact	Sensitivity/ Value of Receptor							
	High +	**High -**	**Medium +**	**Medium -**	**Low +**	**Low -**	**Negligible +**	**Negligible -**
High +	Profound	Very significant	Very significant	Significant	Moderate	Moderate	Not Significant	Imperceptible
High -	Very Significant	Very significant	Significant	Moderate	Moderate	Slight	Not Significant	Imperceptible
Medium +	Very Significant	Significant	Moderate	Moderate	Slight	Slight	Not Significant	Imperceptible
Medium -	Significant	Moderate	Moderate	Moderate	Slight	Slight	Not Significant	Imperceptible
Low +	Moderate	Slight	Slight	Slight	Slight	Slight	Not Significant	Imperceptible
Low -	Slight	Slight	Slight	Slight	Slight	Not Significant	Not Significant	Imperceptible
Negligible +	Not Significant	Not Significant	Not significant	Not Significant	Not Significant	Not Significant	Not Significant	Imperceptible
Negligible -	Not Significant	Not Significant	Not significant	Not Significant	Not Significant	Imperceptible	Imperceptible	Imperceptible

3.8.3 Residual Impacts

The project is assessed including some designed-in mitigation (e.g., appropriate drainage design). This is done where mitigation is proven to be effective and will be implemented effectively with a high degree of certainty. Where significant residual impacts are still identified, further mitigation measures will be proposed as part of the Ecological Impact Assessment process to avoid, reduce or minimise them. Each impact assessment section assigns a final significance level to the impact described, which considers and includes the implementation of any stated mitigation measures; these are the residual impacts.

3.9 Cumulative Impacts

Potential sources of cumulative impacts were identified based on the ecology of valued ecological features. Potential sources of cumulative impacts were sought within an area where there is the potential for a significant impact on a site or species. The plans and projects identified as potential sources of cumulative impacts are described in Section 5.

3.10 Limitations and Constraints

This EcIA is based on ecological site surveys and existing data from the above-mentioned sources. The report necessarily relies on some assumptions and is inevitably subject to some limitations. These do not affect the conclusion, but the following points are recorded in order to ensure the basis of the assessment is clear:

- Information on the works and conditions on site are based on current knowledge at the time of writing. Changes to the site since surveys were undertaken cannot be accounted for. However, the site surveys have followed the CIEEM (2019) Advice Note on the lifespan of ecological reports and surveys. Any changes to the proposed works will require an assessment by a suitably qualified ecologist to determine if re-assessment is required.
- Adverse weather can cause delays to the schedule and alter the timing of works. This has been accounted for using a worst-case scenario where possible.
- This assessment is based on the methodology for proposed works as described in this report. Where changes to the methodology occur, an ecologist will need to be consulted to determine if the changes are likely to alter the ecological effects and would therefore need reassessment.
- Data from biological record centres or online databases is historical information, and datasets may be incomplete, inaccurate, or missing. The absence of records for an area may be due to the under recording in the area and not necessarily imply the absence of species. These records are therefore to be treated as minimum information available for the area.
- Dedicated wintering wading bird surveys were not conducted for this project due to the lack of foraging potential within the site, and the adjacent shingle beach. As such, desk-based findings and online databases are the sources of information relied upon for this group.
- Dedicated surveys for Tern species were not carried out for this project. This was due the known large expanse of tern foraging areas. It would require considerable expense to complete surveying from appropriate vantage points, including at sea, in order to gain a full knowledge of foraging areas used by the tern colony of Dalkey Islands SPA. This was considered not proportionate to the development scale of the project. As such, desk-based findings and online databases are the sources of information relied upon for these species.
- As listed prior, the low numbers of some or the lack of species can be attributed to availability of online databases and as such the precautionary principle is used at all times when determining the potential ecological sensitivity of the site.

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4 Baseline Conditions

These baseline conditions present information gathered from existing reports and desk-based sources as detailed in Section 3.6 and the site visit conducted on the 14th of June 2023, with a follow-up survey conducted on the 3rd of May 2024.

4.1 Desk-based Assessment.

4.1.1 Designated Sites

This section includes the designated sites of international and national importance within the Zone of Influence (ZoI). The ZoI for this project is; noise disturbance (300m); air pollution (500m), ground and surface water pollution (10km), with an additional 15km buffer for hydrologically connected transitional and coastal waters.

Table 4-1 below lists these designated sites with their respective importance and distance from the proposed site development**.** Figure 4-1 overleaf displays the locations of the statutory designated sites, with Figure 4-2 displaying the non-statutory (proposed and existing Natural Heritage Area) designated sites within the ZoI of the site. Table 4-2 and Table 4-3 displays the site descriptions of the statutory designated sites and non-statutory (proposed and existing Natural Heritage Area) sites and their respective ecological features.

Table 4-1: Proximity and importance of designated sites within their respective ZoI buffers.

Name	Designation	Importance	Distance from site	Hydrological Distance from Site
Rockabill to Dalkey Island [003000]	SAC	International	1.4km	1.4km
Dalkey Islands [004172]	SPA	International	1.9km	1.9km
South Dublin Bay and River Tolka Estuary [004024]	SPA	International	4.7km	6.7km
South Dublin Bay [000210]	SAC	International	4.8km	6.8km
South Dublin Bay pNHA [000210]	pNHA	National	4.8km	6.8km
Dalkey Coastal Zone and Killiney Hill pNHA [001206]	pNHA	National	0.4km	0.5km
Loughlinstown Woods pNHA [001211]	pNHA	National	1.7km	n/a
Dingle Glen pNHA [001207]	pNHA	National	4.8km	n/a

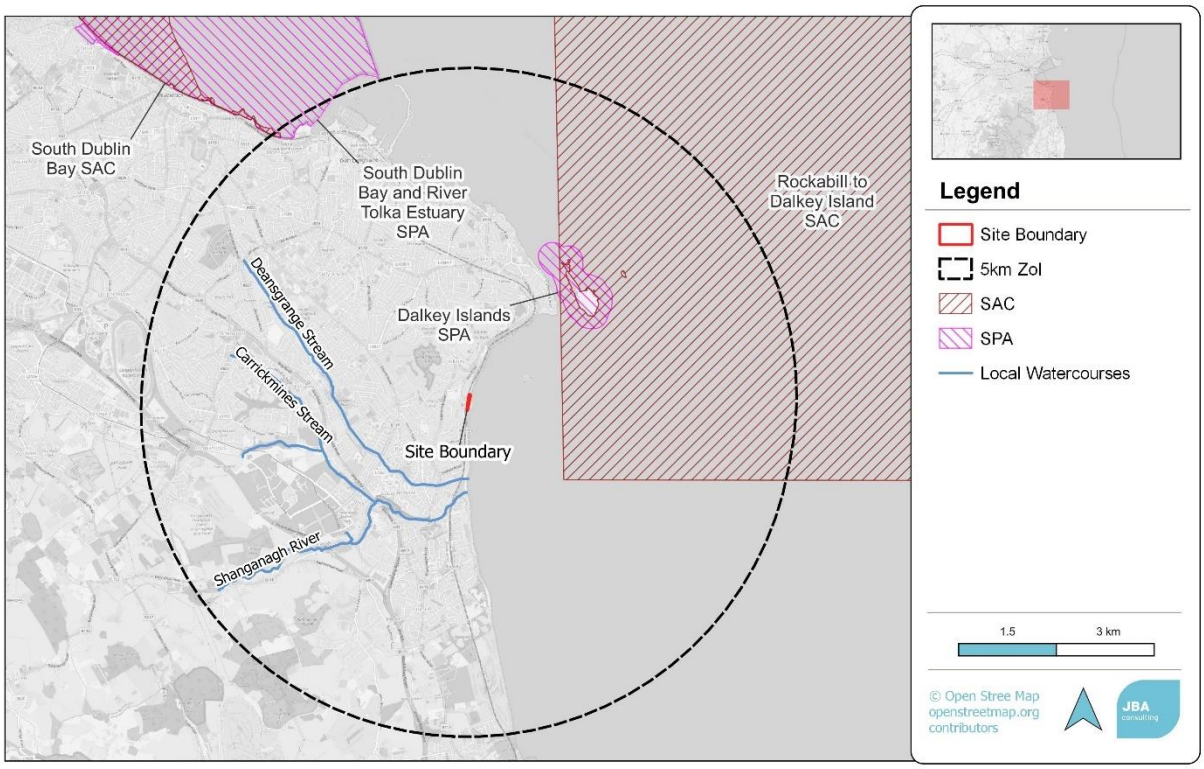


Figure 4-1: Statutory (SAC and SPA) designated sites within the ZoI of the development (©OpenStreetMap contributors, 2023)

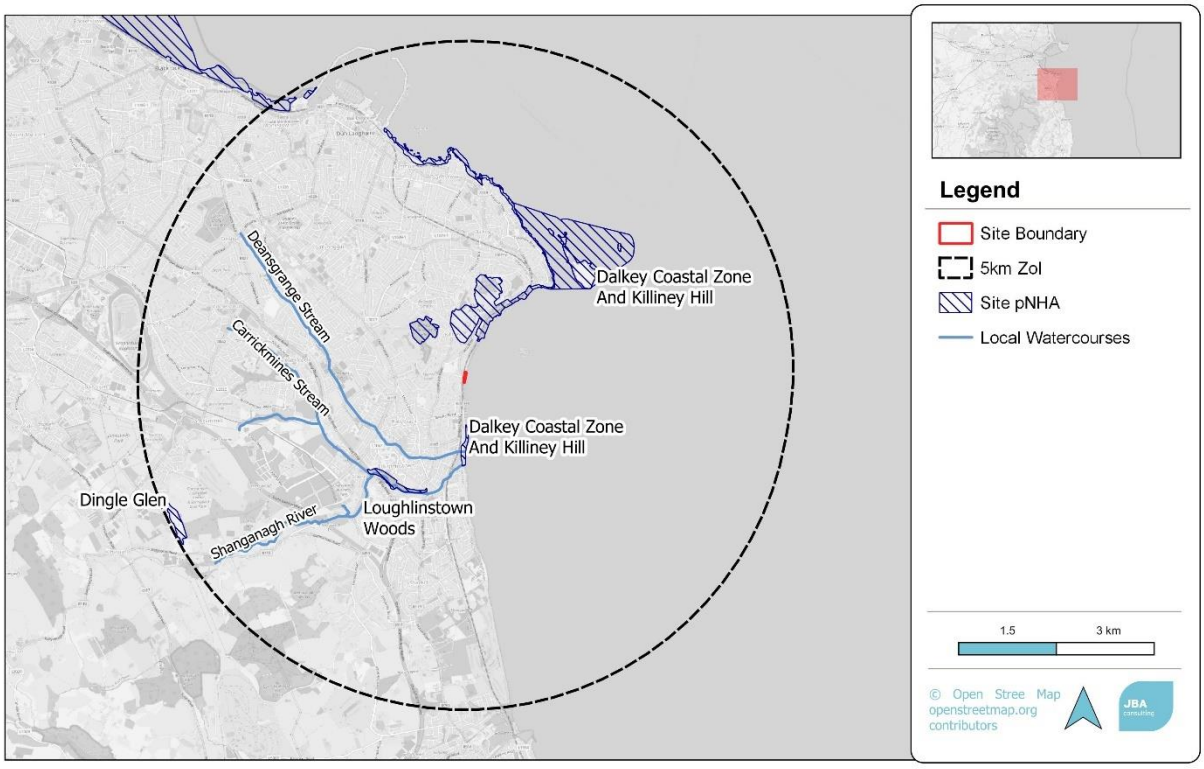


Figure 4-2: Non-statutory(pNHA) designated sites within their respective ZoI of the site works (©OpenStreetMap contributors, 2023)

Table 4-2: Site briefs; Qualifying Interests; and project-relevant threats/ pressures and their effects and sources in relation to the Natura 2000 sites within the ZoI (including hydrological connectivity extension)

Site Name	Brief	Qualifying Interests	Project Relevant Threats / Pressures: Impact (Source)
Rockabill to Dalkey Island SAC (003000)	The selected site forms a strip of dynamic inshore and coastal waters in the western Irish Sea, extending approximately 40 km in length and encompassing a range of comparatively shallow marine habitats, including diverse seabed structures, reefs, islets and islands. The area selected for designation represents a key habitat for the Annex II species - Harbour Porpoise, within the Irish Sea. The species occurs year-round within the site and comparatively high group sizes have been recorded. Porpoises with young (i.e. calves) are observed at favourable, typical reference values for the species. The selected site contains a wide array of habitats believed to be important for Harbour Porpoise including inshore shallow sand and mud-banks and rocky reefs scoured by strong current flow. The site also contains two Annex II seal species – Harbour Seal *Phoca vitulina*, Grey Seal *Halichoerus grypus* for which terrestrial haul-out sites occur in immediate proximity to the site. Bottlenose Dolphin *Tursiops truncatus* has also occasionally been recorded in the area. Along the eastern seaboard the habitat type reef is uncommon due to the prevailing geology and hydrographical conditions. Expansive surveys of the Irish coast have indicated that the greatest resource of this habitat within the Irish Sea is found fringing offshore islands which are concentrated along the Dublin coast. These reefs are subject to strong tidal currents with an abundant supply of suspended matter resulting in a good representation of filter feeding fauna such as sponges, anemones and echinoderms. (NPWS, 2014)	- Reefs [1170] - Harbour Porpoise *Phocoena phocoena* [1351]	Discharges: High Impact (outside) Siltation rate changes, dumping, depositing of dredged deposits: Low Impact (outside) (Full list of threats / pressures - EEA, 2019b)
Dalkey Islands SPA (004172)	The site comprises Dalkey Island, Lamb Island, Maiden Rock, the intervening rocks and reefs between Dalkey Island, Lamb Island and Clare Rock, and the sea area around Maiden Rock to a distance of 100 m. The site is of importance for both breeding and staging *Sterna* terns. There is a well-established colony of *Sterna hirundo* and smaller numbers of *Sterna paradisaea. Sterna dougallii* bred in 2003 and 2004; one of only three known sites in the country - this came about after several years of conservation management aimed at attracting the species. The site along with other parts of South Dublin Bay is used by the three *Sterna* tern species as a major post-breeding/pre-migration autumn roost area. (NPWS, 2015a)	- Roseate Tern *Sterna dougallii* [A192] - Common Tern *Sterna hirundo* [A193] - Arctic Tern *Sterna paradisaea* [A194]	No project relevant threats or pressures present. (Full list of threats / pressures - EEA, 2020a)

Site Name	Brief	Qualifying Interests	Project Relevant Threats / Pressures: Impact (Source)
South Dublin Bay and River Tolka Estuary SPA (004024)	This designated site comprises a substantial part of Dublin Bay. It includes virtually all of the intertidal area in the south bay, as well as much of the Tolka Estuary to the north of the River Liffey. The site possesses extensive intertidal flats supporting wintering waterfowl which are part of the overall Dublin Bay population. It regularly has an internationally important population of Brent Geese *Branta bernicla hrota*, which feeds on Dwarf Eelgrass *Zostera noltei* in the autumn. It has nationally important numbers of a further six species including: Oystercatcher H*aematopus ostralegus*, Ringed Plover *Charadrius hiaticula*, Red Knot *Calidris canutus*, Sanderling *Calidris alba*, Dunlin *Calidris alpina* and Bar-tailed Godwit *Limosa lapponica*. It is an important site for wintering gulls, especially Black-headed Gull *Chroicocephalus ridibundus* and Common Gull *Larus canus*. South Dublin Bay is the premier site in Ireland for Mediterranean Gull *Larus melanocephalus*, with up to 20 birds present at times. It is also a regular autumn roosting ground for significant numbers of terns, including Roseate Tern *Sterna dougallii*, Common Tern *Sterna hirundo* and Artic Tern *Sterna paradisaea* (NPWS, 2015b).	- Light-bellied Brent Goose *Branta bernicla hrota* [A046] - Oystercatcher *Haematopus ostralegus* [A130] - Ringed Plover *Charadrius hiaticula* [A137] - Grey Plover *Pluvialis squatarola* [A141] - Red Knot *Calidris canutus* [A143] - Sanderling *Calidris alba* [A144] - Dunlin *Calidris alpina* [A149] - Bar-tailed Godwit *Limosa lapponica* [A157] - Redshank *Tringa totanus* [A162] - Black-headed Gull *Chroicocephalus ridibundus* [A179] - Roseate Tern *Sterna dougallii* [A192] - Common Tern *Sterna hirundo* [A193] - Arctic Tern *Sterna paradisaea* [A194] - Wetland and Waterbirds [A999] (NPWS, 2015b)	**Discharges:** High Impact (inside) (Full list of threats / pressures - EEA, 2021))
South Dublin Bay SAC (000210)	This intertidal site extends from the South Wall at Dublin Port to the West Pier at Dun Laoghaire, a distance of c. 5km. The seaward boundary is marked by the low tide mark, while the landward boundary is now almost entirely artificially embanked. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The designated site possesses a fine and fairly extensive example of intertidal flats. Sediment type is predominantly sand, with muddy sands in the more sheltered areas. A typical macro-invertebrate faunal assemblage exists within the SAC. The SAC has the largest stand of Dwarf Eelgrass *Zostera noltei* on the east coast. It also supports part of the important wintering waterfowl populations of Dublin Bay (NPWS, 2015c)	- Mudflats and sandflats not covered by seawater at low tide [1140] - Annual vegetation of drift lines [1210] - *Salicornia* and other annuals colonising mud and sand [1310] - Embryonic shifting dunes [2110] (NPWS, 2013b)	**Discharges:** Moderate Impact (both) **Accumulation of organic material:** High Impact (inside) (Full list of threats / pressures - EEA, 2020b))

* = priority Annex I habitat

= indirect threat via the increase in the local populace and recreational activities as a result of the development

Table 4-3: Site briefs and ecological features of conservation concern of proposed Natural Heritage Areas within the ZoI.

Site Name	Brief	Ecological Features of Conservation Concern
South Dublin Bay pNHA [000210]	See descriptions for South Dublin SAC and South Dublin Bay and River Tolka Estuary SPA in Table 4-2	- Mudflats and sandflats not covered by seawater at low tide [1140] - Annual vegetation of drift lines [1210] - *Salicornia* and other annuals colonising mud and sand [1310] - Embryonic shifting dunes [2110] - Various roosting birds
Dalkey Coastal Zone and Killiney Hill pNHA [001206]	This site includes the coastal stretch from Scotman's Bay to south of White Rock, the Dalkey Island group and Dalkey Sound, and Killiney Hill. Dalkey Sound and environs are noteworthy for the occurrence of west and south coast invertebrates. Species taken include squat lobsters *Galathea* spp., swimming crabs *Portunus* spp. and the crawfish *Palinurus vulgaris*. The area is also noted for the occurrence of gymnoblastic hydroids, with the rare *Antedon bifida* being taken regularly. Some rare European species which occur are members of the Order *Nudibranchia* and the Spiny Starfish *Marthasterias glacialis*. Dalkey Island lies c. 400m off Sorrento Point. Soil cover on Dalkey Island consists mainly of a thin peaty layer, though in a few places there are boulder clay deposits. Vegetation cover is low, consisting mainly of grasses. No woody plants have become established, probably due to constant grazing by goats. Dense patches of Bracken *Pteridium aquilinum* and Hogweed *Heracleum sphondylium* occur in places. Lamb Island lies to the north of Dalkey Island, It has a thin soil cover and some vegetation, mainly grasses, Common Nettle *Urtica dioica* and Hogweed. Further north lies Maiden Rock, a bare angular granite rock up to 5m high. There is no vegetation cover. Killiney Hill is a complex of coastal heath and mixed woodland. The woods are mostly planted species. The ground flora is mainly Ivy *Hedera helix* and bramble *Rubus* spp but there are some areas with more typical woodland species such as Wood-sorrel *Oxalis acetosella* and Herb-Robert *Geranium robertianum.* There are open rock faces and areas of low lying scrub with plants such as Wood Vetch *Vicia sylvatica*, Climbing Corydalis *Corydalis claviculata* and Wild Madder *Rubia peregrina* growing amongst the Gorse *Ulex europaeus*. The shallow soils overlying the rock support a community of winter annuals and early flowering perennials such as Spring Squill *Scilla verna* and Wild Onion *Allium vineale*. The drift banks above and below the railway have warm shallow soils. Here grow scarce plants such as Bloody Crane's-bill (*Geranium sanguineum*, Bee Orchid *Ophrys apif*era, Sea Stork's-bill *Erodium maritimum* and clovers (*Trifolium ornithopodioides, T. striatum and T. scabrum)*. The naturalised Silver Ragwort *Senecio cineraria* is widespread. Bird populations for Dalkey Island are described above in Table 4-2. Dalkey Island SPA. Up to five pairs of Fulmar *Fulmarus glacialis* breed on the cliffs below the railway line near Killiney Hill. Kestrel *Falco tinnunculus* breeds in the area, as well as Stonechat *Saxicola rubicola*	- Drift Lines (1210) - Vegetated Shingle (1220) - Reefs (1170) - Crustaceans - Scrub woodland - Roseate Tern *Sterna dougallii* [A192] - Common Tern *Sterna hirundo* [A193] - Arctic Tern *Sterna paradisaea* [A194] - Other roosting sea birds - Kestrel *Falco tinnunculus* - Fulmar *Fulmarus glacialis* - Harbour seal *Phoca vitulina* -Grey seal *Halichoerus grypus*

Site Name	Brief	Ecological Features of Conservation Concern
Loughlinstown Woods pNHA [001211]	This site is located about 4km north of Bray, on the east side of the main Dublin-Bray road. It is on the north bank of the Shanganagh River at Loughlinstown. The wood was originally planted but following substantial regeneration, has produced woodland of natural character in age structure and form. The western end retains a high canopy of Beech *Fagus sylvatica*, Sycamore *Acer pseudoplatanus* and some Elm *Ulmus* spp., with Holly *Ilex aquifolium* and Cherry Laurel *Prunus laurocerasus* below. There is little regeneration in this part of the wood. There is a gradation into a dense thicket of Bramble *Rubus* spp., and trees such as Ash *Fraxinus excelsior*, Blackthorn *Prunus spinosa* and Hazel *Corylus avellana* occur here. A stand of Gorse *Ulex europaeus* occurs at the eastern end of the site. The valley floor has much Alder *Alnus glutinosa* and some willows *Salix* spp. The introduced Giant Hogweed *Heracleum mantegazzianum* has spread along the banks of the river. Recent reports indicate the presence of Alluvial Woodland which may correspond with the EU Annex I habitat, *Alluvial forests with Alnus glutinosa and Fraxinus excelsior* [91E0] as well as the presence of Badger *Meles meles* and various bat species.	- Potential EU Annex I habitat, *Alluvial forests with Alnus glutinosa and Fraxinus excelsior* [91E0] - Bats - Badger
Dingle Glen pNHA [001207]	Dingle Glen is situated approximately 5km west of Killiney. It is a dry valley formed by a glacial lake overflow channel. Formerly cleared of vegetation, a woodland cover is now regenerating, with pioneer species of Holly *Ilex aquilifolium*, Blackthorn *Prunus spinosa*, and willows *Salix* spp. Individual trees of Ash *Fraxinus excelsior*, Hazel *Corylus avellana*, Sessile Oak *Quercus petraea* and Spindle *Euonymus europaeus* occur. The woodland ground flora is represented by Foxglove *Digitalis purpurea*, Wood Avens *Geum urbanum*, Wood Melic *Melica uniflora* and Bugle *Ajuga reptans*. Trees and shrubs are mostly restricted to the valley bottom. On the slopes above, a heathy vegetation is dominated by Gorse *Ulex europaeus* and Bracken *Pteridium aquilinum*. Other species include Wood Sage *Teucrium scorodonia*, Bell Heather *Erica cinerea*, Navelwort *Umbillicus rupestris*, English Stonecrop *Sedum anglicum*, Heath Bedstraw *Galium saxatile*, Heath-grass *Danthonia decumbens*, Great Wood-rush *Luzula sylvatica* and Climbing Corydalis *Corydalis claviculata*.	- Immature Oak-Ash-Hazel seminatural woodland -Scrub Woodland

4.1.2 Screening of designated sites

An AA Screening has been carried out for this project by JBA (2024). Dun Laoghaire Council is required by the Bathing Water regulations 2008, the Water Framework Directive, and the Marine Strategy Framework Directive and has committed under the Development Plan to follow the National Marine Planning Framework to prevent deterioration to the overall environmental and ecological status of waterbodies. The project will follow the s drainage utilities will be connected to the existing local drainage systems, with these in mind, the screening concluded that due to the small scale of the project, there would be an overall negligible generation of pollutants during the construction phase. Visitation rates to the beach are not anticipated to increase significantly compared to existing numbers, and the screening concluded that there will not be an impact on local Natura 2000 sites during the operational phase.

Following initial screening, and based upon best scientific judgement it is concluded that **adverse significant effects are not anticipated** from the project on the following Natura 2000 sites within the Zone of Influence:

- Rockabill to Dalkey Island SAC 003000
- Dalkey Islands SPA 004172
- South Dublin Bay and River Tolka Estuary SPA 004024
- South Dublin Bay SAC 000210

The pNHA sites below, are being **screened out** due one or more of the following: lack of hydrological connectivity (surface water and groundwater) and/ or distance from the proposed site; and the development's scale (capacity for dust generation):

- South Dublin Bay
- Loughlinstown Woods
- Dingle Glen

Dalkey Coast Zone and Killiney Hill pNHA is within close proximity to the site, approximately 0.4km, and is connected via both airborne pathways and through the hydrological pathway via Killiney Bay and is therefore **screened in** and is to be considered further.

4.1.3 Protected Species

National Biodiversity Data Centre (NBDC)

Records of protected flora and fauna including invertebrates, amphibians, fish, birds and mammals collated from the NBDC (2023) database, present within the surrounding 2km within the past 10 years are listed in Appendix D. This list includes their level of protection, if they are red or amber listed on the International Union for the Conservation of Nature and Natural Resources (IUCN) Red List or the Birds of Conservation Concern in Ireland (2020-2026), and the date of the last record of this species at this location.

A series of electrofishing surveys carried out by Triturus Environmental Ltd (2024) recorded presence of both Brown Trout *Salmo trutta,* Lamprey *Lampetra* spp. ammoecetes and European Eel *Anguilla anguilla* present within the Carrickmines Stream, while surveys also recorded the presence of Brown Trout and Sea Trout *Salmo trutta*, Lamprey spp., Eel and Flounder *Platichthys flesus* present within the Shanganagh Stream. Electrofishing surveys have not been conducted on the Deansgrange Stream, however direct communication with the fisheries protection section of Inland Fisheries Ireland (IFI) in 2022 indicate that Brown Trout *Salmo Trutta* and European Eel *Anguilla anguilla* are known to be present in the stream (JBA 2023). These river waterbodies are all connected to Killiney Bay, and some of these listed species have the potential to be present off shore from the site, and will be considered further within this report.

4.1.4 Invasive Non-native Species

The records from the NBDC (2023) database, show that there are three high-impact, and three medium impact, invasive non-native species listed on the Third Schedule of Non-native species (subject to restrictions under Regulations 49 and 50) present within the 2km buffer zone of the proposed site within the past 10 years (Table 4-4).

Table 4-4: High and Medium impact INNS species within 2km of the proposed site

Invasive Non-native Species	Proximity to site	Impact Status
American Skunk-cabbage *Lysichiton americanus*	1.4km	Medium Impact
Giant Hogweed *Heracleum mantegazzianum*	1.5km	High Impact
Japanese Knotweed *Fallopia japonica*	1.2km	High Impact
Sea-buckthorn *Hippophae rhamnoides*	0.7km	Medium Impact
Three-cornered Garlic *Allium triquetrum*	Within site boundary	Medium Impact
Harlequin Ladybird *Harmonia axyridis*	1.5km	High Impact
Eastern Grey Squirrel *Sciurus carolinensis*	0.9km	High Impact

4.2 Water Framework Directive

4.2.1 Surface water status

The proposed site lies within the Water Framework Directive (WFD) Avoca-Vartry catchment, and within the Dargle_SC_010 sub-catchment (EPA, 2022). The site is within the Deansgrange (Kill of the Grange Stream_010) subbasin, and both the Shanganagh River (Shanganagh_010) and Carrickmines Stream (Carrickmines_Stream_010) are both in close proximity to the Deansgrange Stream, however the surface water within the site area is unlikely to drain towards any of these waterbodies and likely drains into the local surface water drainage system, directly to ground water and/ or onto the beach where it enters Killiney Bay (Figure 4-3). The coastal water body of Killiney Bay is referred to as the 'Southwestern Irish Sea - Killiney Bay (HA10)' waterbody which borders the Irish Sea Dublin (HA 09) waterbody approximately 1.2km north of the site.

Table 4-5: The WFD waterbodies within the ZoI of the development

WFD Waterbody	WFD Status	WDF Risk
Deansgrange Stream (Kill of the Grange Stream_010)	Poor	At Risk
Carrickmines Stream (Carrickmines_Stream_010)	Good	Not At Risk
Shanganagh River (Shanganagh_010)	Good	Not At Risk
Southwestern Irish Sea - Killiney Bay (HA10)	High	n/a

Irish Sea Dublin (HA 09)	Good	n/a

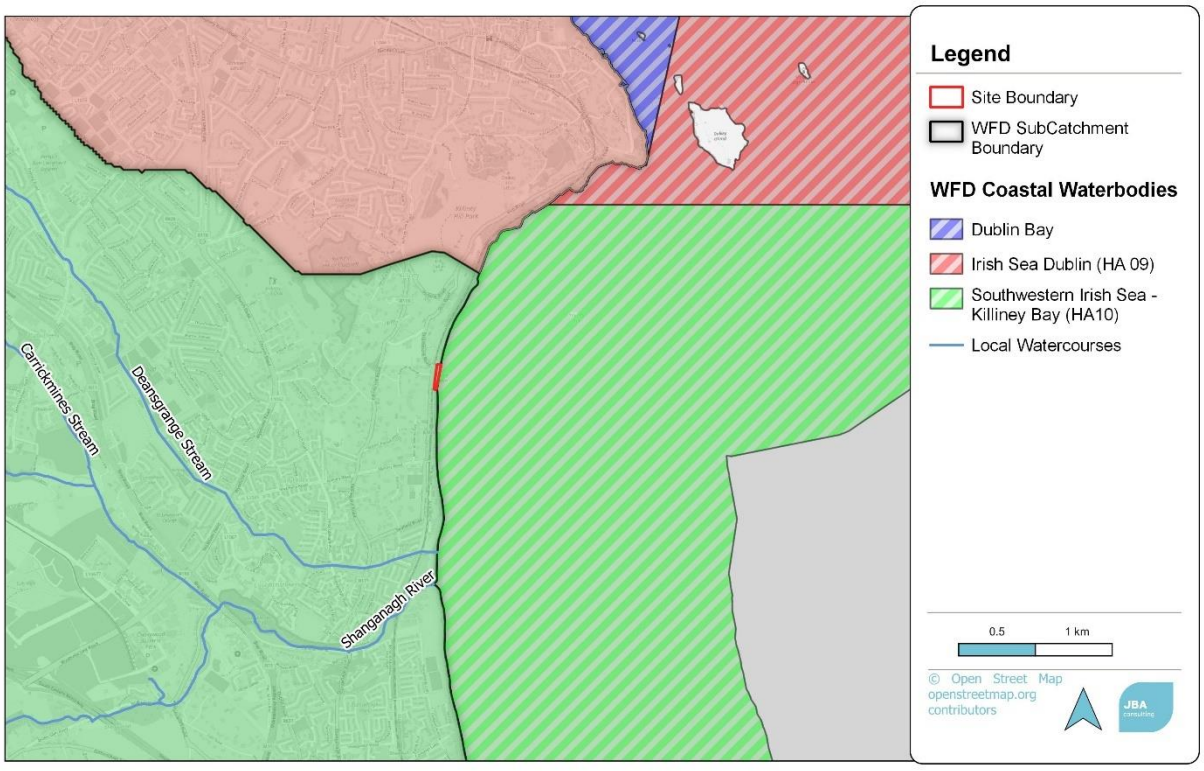


Figure 4-3: Waterbodies within the vicinity of the proposed site (OSM, 2023)

Blue Flag Beach

Killiney Beach was awarded Blue Flag Status for 2024. To qualify, beaches must adhere to the following criteria.

1. Water Quality: Excellent water quality, with regular testing for pollutants and contaminants.
2. Environmental Education: Information about the local ecosystem, environmental initiatives, and awareness programs.
3. Environmental Management: Cleanliness, waste management facilities, and responsible land use to preserve the natural habitat.
4. Safety and Services: Availability of lifeguards, first aid, appropriate facilities, and safety measures to ensure visitor well-being.

4.2.2 Groundwater

The site is found within the Kilcullen (IE_EA_G_003) groundwater body, however the site is also in close proximity to the Wicklow (IE_EA_G_076) groundwater body (Figure 4-4). WFD status and current risk of these groundwater bodies are listed in Table 4-6 (EPA 2023).

Table 4-6: WFD Groundwater bodies Risks and Status in the vicinity of the site

WFD Ground waterbody	WFD Status	WDF Risk
Kilcullen	Good	At Risk
Wicklow	Good	Under Review

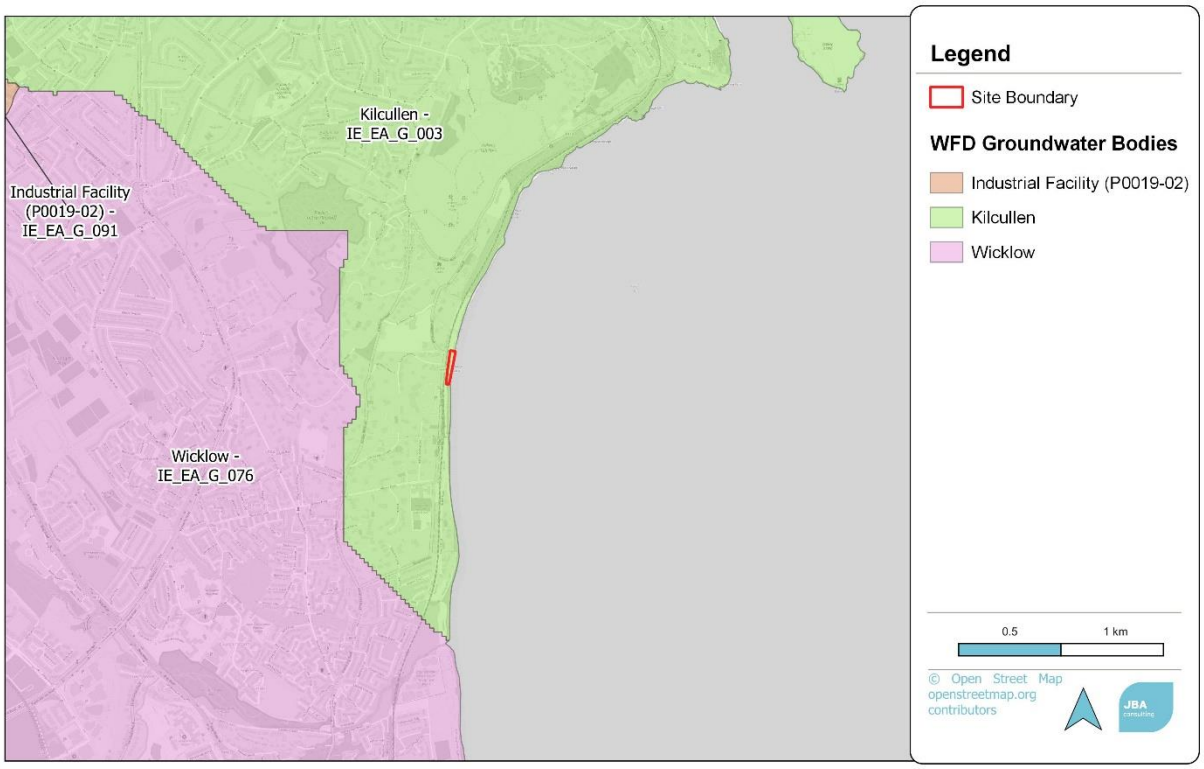


Figure 4-4: Groundwater bodies within the vicinity of the site

The subsoil in this area consists mainly of beach sands and gravels which are derived from granite, overlayed with a mixture of made ground and well-draining soils. The underlying aquifer is considered Locally Important (LI) with a granite bedrock that is moderately productive only in local zones. This aquifer has poor connections, low permeability, with discharge restricted to a few hundreds of metres and general restricted groundwater discharge to streams, and /or local waterbodies (GSI, 2023).

The highly permeable nature of the subsoil sands in the area have resulted in a groundwater vulnerability classification of High/ Extreme across the site (Figure 4-5). It is likely that the groundwater within the immediate area is directly linked with Killiney Bay. The underlying aquifer is considered locally important with Locally Important (LI) with bedrock that is moderately productive only in local zones (GSI, 2023).

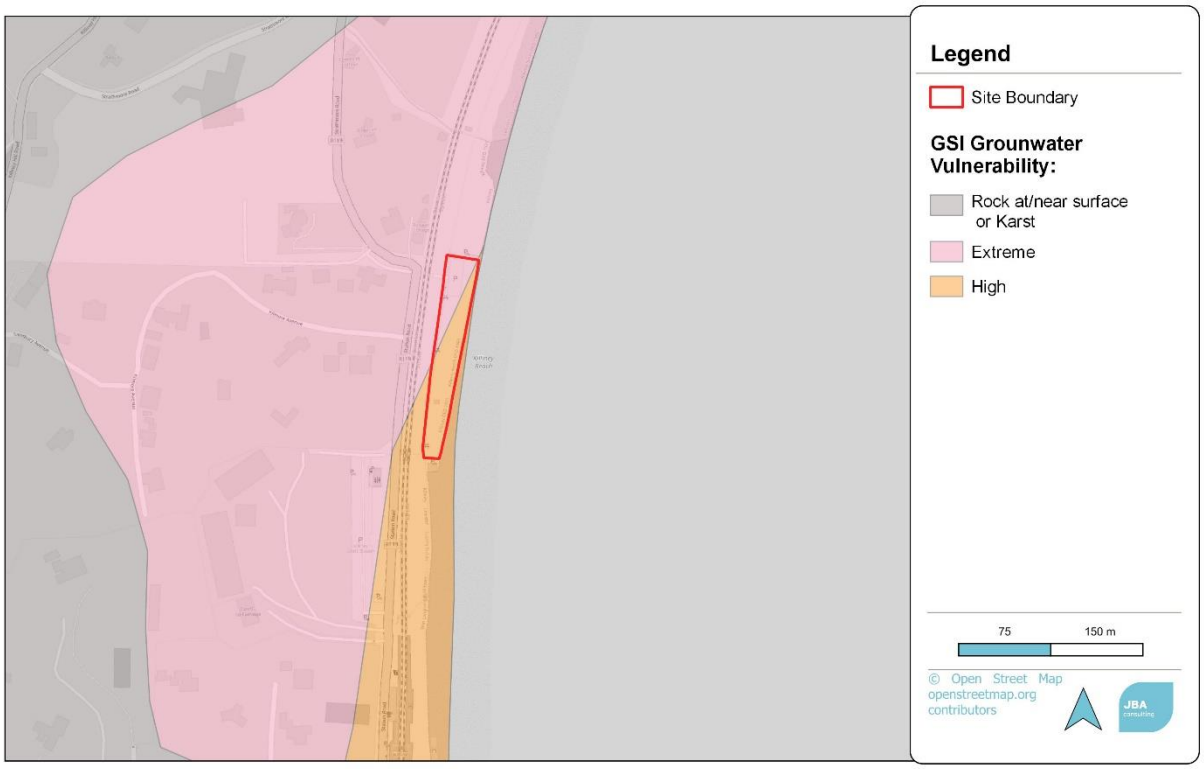


Figure 4-5: Aquifer vulnerability of the site (GSI, 2023)

4.3 Site Visits

An initial ecological survey of the study area were conducted by JBA Ecologists Mark Desmond and Patricia Byrne on the 14th of June 2023, with a follow-up survey conducted by JBA Ecologist Michael Coyle on the 3rd of May 2024. Descriptions of habitats and species are provided in the sections below.

4.4 Habitats

The habitats recorded on site are listed in Table 4-7 and shown in Figure 4-6 along with Invasive Non-Native Species (INNS) recorded during the ecological walkover survey.

Table 4-7: List of habitats recorded on site.

Habitat	Fossitt Code	Corresponding Annex I habitat
Buildings and artificial surfaces	BL3	-
Shingle and gravel banks	CB1	*Perennial vegetation on stony banks* [1220] (PVSB)
Amenity grassland (improved)	GA2	-
Shingle and gravel shores	LS1	*Annual vegetation of drift lines* [1210] (AVDL)
Treelines	WL2	-
Scrub	WS1	*Perennial vegetation on stony banks* [1220]
Sea inlets and bays	MW2	

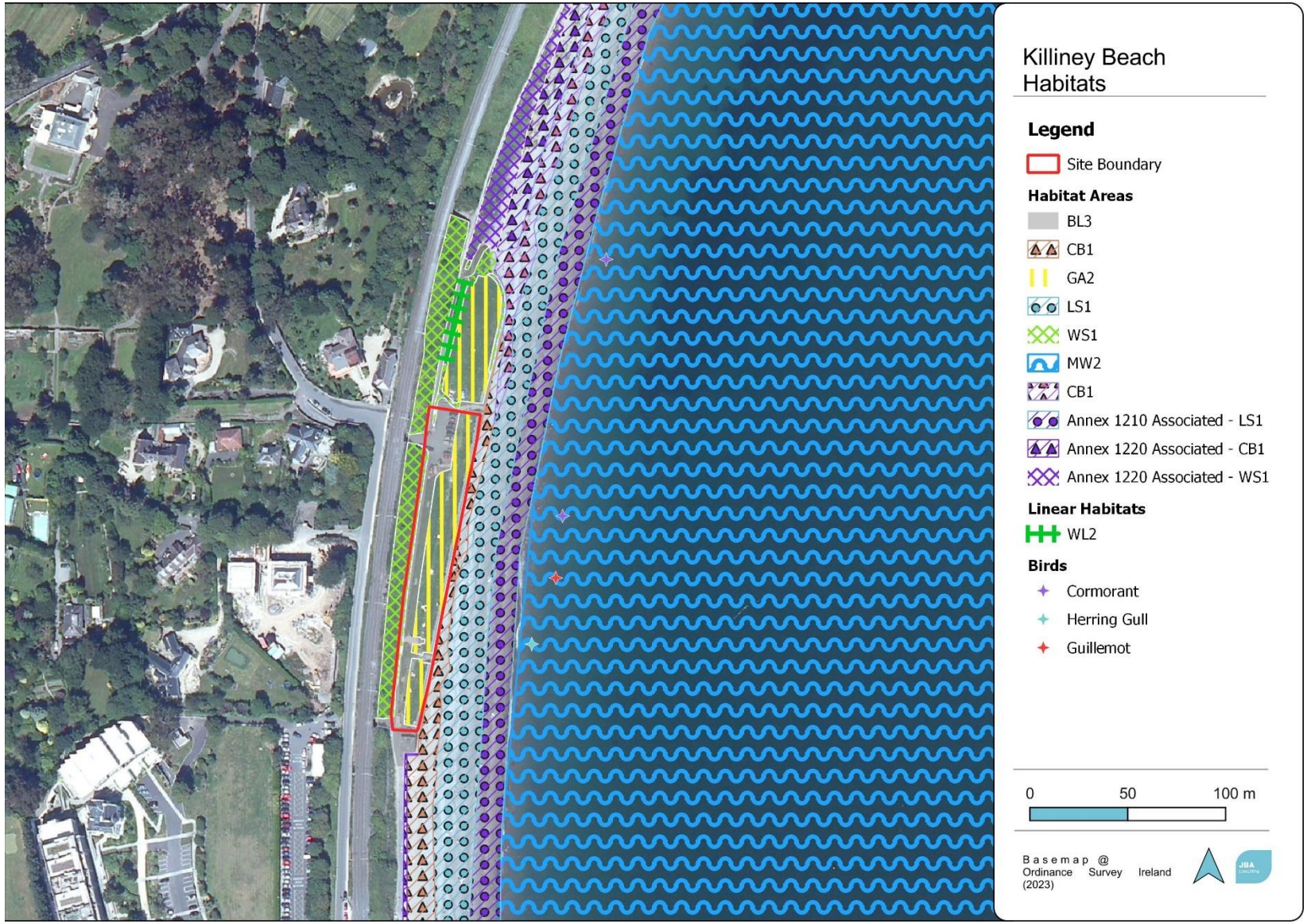


Figure 4-6: Habitat map of site area

4.4.1 Buildings and artificial surfaces - BL3

Buildings and artificial surfaces include the small buildings, paths, roads and gabion wall present within and adjacent to the site. There were no species recorded within these sections.

In the context of this site and the lands immediately adjacent, these artificial habitats are considered to be of **less than local ecological importance** given its low biodiversity value for floral species and lack of foraging potential for fauna.

4.4.2 Shingle and gravel banks - CB1

Higher sections of the shingle shore have developed into shingle and gravel banks, found along the base of the gabion wall (Figure 4-7).

Sections of this habitat to the north of the development area have developed a vegetative community (Figure 4-8) containing Lyme Grass *Leymus arenarius*; Sea Beet *Beta vulgaris* ssp*. Maritima*; Wild Radish *Raphanus raphanistrum;* Sea Sandwort *Honckenya peploides*; Babington's Orache *Atriplex glabriuscula;* Ribwort Plantain *Plantago lanceolata;* Dandelion *Taraxacum* spp. as well as White Mustard *Sinapis alba*. This vegetated area corresponds with the Annex I habitat *Perennial vegetation of stony banks* [1220].

In the context of this site and the lands immediately adjacent, this habitat is considered to be of **national importance** given its association with the aforementioned Annex habitat.

Figure 4-7: Shingle banks (CB1) developing above the high tide line along the base of the gabion baskets

Figure 4-8: Vegetative community developing along the shingle bank above the high tide line

4.4.3 Shingle and gravel shore - LS1

The shingle and gravel banks grade into this shingle shore habitat which goes down to the coastal waters. Sea Sandwort is found on the upper limits of the shore, however the majority of the beach in this section is made up of shingle (Figure 4-9).

This habitat type is linked with the Annex I habitat *Annual vegetation of drift lines* [1210]. In the context of this site and the lands immediately adjacent, this habitat is considered to be of **national importance** given its association with the aforementioned Annex habitat.

Figure 4-9: Shingle and gravel shore (LS1) found below (east of) the site

4.4.4 Sea inlets and bays (MW2)

The marine waters of Killiney Bay stretch between Sorrento Point to the north to Bray Head to the south. The bay is approximately 5k wide. The bay is generally sheltered from south west winds.

4.4.5 Amenity grassland (improved) (GA2)

The majority of the site area is made up of amenity grassland (Figure 4-10), with all proposed structural work being built on this habitat. Species recorded include Perennial Ryegrass *Lolium perenne*; White Clover *Trifolium repens*; Creeping Buttercup *Ranunculus repens*; Dandelion *Taraxacum* sp.; Daisy *Bellis perennis* and Yarrow *Achillea millefolium.*

In the context of this site and the land immediately adjacent, this amenity habitats is considered to be of **less than local ecological importance** given its low biodiversity value for floral species and lack of foraging potential for fauna.

Figure 4-10: Amenity grassland (GA2) and proposed location for water sports facility next to path (BL3)

4.4.6 Treeline (WL2)

A low-quality treeline comprised of Sycamore *Acer pseudoplatanus* is found along the boundary of the path and amenity grassland (GA2) to the north of the site boundary (Figure 4-11). The trees have a light growth of Common Ivy *Hedera helix* growth which does not offer any roosting potential for bats. Bramble *Rubus fructicosus* agg. was present within the area. None of the trees supported bird nests. The understory of the trees contained species such as Common Hogweed *Heracleum sphondylium*; Cleavers *Galium aparine*; Broadleaved Dock *Rumex obtusifolius*; Nettle *Urtica dioica*; Yarrow and Charlock *Sinapis arvensis*. The INNS Three Cornered Garlic *Allium triquetrum* was prevalent within and adjacent to the treeline.

While absent of bat roosting potential, local bats may utilise this habitat for commuting or foraging, and while the treeline also had no birds nesting at the time of the survey, there are resources available for nests to be made in the area. Therefore, in the context of this site and the land immediately adjacent, this habitat is considered to be of **high local importance** given its foraging and nesting potential.

Figure 4-11: Treeline (WL2) present to north of site

4.4.7 Scrub (WS1)

Scrub of varying quality is found at different locations in and adjacent to the site area. The railway embankment which runs parallel to the site boundary is dominated with scrub and has a high occurrence of Bramble (Figure 4-12). Where Bramble did not dominate, other species including Sycamore and Ash *Fraxinus excelsior* saplings; Hedge Bindweed *Calystegia sepium*; Lady's Bedstraw *Galium verum*; Red Valerian *Centranthus ruber* (often white in colour in this section); Horsetails *Equisetum* spp.; Creeping Thistle *Cirsium arvense*; Knapweed *Centaurea nigra*; Ribwort Plantain and Mallow *Malva sylvestris*.

A mounded section of scrub can be found north of the site area (Figure 4-13), and extending further north (Figure 4-14) where the INNS Three Cornered Garlic and Butterfly Bush *Buddleja davidii* can be found along with Charlock; dense Bramble, White Ramping-fumitory *Fumaria capreolata* subsp. *Babingtonii;* Creeping Thistle; Ox-eye Daisy; Yarrow; Wild Radish; Sea Beet and Dock spp. This section of the scrub is associated with the Annex habitat *Perennial vegetation of stony banks* [1220].

Charlock and Bramble is also found along the gabion wall.

Scrub habitats facilitate the commuting and foraging potential for presumed ground-dwelling mammals within the vicinity such as Badger and Hedgehog *Erinaceus europaeus*. While absent of bat roosting potential, local bats may utilise scrub habitat for commuting or foraging, and while the treeline also had no birds nesting at the time of the survey there are resources available for nests to be made in the area, by species such as Yellowhammer *Emberiza citrinella*, Willow Warbler *Phylloscopus trochilus* or Goldcrest *Regulus regulus* which is listed within the NBDC records within 5km of the site and tends to nest within thick Bramble stands.

Therefore, in the context of this site and the land immediately adjacent, the habitat along the western boundary of the site is considered to be of **high local importance for these three species groups** given its commuting, foraging and nesting potential, while the scrub to the north of the boundary is considered to be of **national importance** given its association with the Annex habitat *Perennial vegetation of stony banks* [1220] in addition to its foraging and commuting potential.

Figure 4-12: Scrub (WS1) habitat. Left - scrub on railway embankment adjacent to the site.

Figure 4-13: Scrub on mound north of site area

Figure 4-14: Scrub extending along the shingle bank extending north from the site

4.5 Offshore Reefs

Reefs [1170] are a protected Annex I habitat and Qualifying Interest (QI) of the nearby Rockabill to Dalkey Island SAC (Figure 4-15 below). A comprehensive survey of the reefs in the vicinity of Killiney Bay was completed by MERC consultants in 2022 (MERC, 2022) on behalf of DLRCC. These reefs included littoral (intertidal) reef habitats and sublittoral (subtidal) reef habitats.

Littoral reef habitat includes all areas of geogenic rock (bedrock, boulders and cobbles) which occur in the intertidal zone (the area of the shore between high and low tides) as well as the marine communities, and their associated species, that colonise this area. Species are adapted to withstand a range of physical processes, not least the diurnal flooding and ebbing tides.

The sublittoral reef habitat is generally divided into two categories, infralittoral and circalittoral. The infralittoral reef habitat is the area in the shallow subtidal zone and typically supports seaweed communities. As depth increases, and light levels drop further the circalittoral zone commences. This zone is characterised by animal dominated communities, as opposed to the algae dominated communities of the infralittoral zone.

Littoral and sublittoral reefs within Killiney Bay are mapped below in relation to the proposed site location. A sublittoral reef is present approximately 300m off the coast from the location of the proposed sports facility. Littoral (intertidal) and sublittoral reef communities are also present approximately 900m north-east of the site around Dalkey Island (Figure 4-15). The sublittoral reef is mainly made up of two biotopes, 1) Sediment-affected or disturbed kelp and seaweed communities and 2) Echinoderms and crustose communities (MERC Consultants, 2022).

Due to the potential hydrological connection between the site and the offshore reefs to the east of the site, this habitat is considered to be of **national ecological importance.** These reefs are discontinuous with those of Rockabill to Dalkey Island SAC and are not included in the SAC. While these offshore reefs are considered to be functionally distinct from those of the SAC, Offshore Reefs are an EU Annex

habitat and will be examined in the mitigation section of this report in relation to potential pollutant spills entering the bay.

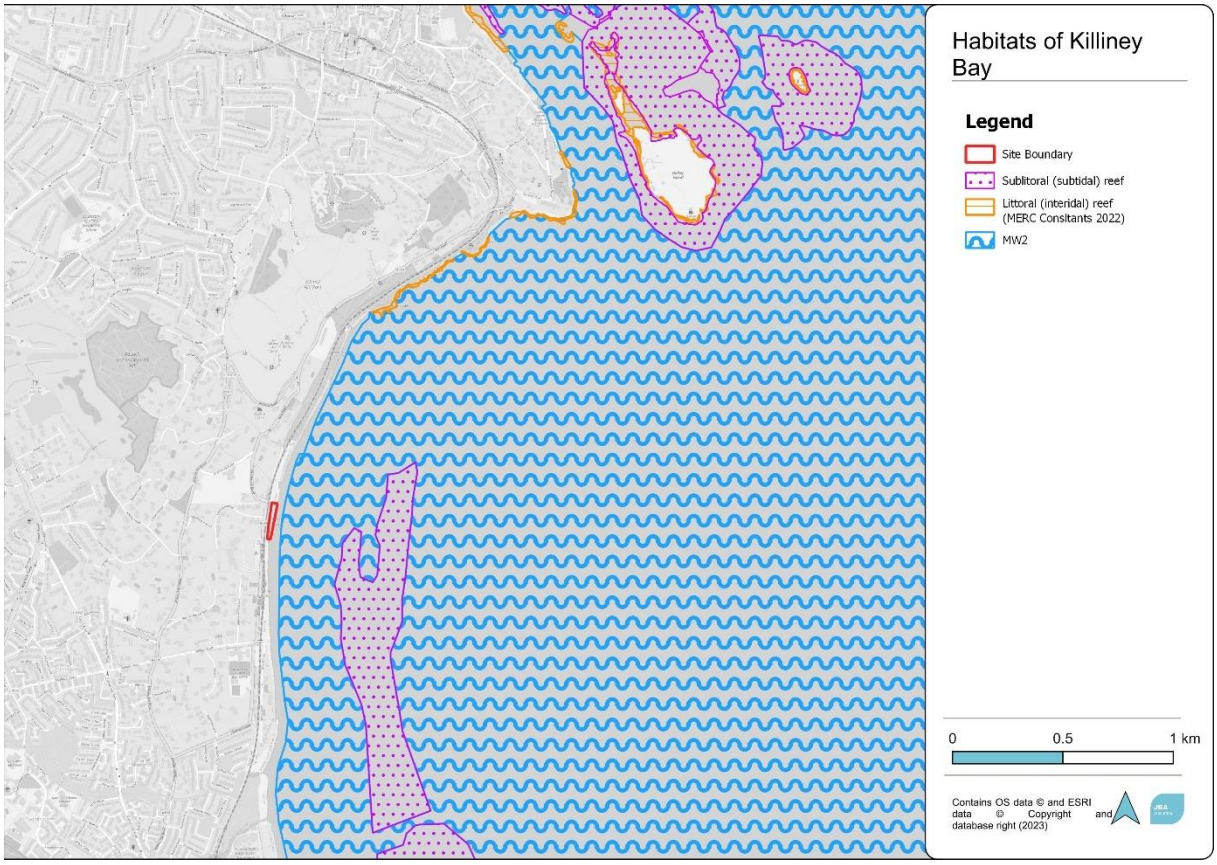


Figure 4-15: Map of reefs in Killiney Bay in relation to proposed site area (MERC Consultants, 2022)

4.6 Protected Flora

No protected floral species were recorded by the JBA ecologists during the ecological walkover surveys of the proposed site. Furthermore, the NBDC shows no record of any protected flora species being present within site or its immediate vicinity (NBDC, 2023).

4.7 Protected Fauna

4.7.1 Terrestrial Mammals

There was no evidence of mammal species listed under the Wildlife Acts 1976-2021 or the EU Habitats Directive recorded by the JBA ecologists during the ecological walkover surveys. The following mammals are recorded within 2km of the site within recent years, while there is a list of previously reported species within a 5km radius of the site is found in the Appendix D

- Eurasian Badger *Meles meles*
- Eurasian Pygmy Shrew *Sorex minutus*
- Eurasian Red Squirrel *Sciurus vulgaris*
- West European Hedgehog *Erinaceus europaeus*

Additional mammals recorded within 2km of the site afforded protection under Annexes II and IV include:

- European Otter *Lutra lutra*

While there was no evidence of these species on-site, they are known to occur within the vicinity of the site and they are presumed to use the locality for foraging and commuting; therefore, under the precautionary principal, these species are considered to be of **high local ecological importance**. They will be examined in the mitigation section of this report.

4.7.2 Aquatic Mammals - Bottle-nose Dolphin, Common Porpoise & Grey Seal

The following aquatic mammals are recorded within 2km of the site within recent years, all of which are afforded protection under the Wildlife Act (as amended) and both Annex II and Annex IV..

- Bottle-nosed Dolphin *Tursiops truncatus*
- Grey Seal *Halichoerus grypus*

A list of previously reported species within a 5km radius of the site found in Appendix D .

Grey Seal are found in larger populations primarily off the west coast of Ireland, bu als in large numbers off the east and southeast coasts. Grey Seals generally breed in Irish Water between September and December in remote, undisturbed areas and frequently on offshore islands such as Dalkey Island.

In addition to Bottle-nosed Dolphin and Grey Seal, Common Porpoise *Phocoena phocoena* is also present within the NBDC records within 2km of the site and is additionally a Qualifying Interest (QI*)* of the Rockabill to Dalkey Islands SAC.

A series of surveys were conducted to estimate the local density and abundance of Harbour Porpoise throughout the Rockabill to Dalkey Island SAC to map their distribution (Berrow et al., 2021).

While these species were not visible within the water from the shoreline during JBA site visits, it is presumed that they are present within Killiney Bay. While the Berrow et al., 2021 reporting of Harbour Porpoise stops south of Dalkey Islands, it is presumed that this is due to surveying restrictions (Figure 4-16).

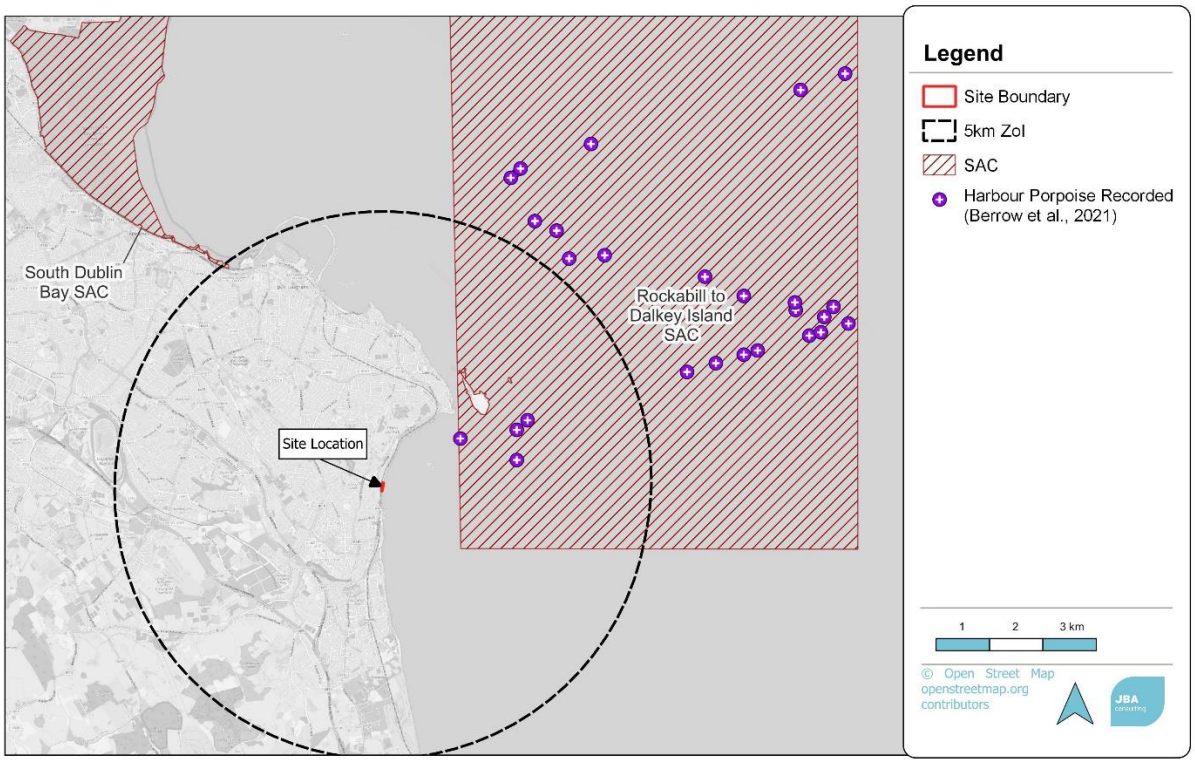


Figure 4-16: Recorded Harbour Porpoise sightings during Berrow et al., 2021 surveying

These species could be impacted by pollutant spills entering the bay during the construction works. Therefore, this site is considered to be of **high local ecological importance for Bottle-nosed Dolphin and Grey Seal,** and it is considered to be of **international importance for Common Porpoise:** A QI species of the Rockabill to Dalkey Islands SAC.

These species will be examined in the mitigation section of this report in relation to pollutant spills entering the bay.

4.7.3 Bats

Desk Study

No bat species protected under the Wildlife Act and/or the EU Habitats Directive have been recorded under the NBDC within either 2km or 5km of the site in the previous 10 years. Bats have however been noted by JBA ecologists along Killiney Beach in the past (P. Byrne pers. comm). Within the BATLAS Report 2020 Pickett (2019) indicates the presence of Common Pipistrelle *Pipistrellus pipistrellus sensu lato,* Soprano Pipistrelle *Pipistrellus pygmaeus*, Leisler's Bat *Nyctalus leisleri* and, Daubenton's Bat *Myotis daubentonii* within the 10km grid of the site. However, given the absence of a freshwater feature on the site, Daubenton's Bat is unlikely to be found within the site itself.

Preliminary Bat Roost Survey

During the ecological walkover of the proposed site, there were no features suitable for roosting bats present on site, and it was noted that there was a low overall number of suitable foraging habitats in the grassland area.

Bat presence / activity on-site

In the absence of bat activity survey data, under the precautionary principle, we must assume that one or more bat species (e.g., Soprano Pipistrelle, Common Pipistrelle, and Lesser Noctule - common urban area bat species) are likely utilising this site for opportunistic foraging and commuting activities, given the presence of grassy verges, hedgerows and treelines adjacent to the site.

The proposed site has been valued as being **of high local ecological importance for local bat species**, given the site's role as a commuting corridor and its foraging opportunities.

4.7.4 Breeding, marine/ sea birds, and Wintering irds

There were three Birds of Conservation Concern (BoCCI, Gilbert et al., 2021) recorded on site during the second ecological habitat survey in May 2024: Cormorant *Phalacrocorax carbo*; Herring Gull *Larus argentatus* and Common Guillemot *Uria aalge*.

NBDC details recent records of birds of conservation concern listed on the BoCCI Amber list within a 2km radius. These include: Barn Swallow *Hirundo rustica* (Breeding), Black-headed Gull *Larus ridibundus* (Breeding & Wintering), Brent Goose *Branta bernicla* (Wintering) Kingfisher *Alcedo atthis* (Breeding), Starling *Sturnus vulgaris* (Breeding), Shag *Phalacrocorax aristotelis* (Breeding), Cormorant (Breeding and Wintering), House Sparrow *Passer domesticus* (Breeding), Mallard *Anas platyrhynchos* (Breeding & Wintering), Common Gull *Larus canus* (Breeding & Wintering), Mute Swan *Cygnus olor* (Breeding & Wintering), Northern Gannet *Morus bassanus* (Breeding), Sand Martin *Riparia riparia* (Breeding) and Sandwich Tern *Sterna sandvicensis* (Breeding).

Within this 2km radius, NBDC records also includes the Red List species Swift *Apus apus* (Breeding), Common Scoter *Melanitta nigra* (Breeding & Wintering), Grey Wagtail *Motacilla cinerea* (Breeding) and Oystercatcher *Haematopus ostralegus* (Breeding & Wintering).

While not listed as birds of concern within Ireland, Wood Pigeon *Columba palumbus* was recorded present within this 2km radius and listed under the Bird's Directive: (Annex II and Annex III). A complete list of birds of conservation concern found within 5km of the site is found in Appendix E.

In addition to NBDC records, a study using GPS tracking of Brent Geese *Brenta bernicla hrota* over the 2018 and 2019 winter seasons (Handby T., et al., 2022) highlighted large numbers of Brent Goose present within Dalkey Islands during the winter season of 2019/2020 (approximately 646). The proposed site is absent of any suitable foraging area for Brent Goose, however, these geese have been located via GPS within Killiney Bay.

The proposed site has been valued as being of **high local ecological importance** for breeding bird species of conservation concern, given the nesting availabilities and foraging opportunities for breeding birds within and adjacent to the site; and **high local ecological importance** for marine/ sea birds and wintering birds such as gulls, Cormorant, Shag and Brent Goose. feeding in Killiney Bay.

QI Tern Species of Dalkey Islands SPA (Roseate Tern, Arctic Tern, and Common Tern)

Dedicated surveys for Tern species foraging within Killiney Bay was not carried out for this project. This was due to the considerable effort required to complete surveying from the appropriate vantage points in order to gain a full knowledge of foraging areas used by the Terns of Dalkey Islands, which was considered to be outside the scope of requirements for the project given its scale.

Research on Irish tern populations has indicated the following foraging ranges:

- Common Tern: can forage up to 30km (NPWS, 2023); mean 8.8km (Birdlife International, 2014
- Arctic Tern can forage up to 46km, with a mean of 6km, and mean of maximum distances at 26km (NPWS, 2023)
- Roseate Tern; at Rockabill, Ireland, during chick rearing, birds were recoded as feeding within 10 km of the colony in offshore, in relatively deep water (20 - 30 m), but during incubation and post-fledging they appeared to be travelling tens of kilometres to feed over sandbanks to the south (Newton and Crowe 2000).

The extent of tern foraging that nest in Dublin Port also unknown, though those terns are thought to forage in the wider area of Dublin Bay, but also extend out to feed in the shallow waters of the Kish/Bray and Burford Banks (Merne et al., 2008.). In particular they are attracted to the high numbers of clupeids in their breeding grounds to the north of Dublin Bay and to a lesser extent sandeels (Ammodytidae) which, even though the larvae are carried by the prevailing currents, also correlates with areas with the highest populations of these species (Green, 2017). Clupeids, including Sprat *Sprattus sprattus*, have a higher calorific value per gram than Sandeels and they are found in shallow waters, typically 10 to 150m deep and, as with Sandeels, are pelagic breeders, allowing their larvae to be spread by the currents. In the Irish Sea the abundance of these animals is reflected in the high component they are in the diet of seabirds, including terns; their tendency to migrate diurnally within the water column being nearer the surface at crepuscular times means they are most accessible to feeding seabirds at sunrise and sunset (Green, 2017). It is reported that Sprat are a larger component of the diet of Terns than Herring *Clupea harengus,* however, this is complicated by the fact that the juveniles of both species are very similar in appearance an often occur in mixed shoals (ICES, 2013). Herring are also pelagic breeders and, as with Sprat and Sandeels, the highest populations of this species occur in their breeding grounds (Green, 2017).

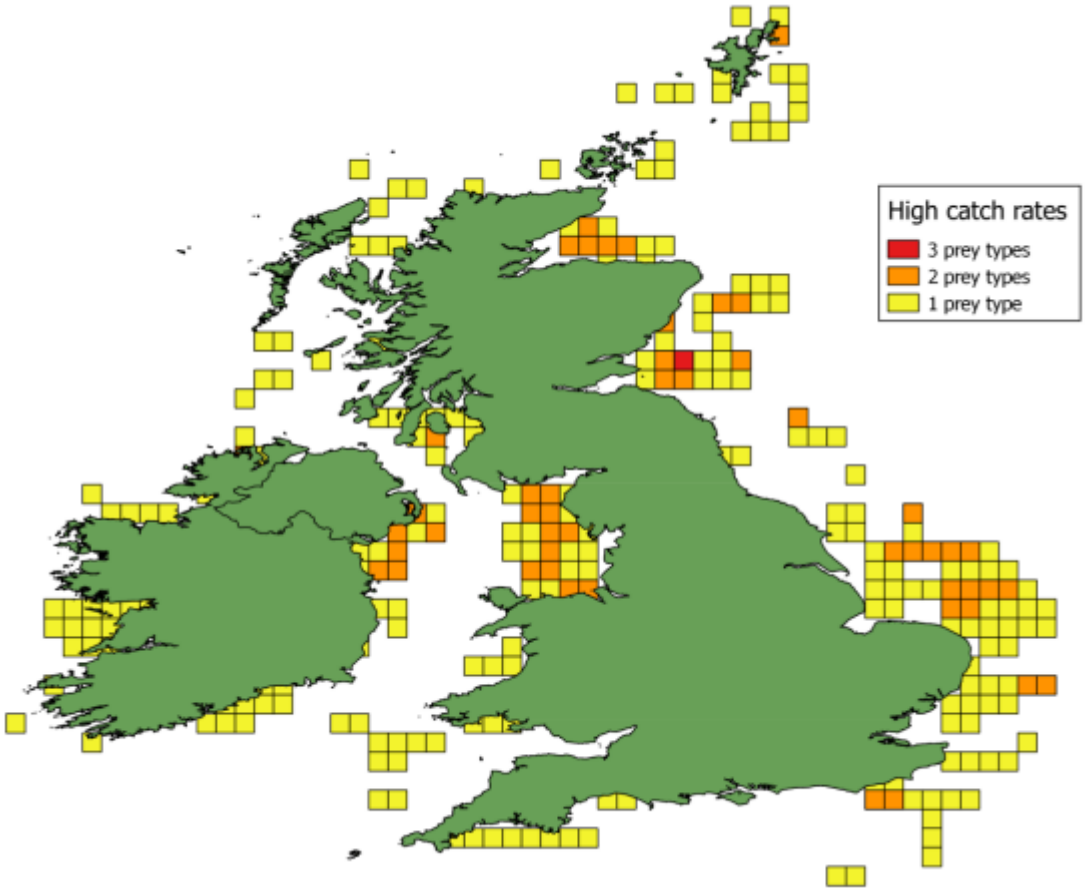


Figure 4-17 . Prey hotspots map showing approximate areas with high catch rates of three major prey types for terns (sandeels, sprat and juvenile herring). Red = high catches of 3 prey types; orange = high catches of 2 prey types; yellow = high catches of 1 prey type (Green, 2017)

Figure 4-17 shows that the area North of Dublin Bay is a prey hotspot for two of the major prey types for terns, which are the feeding grounds for terns, including those from the colonies at Dalkey Island. Further circumstantial evidence for this can be gleaned from Tierney et. al. (2016) who looked at the roosting behaviour of post-breeding terns in the South Dublin Bay area where it was thought that terns from Dalkey Island, along with others, roosted at Sandymount Bay. This survey showed that there was a large throughput of terns at this site, including birds form the UK, Norway and the Netherlands, as well as local birds, and that these foreign breeders were more numerous towards the end of the breeding season. As many of these birds only spent a night on the strand, before moving on, it can be assumed that many of these were on migration and had been feeding en-route before roosting for the night. Further evidence for this is that the peak numbers of birds were observed just before it became too dark and there was no reason to suppose that number tailed-off after this and that the numbers that were recorded should be considered a minima for the survey (Tierney et. al., 2016). This strongly suggests that the terns were feeding on Sprat before they returned to the depths after sunset after which the terns went to roost at Sandymount Strand.

Nonetheless, given the evidence that the tern populations from Dalkey Island feed to the north of Dublin Bay, this is the possibility that some do feed to the south of the island in the Killiney Bay area. Therefore, invoking the precautionary principle we assume that tern species do frequent Killiney Bay.

Nesting terns (QI: Arctic Tern, Common Tern, and Roseate Tern) have been identified within the Dalkey Islands SPA, with 45 Tern nests recorded within the 2023 update of the Dalkey Tern Project (Birdwatch Ireland, 2023). Arctic Terns are the most common tern on the island,. Nesting terns on the islands have been under pressure from predation by Brown Rat and gulls over the years. In 2023 there were 45 breed pairs of Arctic Tern but no chicks due to rat predation. This is being addressed and monitored by

a joint project by DLRCC and Birdwatch Ireland. A Rodenticide treatment programme was managed DLRCC over the winter of 2023-24. Storms and rising sea levels are another risk to the ground nesting birds.

Terns have an approximate foraging radius of 10km, showing the potential for them to occur within Killiney Bay.

Dalkey Island, as well as providing nesting sites, is also used by the three tern species as a major post-breeding/pre-migration autumn roost area. The site is also linked to the important post-breeding/pre-migration autumn tern roost area in Dublin Bay. Birds are present from about late-July to September (NPWS, 2015a).

As mentioned previously, none of these three tern species were present within the NBDC list of birds found within 2km of the proposed site, while Arctic Tern and Common Tern are present within the extended 5km radius listed in Appendix E.

Irish Birding records (Irish Birding, 2024) for Common Tern and Arctic Tern species within the area of Dalkey Islands for the last 10yrs frequently vary between sightings in the 50-100 range, while Roseate Tern sightings have been much lower, usually present at counts below 10, however there is no record within the Irish Birding site of these tern species as being located within Killiney Bay.

The South Dublin Coastline site within the I-WeBS winter survey locations, of which Killiney Bay is included, does not have any Arctic Tern, Common Tern or Roseate Tern listed within its recordings of 2011 - 2021 (I-WeBS, 2024). However, I-WeBS surveys generally monitor wintering waterbird populations (Sepember to March), with September being the earliest month surveys were carried out.

Larger numbers of both Common Tern and Arctic Tern also breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the South Dublin Bay and River Tolka Estuary SPA. South Dublin Bay is also an important staging/passage site for a number of tern species in the autumn (mostly late July to September). The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the south Dublin Bay is also used by birds from other sites, perhaps outside the state. This site is selected for designation for its autumn tern populations (NPWS, 2015b).

Autumn sightings for Arctic Tern, Common Tern and Roseate Tern have been recorded within the Dublin Bay I-WeBS survey area, with variable survey numbers for Common Tern between 102 and two between the survey years of 2018 and 2021, with peak month in September. During these years there were no Arctic Tern recorded, and in the past 12 years of the site's accessible data, there was only one Arctic Tern recorded within Dublin Bay in October 2011. However specific monitoring of post-breeding autumn tern aggregations in Ireland show that Dublin Bay is a very significant staging post for tern in autumn (Burke et al, 2020).

These findings confirm that tern species nest and roost on Dalkey Islands, as well as Dublin port and south Dublin Bay area to the north. Although the records are poor for tern using Killiney Bay, this does not exclude the potential for their foraging within the bay area. As such, the site has been evaluated as being of **international importance** for Arctic Tern, Common Tern and Roseate Tern species.

4.7.5 Amphibians

Surveyors did not record any direct or indirect evidence of amphibians during the ecological walk over. There are recent observations of Common Frog *Rana temporaria* and Smooth Newt *Lissotriton vulgaris* within 2km of the site; there are no additional amphibians previously reported within a 5km radius of the site as shown in Appendix E.

The proposed site has been valued as being of **less than local ecological importance** for amphibian species due to the absence of spawning, foraging or refuge resources available.

4.7.6 Terrestrial Invertebrates

Surveyors did not record any invertebrate species utilising the site. While the JBA ecologists did not document the presence of any terrestrial invertebrates within the site, there are recent records of Marsh Fritillary *Euphydryas aurinia* within 2km of the site, however, these are associated with wet grasslands and heath habitats, which are not present within the site.

While there are no records of protected terrestrial invertebrates within the site, the proposed site has been valued as being of **low local ecological importance** for terrestrial invertebrates, given the limited floral, tree and hedgerow resources present.

4.7.7 Marine Invertebrates

There is a short distance between the site and Killiney Bay and marine invertebrates will be examined in the mitigation section of this report in relation to pollutant spills entering the bay that could potentially interact with invertebrate species associated with the Dalkey Coastal Zone and Killiney Hill pNHA, including various shellfish and starfish.

The proposed site has been valued as being of **high local ecological importance** for marine invertebrates due to its short distance to Killiney Bay and its hydrological link with the Dalkey Coastal Zone and Killiney Hill pNHA.

4.7.8 Fish - Brown Trout & European Eel

While the site is not directly connected to the Carrickmines, Shanganagh and Deansgrange streams to the south of the site, Sea Trout and European Eel, which occur in these watercourses, will commute through Killiney Bay in order to reach these riverine habitats. Due to the short distance between the site and Killiney Bay, these species will be examined in the mitigation section of this report in relation to pollutant spills entering the bay, that could potentially interact with these species.

Brown/ Sea trout are on the red list of fish and the Irish Status is of least concern (King et al, 2011), whilst Eel are red listed, with an Irish and Global status as Critically Endangered

The proposed site has been valued as being of **high local ecological importance** for these fish due to the short distance to Killiney Bay, through which they connect to these listed rivers.

4.8 Invasive Non-native Species

Two invasive non-native species were recorded north of the site area, these species include Three-cornered Garlic and Butterfly Bush. Three-cornered Garlic is listed on the Third Schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/201 and is a High Impact species. Butterfly Bush is considered Medium Impact species.

Given the location of the invasive species adjacent to the site, there is a potential for them to be transferred to other sites through contaminated machinery and clothing, therefore, their potential for spreading will be assessed within the impact section.

4.9 Screening of Designated Sites & Ecological Features

The screening of designated sites and ecological features identified during the desktop study and ecological survey are given in Table 4-8. Sites and features screened out are not considered further in this assessment. Ecological features carried forward are assessed for potential impacts during construction and operation in the following sections.

Table 4-8: Summary of ecological features and the screening assessment.

Designated site / Ecological feature	Value	Screening	Rationale
Rockabill to Dalkey Island SAC [003000]	International	Screened out	(JBA, 2024 - AA Screening Screened out due to less than significant effects anticipated due to incorporated drainage infrastructure and insignificant increase in visitation rates)
Dalkey Islands SPA [004172]	International	Screened out	(JBA, 2024 - AA Screening Screened out due to less than significant effects anticipated due to incorporated drainage infrastructure and insignificant increase in visitation rates)
South Dublin Bay and River	International	Screened out	(JBA, 2024 - AA Screening

Designated site / Ecological feature	Value	Screening	Rationale
Tolka Estuary SPA [004024]			Screened out due to less than significant effects anticipated due to incorporated drainage infrastructure and insignificant increase in visitation rates)
South Dublin Bay SAC [000210]	International	Screened out	(JBA, 2024 - AA Screening Screened out due to less than significant effects anticipated due to incorporated drainage infrastructure and insignificant increase in visitation rates)
South Dublin Bay pNHA [000210]	National	Screened out	Lack of connectivity
Dalkey Coastal Zone and Killiney Hill pNHA [001206]	National	**Screened in**	**In close proximity to the site, with potential disruption due to airborne and aquatic pollutants**
Loughlinstown Woods pNHA [001211]	National	Screened out	Lack of connectivity
Dingle Glen pNHA [001207]	National	Screened out	Lack of connectivity
Buildings and artificial surfaces	Less than local	Screened out	Low floral diversity and foraging potential
Shingle and gravel banks	National	**Screened in**	**Habitat associated with Annex I habitat *" Perennial vegetation of stony banks" [1220]***
Amenity grassland (improved)	Less than local	Screened out	Low floral diversity and foraging potential
Shingle and gravel shore	Nationall	**Screened in**	**Habitat associated with Annex I habitat *" Annual vegetation of drift lines" [1210]***
Treelines	High Local	**Screened in**	**Foraging commuting and nesting opportunities for mammals, birds and invertebrates**
Scrub	High Local	**Screened in**	**Foraging commuting and nesting opportunities for mammals, birds and invertebrates**
	National	**Screened in**	**Habitat associated with Annex I habitat *" Perennial vegetation of stony banks" [1220]***
Offshore Reefs	National	**Screened in**	**Regionally distinct habitat located nearby and offshore**
Protected Flora	Less than local	Screened out	No threatened or protective species present at the site
Ground-dwelling Mammals - Red Squirrel, Badger, Hedgehog, Pygmy Shrew, Otter	High Local	**Screened in**	**Foraging and commuting opportunities within the scrub, treelines and grasslands**
Aquatic Mammals - Bottle-nosed Dolphin, Common Porpoise, Grey Seal	High Local	**Screened in**	**Short connectivity between the site and inhabited waters**
Bats - Common Pipistrelle, Soprano Pipistrelle, Leisler's Bat	High Local	**Screened in**	**Foraging and commuting opportunities within treelines and scrub**
Breeding Birds	High Local	**Screened in**	**Foraging, commuting and**

Designated site / Ecological feature	Value	Screening	Rationale
			nesting opportunities within treelines and scrub.
Marine/ sea birds	High Local	**Screened in**	**Foraging of gulls, Cormorant, Shag in Killiney Bay**
Wintering Birds	High Local	**Screened in**	**Commuting and foraging opportunities for wintering species**
Amphibians	Less than Local	Screened out	Absence of foraging, spawning and commuting opportunities within site
Marine invertebrates	High local	**Screeend In**	**Site connected to the Killiney Bay which is a known location for invertebrate species**
Terrestrial Invertebrates	Low Local	**Screened in**	**Low floral resources present within hedgerows and treelines on site**
Fish - Sea Trout & Eel	High Local	**Screened in**	**Site connected to Killiney Bay which fish will pass through to reach spawning habitats in local streams**
Invasive Non-native Species	-	**Screened in**	**Located in the vicinity of the site and at risk of transferring to other sites.** **Must be examined for biosecurity and mitigation purposes**

5 Other Relevant Plans and Projects

5.1 Cumulative Effects

As part of the Ecological Impact Assessment, in addition to the proposed works, other relevant projects and plans in the region that may induce cumulative effects must also be considered at this stage. The following projects or plans were identified as potential sources of cumulative effects:

5.2 Plans

- Dun Laoghaire Rathdown County Development Plan 2022-2028
- Dun Laoghaire Rathdown Coastal Defence Strategy
- Greater Dublin Drainage Strategy
- Third Cycle River Basin Management Plan for Ireland 2022-2027
- Planning Applications (retrieved from https://planning.agileapplications.ie/dunlaoghaire, available May 2024)

5.2.1 Dún Laoghaire Rathdown County Development Plan 2022-2028

The County Development Plan (DLRCC, 2022a) has a vision and policy statement that aims to continue to facilitate appropriate levels of sustainable development predicated on the delivery of high quality community, employment and recreational environments - allied to the promotion of sustainable transportation and travel patterns - all the while protecting Dún Laoghaire–Rathdown's unique landscape, natural heritage and physical fabric, to ensure the needs of those living and working in the County can thrive in a socially, economically, environmentally sustainable and equitable manner.

An Appropriate Assessment Screening and an Appropriate Assessment Natura Impact Statement (NIS) was carried out on the plan. This concluded that there are no likely significant direct, indirect or secondary impacts of the project on any Natura 2000 sites (DLRCC, 2022b).

Overall, the Dún Laoghaire Rathdown Council Development Plan 2022-2028 is not considered to adversely impact any Natura 2000 site, nor is it expected to contribute to any cumulative or in-combination effects.

5.2.2 Dun Laoghaire Rathdown Coastal Defence Strategy

The DLRCC coastal defence strategy is a management plan designed to provide a framework for policy decision making and action related to both the provision and the management of sustainable coastal defence policies (Malachy Walsh and Partners, 2010a). The plan summarises its key points as:

- The identification of coastal defences, habitats, natural features, landscape and amenity issues.
- The identification of risk to people, property and natural environment from coastal erosion, cliff instability, wave action and tidal flooding.
- The determination of appropriate options and policies for each discrete length of coastline which are technically, environmentally and economically sound.
- The recommendation of the extent and type of future coastal defences.
- The provision of a prioritised programme of works.

While dealing with the key coastal processes of

- Water levels, including normal tide levels, extreme water levels and the potential impact of sea level rise.
- Waves, including normal and extreme offshore waves and normal and extreme nearshore waves and the joint occurrence of extreme waves and extreme water levels.
- Wave modelling was used to estimate nearshore extreme waves and nearshore wave climate for use in outline design and in an assessment of sediment transport due to wave action.

- Tidal current modelling was used to assess potential sediment transport along the study coastline due to tidal currents and to assess the tidal currents for use in the assessment of wave driven sediment transport.
- Sediment transport. An assessment of sediment transport was undertaken in order to provide an understanding of the coastal process context in which the coastal defence strategy is developed.
- The assessment includes wave and tidal current driven transport and the likely sediment budget relating to the study shoreline.
- The type and condition of existing coastal defences was also assessed during the study and input into the risk assessment, and the evaluation of options.

The principal potential impacts of the coastal defence measures to reinforce the cliffsides along the Bray - Shanganagh coastline. It has been assessed that in this area, by reinforcing the cliffside along Bray-Shanganagh area would reduce the overall sedimentation flow reaching the coast along the beach levels of the Killiney area. This reduction of sediment input, which would range from being significant if large lengths of the coastline are protected from further erosion, which have been suggested to be delayed until the point that they are actually necessary.

The coastal defence strategy has identified these impacts, and provided suggestions that would not interfere in a major way with along-shore sediment transfer, allowing for the continuous movement of materials through longshore drift inhibited by coastal defences. Specific impacts regarding the area around Killiney Beach include:

Coastal Defence at Killiney Station

The area around Killiney Station has been identified as being at risk of cliff instability. Currently there is a low wall fronted by a footpath as a means of preventing erosion. A selection of options for this cliff instability have been provided to stabilise the cliff, with the preferred option being to utilise soil nailing and shotcreting (the spraying of concrete) over the full height of the cliff face. These have been assessed as resulting in impacts limited to the area of the works.

Coastal Defence North of Killiney Station

The area north of Killiney Station has a well-vegetated cliff with the appearance of stability, however this stability is uncertain. Localised repairs are required in this area, including the monitoring of the cliff slopes.

Conclusion

An SEA (Malachy Walsh and Partners, 2010b) and NIS (Malachy Walsh and Partners, 2010c) has been completed for the Dun Laoghaire Rathdown Coastal Defence Strategy. Mitigation measures have been put in place with regard to concrete, fuel, oil, and timing of works. Including these preventative measures, each project as part of the coastal defence strategy will be subject to future AA Screenings and EcIAs. In regard to its impacts, the coastal protection plan has been assessed as having an insignificant impact on Annex I habitats, designated sites, seabed habitats, coastal processes and seabirds.

Following the initial assessment of the coastal defence strategy, a review of the plan was conducted in 2023. This review to update and identify the number of the recommendations have been undertaken; and to further assess erosion and damage to the Dun Laoghaire coastline since the initial study. At the time of this review in 2023, the coastal defences north of and around Killiney Station had not been carried out, however, surveys had shown that the areas had not significantly deteriorated since the initial assessment.

This review includes specific mention of the offshore reef habitats that were discovered and assessed that works south of White Rock (in the area of Killiney Beach) would pose no threat to these habitats.

Overall, the Dun Laoghaire Rathdown Coastal Defence Strategy is not considered to adversely impact any Natura 2000 sites, or features of otherwise ecological importance, nor it is it expected to contribute to any cumulative or in-combination effect.

5.2.3 Greater Dublin Drainage Strategy

The Greater Dublin Drainage Strategy sets out the strategic planning for the development of waste water treatment in the Greater Dublin area in relation to the Ringsend WWTP Upgrade, Greater Dublin Drainage Project and associated wastewater network drainage projects (Irish Water, 2018). The Ringsend WWTP Upgrade includes plans to expand the WWTP to its ultimate capacity, together with associated network upgrades required. The Greater Dublin Drainage Project is planned to relieve both the Ringsend WWTP and network loading by the construction of a new WWTP at Clonshaugh, an orbital sewer and provision of an outfall pipe discharging 1km north-east of Ireland's Eye. The Ringsend WWTP upgrade is in progress and carried out in stages, with an increased capacity of 400,000 PE by Q1 2020 with the ultimate capacity of 2.4 million PE planned to be in operation by 2024 (Irish Water, 2018).The Greater Dublin Drainage Project is strategically important to the Dublin Region in that it will provide capacity for residential and commercial growth (Irish Water, 2018).

Overall, the Greater Dublin Drainage Strategy is not considered to adversely impact any Natura 2000 sites, or features of otherwise ecological importance, nor it is it expected to contribute to any cumulative or in-combination effect.

5.2.4 River Basin Management Plan for Ireland 2018-2021 / 2022-2027

The 2nd cycle River Basin Management Plan (RBMP) for Ireland 2018-2021 sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2021 (DoHPLG, 2018a). The main change from the previous River Basin Management Plans is that all River Basin Districts are now merged into one national River Basin District. The Plan provides a more coordinated framework for improving the quality of our waters — to protect public health, the environment, water amenities and to sustain water-intensive industries, including agri-food and tourism, particularly in rural Ireland.

The first cycle of River Basin Management Plans included the Eastern River Basin District - River Basin Management Plan 2009 – 2015 (WFD, 2010). The plans summarised the waterbodies that may not meet the environmental objectives of the WFD by 2015 and identified which pressures are contributing to the environmental objectives not being achieved. The plans described the classification results and identified measures that can be introduced in order to safeguard waters and meet the environmental objectives of the WFD, these are:

- Prevent deterioration of water body status.
- Restore good status to water bodies.
- Achieve protected areas objectives.
- Reduce chemical pollution of water bodies

The River Basin Management Plan for Ireland (2018-2021) outlines the new approach that Ireland will take to protect our waters over the period to 2021. It builds on lessons learnt from the first planning cycle in a number of areas:

- stronger and more effective delivery structures have been put in place to build the foundations and momentum for long-term improvements to water quality
- a new governance structure, which brings the policy, technical and implementation actors together with public and representative organisations. This will ensure the effective and coordinated delivery of measures.

Ireland's third River Basin Management Plan 2022-2027 (EPA 2021) was out for public consultation until March 31st 2022. The Consultation report was published in July 2022. Following review of the submissions, the DHLGH will commence a review and where necessary update the draft RBMP with a view to finalisation and publication in 2024.

The 3rd Cycle draft Catchment Reports were published in August 2021. The draft Catchment Reports provide a summary of the water quality assessment outcomes for respective catchments, including status and risk categories, significant threats and pressures, details of protected areas and a comparison between Cycle 2 and Cycle 3.

The third cycle draft Catchment Report for Ovoca-Vartry Bay Catchment (EPA, 2021) identified that between Cycles 2 and 3 there has been an overall slight improvement in the catchment's status. The overall change in quality between Cycles 2 and 3 include an increase in three waterbodies achieving a

High Status, however there was also one waterbody decreased in quality resulting in a Bad status. The number of waterbodies which are achieving Good and Poor statuses remains unchanged between Cycles, while there is a reduction of waterbodies achieving a Moderate status by three. There remain eighteen waterbodies that are unassigned.

The Third Cycle River Basin Management Plan for Ireland 2022-2027 is not anticipated to contribute to cumulative or in-combination effects.

5.3 Projects

5.3.1 Deansgrange Flood Relief Scheme

In 2023 a planning application for the Deansgrange Stream Flood Relief Scheme (FRS) was submitted in accordance with Part 8 of the Planning and Development Regulations, 2001.

Summary of Deansgrange Stream FRS.

The works associated with the Deansgrange Flood Relief Scheme (FRS) extend through several locations across the Deansgrange Stream catchment, all at or in close proximity to the stream, between Johnstown Rd/ Granville Rd and the environs of the Dublin-Wexford Rail line. Works are expected to take approximately 18 months in total but will be completed in phases following environmental constraints such as breeding birds and seasonal restrictions to instream works and are expected to last until July 2026.

The proposed scheme consists of the installation of a 1200mm diameter tunnelled overflow culvert underneath the railway, the provision of additional storage in Glenavon Park, a series of flood containment walls upstream of the Killiney Hill Road Bridge, including upgrading the parapet of the existing bridge, upgrade works in the existing culvert at Granville Road, the upgrade of the existing screen at the entry of the Seafield culvert, installation of additional coarse screens and the provision for future adaptation of all the measures listed to the impact of climate change on the modelled flood levels.

An Appropriate Assessment Screening was carried out on the Deansgrange FRS. This concluded that there are no likely significant direct, indirect or secondary impacts of the project on any Natura 2000 sites.

5.3.2 Dublin Offshore Windfarm Array

The Dublin Array expects to consist of between 39 and 50 turbines, with individual heights being approximately 270 and 310 meters. The turbines will be distributed between Kish and Bray banks approximately 10km east off the coastline of Sorrento Point in Dalkey, with two cables that will be brought to a preferred landfall location in the green area at Shanganagh Cliffs approximately 2km south of the proposed Killiney water-sports facility. This will be facilitated by the construction of two onshore transitional joint bays that will connect the two offshore electricity cables to the onshore cables, integration of cables to spread power throughout the country. It is expected that construction of the wind array is to begin in 2026.

The Dublin Offshore Windfarm Array project is not anticipated to contribute to cumulative or in-combination effects during the development of the Killiney water-sports facility, as the Array is anticipated to begin construction approximately two years after the water-sports facility is complete. The Windfarm Array is not anticipated to contribute to cumulative or in-combination effects during the operational phase as the construction of the Array's landfall is at a far enough distance where they are not anticipated to contribute to the impact of the sport's facility, and the operational natures of the developments being distinctly different.

The plan will follow the legislative requirements of the Maritime Area Planning Act 2021, where it has undergone ecological and environmental surveying since 2001 and will be subject to an accompanying Environmental Impact Assessment Report and Natura Impact Statement.

Overall, the Dublin Offshore Windfarm Array is not considered to adversely impact any Natura 2000 sites, or features of otherwise ecological importance, nor it is it expected to contribute to any cumulative or in-combination effect.

5.3.3 Irish Rail East Coast Railway Infrastructure Protection Project (ECRIPP)

The Irish Rail ECRIPP aims to address the ongoing issues of coastal erosion, wave overtopping and flooding along the railway infrastructure that have arisen due to the increase in the frequency of storms as a result of climate change. These issues will be addressed through the implementation of a series of measures at five Coastal Cell Areas along the Dublin and Wicklow train route which include:

- CCA 1 - Merrion to Dún Laoghaire
- CCA 2-3 - Dalkey Tunnel to Killiney station and Killiney South
- CCA 5 - Bray Head to Greystones North Beach
- CCA 6.1 - Greystones to Newcastle
- CCA 6.2 - Newcastle to Wicklow Harbour

The objectives of this project are to

- Support the continued safe operation of rail services;
- Increase railway infrastructure future resilience to climate change;
- Provide improved and sustainable coastal protection works against predicted climate change effects such as sea level rise, coastal erosion, storm surges on the east coast railway corridor;
- Secure the railway line for future generations;
- Allow for the long-term efficient management and maintenance of the railway corridor;
- Support sustainable low carbon local, regional and international connectivity fostering a low carbon and climate resilient society.

Currently, the Irish Rail ECRIPP remains at a conceptual stage. Initial consultation with DLR internal stakeholders have been carried out, and the project is currently in Phase 2 Project Concept, Feasibility and Option Selection. Over the coming months (scheduled for August 2024) the project is to go into its first phase of public consultation. At present, however, there has yet to be an options report or subsequent buildability reports produced.

While the location for the CCA 2-3 protective measures is located in close proximity to the location of the water sports facility, and the protective measures are forecast to be ongoing for ten years, the construction phase of the ECRIPP is not anticipated to contribute to cumulative or in-combination effects during the development of the Killiney water-sports facility. This is because the construction of the ECRIPP is not anticipated to begin until 2028, approximately three-to-four years after the completion of the Water facility.

While the location for the CCA 2-3 protective measures is located in close proximity to the location of the water sports, the ECRIPP measures are intended to prevent any deterioration of the coast along a section of the railway line, while the Killiney water-sports facility is the addition of some localised washroom facilities. The operational natures of the developments are distinctly different, and they are not anticipated to contribute to cumulative or in-combination effects during their operational phases.

The plan will follow the legislative requirements of the EU Habitats Directive where it will be subject to an accompanying Environmental Impact Assessment Report and Natura Impact Statement.

Overall, the Irish Rail ECRIPP is not considered to adversely impact any Natura 2000 sites, or features of otherwise ecological importance, nor it is it expected to contribute to any cumulative or in-combination effect.

5.3.4 Other Projects

An assessment of local projects in the vicinity of the new sports facility and the potential for cumulative impacts was also conducted. These projects are listed in (Table 5-1) below, none of which were assessed as resulting in potential in-combination or cumulative impacts given their scope of works, and proximity to local Natura 2000 sites.

Table 5-1: Projects granted planning permission since September 2019 in vicinity of proposed site.

Planning Reference	Address	Application Status	Decision date	Summary of development	Rationale
D22A/0451 / ABP Ref. 314620	Cromlech Cottage, Killiney Hill Road, Killiney, Co. Dublin	REFUSE PERMISSION (Finalised)	18-Aug-2022, Appeal decision 17-Oct-2023	The development will consist of the demolition of existing structures on site, including a habitable dwelling; The construction of 3-storey terrace of units consisting of 7 No. 3-bed houses with car garage, bike storage at the ground floor and habitable spaces to the first and second floor with access to the development from Killiney Hill Road; All with associated site works, surface carparking, bin storage, signage, open spaces, landscaping, and boundary treatments.	Project Refused
D19A/0797	Lands at Loughlinstown Drive (0.5685ha), Loughlinstown, Co. Dublin comprising Loughlinstown Industrial Estate and part of HSE Health Centre	GRANT PERMISSION	28/07/2020	Permission for development. The development will consist of the demolition of all existing buildings (1985sq.m) on site and the construction of a 4 storey Primary Care Centre and General Practitioner (GP) Surgery with a gross floor area of 4,267sq.m. The accommodation will consist of treatment rooms, consultation rooms, meeting rooms, staff facilities, ancillary offices and ancillary accommodation over 4 floors, with a maximum height of 16.955m. The building also includes an own door pharmacy (101sq.m) at ground floor. Permission is also sought for an ESB substation and switch room (35sq.m), bin store (19sq.m), a vehicular drop off area the main building entrance, 61 no. surface carparking spaces, 4 no. Motorcycle parking spaces, landscaping, lighting, external signage and all associated site and development works. Vehicular access/egress to the proposed development is via two points off Loughlinstown drive (one existing access to be retained and one proposed access point).	AA Screening concludes that the project will no have likely significant effects on any Natura 2000 site
DZ19A/0863	Site is generally bounded by Lehaunstown Lane to the west, Carrickmines Stream (partly) to the south and, Cabinteely Stream (partly) to the east and is located within the townland of, Brennanstown, Dublin 18	GRANT PERMISSION	14/01/2020	Permission for a residential development at a site measuring approximately 8.24 ha in area. The development will consist of the construction of 342 new residential dwellings, comprising 189 no. apartments arranged in 4 blocks (all 4-storeys in height and comprising 15 x 1 bed units and 174 x 2 bed units); 28 No. duplex units (comprising 14 x 2 bed units and 14 x 3 bed units); 60 No. triplex units (comprising 40 x 2 bed units and 20 x 3 bed units) and 65 No. 4 bedroom houses (comprising a mix of detached, semi-detached and terraced house types) together with a Childcare Facility at ground floor level within Block C with a floor space of 249sq.m. (GFA), and ancillary open space. The proposed development includes for all associated infrastructural works to include the part delivery of the Cherrywood SDZ Planning Scheme's Druid's Glen Distributor Road (also known as Q to P3), measuring approximately 390 m in length to include the construction / completion of the part approved 3-span bridge (Option 1) over the Cabinteely Stream under Planning Ref. DZ16A/0587 (ABP	AA Screening concludes that the project will no have likely significant effects on any Natura 2000 site

Planning Reference	Address	Application Status	Decision date	Summary of development	Rationale
				Ref. PL06D.247915). It is noted that a portion of Road Q to P3 was also granted under Planning Ref. D15A/0385 (as amended by DZ19A/0622) and the road may be constructed under that permission. Permission is sought for the inclusion and utilisation of a temporary haul road (to be constructed by the Dún Laoghaire-Rathdown County Council Contractor as part of the Druid's Glen Road Q - P3 east of the Cabinteely Stream (up to a point CH 100m as defined on ATKINS Drawing No. 0101A). This temporary haul route would connect directly to the N11 via the proposed Junction Q and includes for a culvert, or temporary bridge crossing at the Cabinteely Stream. The proposed temporary haul route comprises a 4m wide unbound haul road approximately 160m long, and will be constructed from approximately CH 560m on Druid's Glen Road to a proposed site compound area to the west thereof measuring approximately 30m wide and up to 45m long in plan area and will be situated at, or above the 30m site contour. This site compound will be made available to the Dún Laoghaire-Rathdown County Council Contractor building the Druid's Glen Road from N11 to point P3. Following the sectional completion of Druid's Glen Road, the proposed temporary haul road will be available to accommodate construction traffic associated with the appointed contractor(s) responsible for the development of the subject lands (as per any planning permission granted). It is proposed that this temporary haul route would remain available until the permanent bridge crossing the Cabinteely Steam becomes operational. The development will also include the construction of: ancillary waste storage facilities; ancillary waste recycling collection area; associated car parking (total of 565 no. car parking spaces, comprising 257 spaces at basement level and 308 surface level spaces (including 9 no. ancillary car parking spaces in connection with the childcare facility); bicycle parking spaces (total of 492 no. cycle parking spaces, comprising 156 basement level spaces and 336 surface level spaces); a number of ancillary public open spaces; provision of boundary treatments; lighting; associated hard and soft landscaping (including changes in site levels and playground provision); associated infrastructural and site development works above and below ground (including 2 No. permanent water attenuation ponds and 1 no. temporary attenuation pond). The application site is located within the Cherrywood Strategic Development Zone.	
D23A/0602	Sorrento Cottage, Vico Road, Killiney, Dublin, A96WN90	GRANT PERMISSION	19/09/2023	Demolition of the single-storey extensions (75sqm), 2 no. south-facing bay windows (11.2sqm), greenhouse (62.5sqm), detached garage (27sqm) and external stores (11.4sqm). The construction of a side and	Project proceeded to NIS. Mitigations are in place to prevent the

Planning Reference	Address	Application Status	Decision date	Summary of development	Rationale
				rear extension (including garage) over 3 no. levels (787.3sqm). The construction of 1 no. replacement south facing bay window/extension (8.4sqm) internal renovations and reconfigurations and elevational changes. The development will also comprise the construction of a security hut (13.2sqm).	spread of invasive species present on site, and for pollutant spill into the Irish Sea. These prevent the project from harming local Natura 2000 sites and the project will not lead to potential in-combination effects

The Deansgrange Stream FRS, Dublin Offshore Windfarm Array, Irish Rail East Coast Railway Infrastructure Protection Project (ECRIPP) nor the surrounding projects are not anticipated to contribute to cumulative or in-combination effects.

5.4 Summary

The County and Local Development Plan; RBMP and projects within the locality of the proposed project are not considered in combination with the currently proposed project in the Impact Assessment section below.

6 Impact Assessment

6.1 Introduction

The impacts on the valued ecological features are assessed here. The initial assessment considers the potential impact pathways and whether these apply to the ecological features. The impact assessment considers the project and the anticipated effects in the absence of any mitigation.

The potential impacts from the enhancement works are assessed under the following:

- Disturbance to habitats and species
- Habitat loss (foraging, commuting, general refuge and nesting)
- Impacts on water quality.

The following sections describe the nature of immediate/ short-term impacts, as well as any medium- or long-term impacts, predicted for, habitats and species in the absence of implemented mitigation measures during the maintenance works.

6.2 Do Nothing Scenario

If the proposed works were not to go ahead and the present land management continues as is, the ecological value of the site would remain unchanged.

6.3 Construction Phase

6.3.1 Designated Sites - Dalkey Coastal Zone and Killiney Hill pNHA [001206]

Given the close proximity, approximately 0.4km, between the site and the nearest point of Dalkey Coastal Zone and Killiney Hill pNHA, this designated site is at risk of being impacted by dust-based pollutants (e.g., excavation and cement-based emissions). The proposed works are not anticipated to generate a large amount of dust given the small-scale works, however, there is a possibility of dust-based pollutants reaching the designation should a continuous southerly wind be present during the construction phase.

During long dry periods dust can coat plant foliage adversely affecting photosynthesis and other biological functions. Furthermore, cement-based dust deposited on leaves can increase the surface alkalinity, which in turn can hydrolyse lipid and wax components, penetrate the cuticle, and denature proteins, finally causing the leaf to wilt.

The pNHA's woodland communities, particularly the canopy, would be vulnerable to cement-based dust deposition impacts during the construction phase of the proposed development. This has knock-on impact for associated fauna which are supported by these woodlands. Furthermore, cement-based dust could be accidentally ingested by bird species when foraging and preening. In addition, this generation of dust can settle into Killiney Bay and lead to an overall degradation of the marine communities of the site.

Impacts may also arise in the form of disturbance to the marine communities of the pNHA in the event of pollutant spills, concrete leachate or release of sediment entering the water, however, given the scope of the project and the volume of water between the site and the pNHA these impacts are expected to be minimal.

Therefore, in the absence of mitigation**, a temporary negative impact of slight significance** is anticipated during the construction phase of this project as a result of the release of airborne or waterborne pollutants.

6.3.2 Habitats

6.3.2.1 Annex I associated Habitats Shingle and gravel banks (CB1), shingle and gravel shore (LS1) and Scrub (WS1)

These habitats are associated with Annex I habitats "Annual vegetation of drift lines [1210]" (AVDL) and "Perennial vegetation of stony banks [1220]" (PVSB). The characteristics of these habitats include a defined list of vegetative species that colonise within areas consisting of gravel, pebble, boulder or

cobble, or a combination thereof and often grade into each other upslope perpendicular to the high tide line.

The AVDL is made up of annual plants, in particular Babington's Orache *Atriplex glabriuscula* and Spear-leaved Orache *Atriplex prostrata* where these plants shed their seeds into the shingle where they remain until the following year where they germinate and grow typically along the landward edge of the highest beach crest as well as on areas where waves wash over the beach. This can be seen in Figure 6-1.

Figure 6-1 AVDL Vegetation on the landward side of the highest beach crest and on wash-over areas at Dungeness in 2022

PVSB is present on the landward side of shingle beaches where the interstitial spaces between the cobbles become filled with sand and are colonised with plants such as Sea Beet *Beta vulgaris maritima*, which then encourages the creation of soil, gradually terrestrialising the environment in the absence of the continual addition of fresh material. Therefore, this habitat typically forms a band along the rear of the beach between the overwash areas and the terrestrial environment (see Figure 6-2); at Killiney Beach this area is small and pretty much restricted to the sheltered area North of the grassed area of made ground on which the new changing block is proposed to be constructed.

Figure 6-2 PVSB on the sheltered side of the main beach ridge at Dungeness, increasing in coverage landward, especially where overwash (shingle replenishment) is less (in the background)

AVDL was not present at the time of the recent visit to the site, it is composed of annual plants which have not germinated yet; the remains of last year's vegetation being washed away in winter storms. The highest beach crest is at the base of the gabion baskets fronting the grassy area, leaving no room for PVSB to develop (see Figure 6-3). Photographs taken in June 2023 also do not show the presence of AVDL on the beach crest, however, this may have been too early in the year before the plants become established. Similarly photographs taken in November 2023 may have been too late in the year, although it appears from other vegetation visible, that if AVDL was present, it should be visible. Unfortunately, none of these visits were undertaken with the specific aim of surveying for AVDL, which are best undertaken in August. Without such a survey it is impossible to say whether there is AVDL present at all on the beach, however, from the photographic evidence on file it would appear that, if it is there, it is not in a quantity large enough to form the distinctive vegetation band(s) on the beach crest. Therefore, it can be assumed that the occurrence of AVDL at Killiney Beach is in the form of scattered plants, i.e. the area is small and composed of a small number of plants.

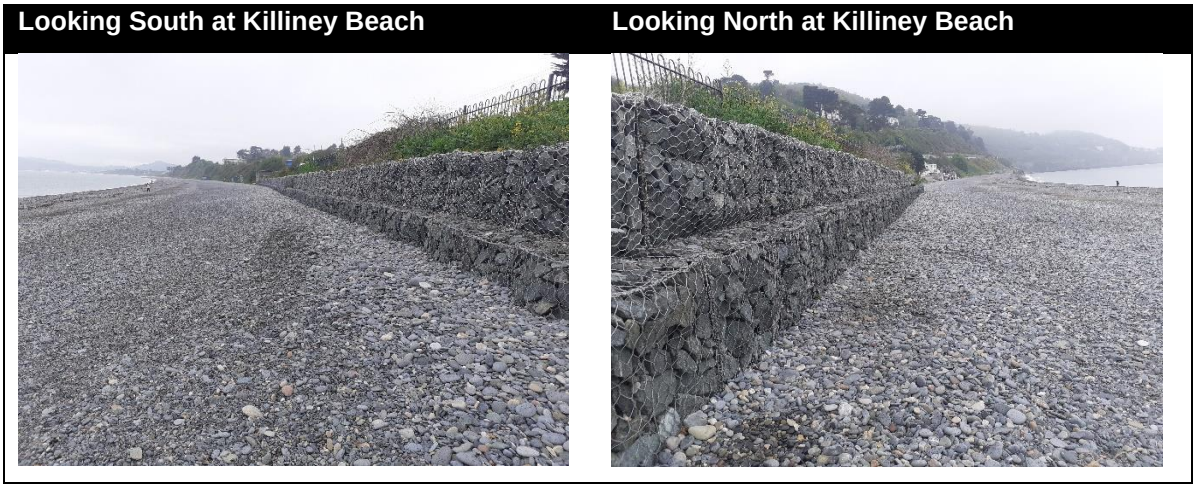


Figure 6-3 Shingle accumulation following winter storms at the top of the beach at Killiney (May 2024)

The PVSB at Killiney really only occurs where the sediment movement along the beach is interrupted by man-made structures, creating locations where the sediment is static and not covered with fresh

material. Given this, there are only two locations along the beach where this habitat is present, one is North of the grassy area on which the changing facilities are proposed to be constructed and the other is a narrow, broken 2m wide strip along the walkway to the south of the grassy area.

The area North of the grassy area is the larger of the two areas and somewhat atypical of the PVSB community in general, with a large degree of sand dune and terrestrial species influence. This area exists because of the shelter provided by the grassy area and will continue to do so as long as this is maintained. This can be seen in Figure 6-4 when, looking South along the beach, the absence of this habitat can be seen.

Figure 6-4 Killiney Beach looking South showing absence of PVSB where there is no shelter

This area of PVSB is dominated by Lyme Grass *Leymus arenarius* and Sea Beet and is about 200m² in area, although it is not contiguous (see Figure 6-5).

Figure 6-5 PVSB patch North of the grassy area where it is sheltered from winter storms

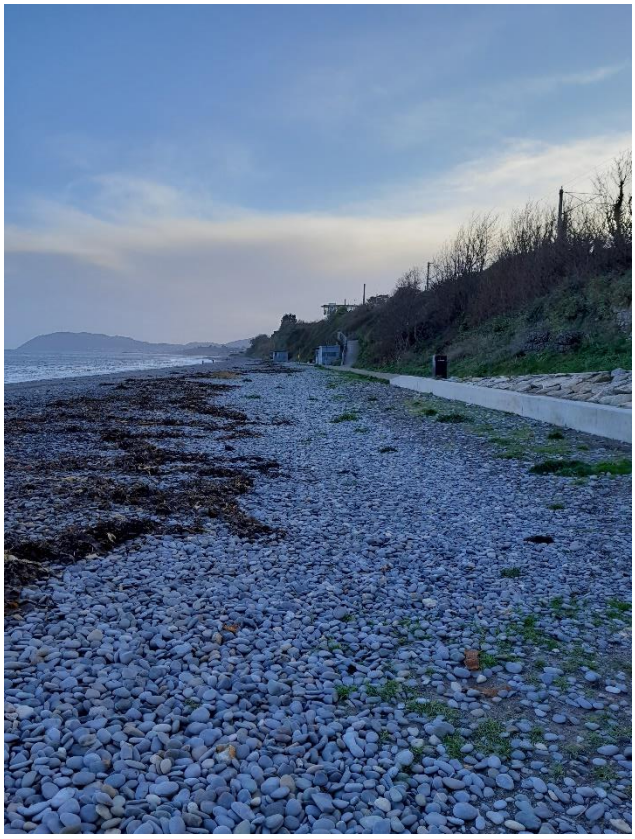


Figure 6-6 Narrow PVSB Strip South of grassy area

The smaller area to the south of the grassy area is associated with the walkway and the deposition of small sized material into the interstitial spaces between the cobbles where people are putting on their shoes and banging them to remove any sand as well as carrying material on their shoes when they arrive on the beach. This area is insignificant and, again not contiguous and covers a length of less than 100m in length (see Figure 6-6) Sea Beet is again dominant here but there is also grasses and other species more associated with terrestrial habitats.

These PVSB habitats are not anticipated to undergo any direct impacts associated with works within the footprint of the project, however they may be vulnerable to surface water (run-off) pollution events. (e.g., leaking or spilled hydrocarbons, concrete leachate, release of sediment) which may occur within the site, which would negatively impact the defining vegetative characteristics of these Annex I associated habitats. However, due to the location of the site on the made ground it is anticipated that potential pollutant spills/ runoff will outfall towards the bay instead of directly to these associated Annex I habitats. However, given the value of these habitats, they will still be included further when considering mitigation measures.

In the absence of mitigation**, a temporary non-significant negative impact** is anticipated during the construction phase of this project in the event of pollutant spills.

During the construction phase, there is a potential for visitors to the beach to avoid the walkway from the existing passage from the car park in order to avoid the construction activities. By doing this, there is a risk that these visitors will tread on the PVSB Annex 1 habitat.

Therefore, in the absence of mitigation**, a temporary negative impact of slight significance** is anticipated during the construction phase of this project, as visitors to the beach may walk on the Annex 1 PVSB vegetation during the construction phase.

6.3.2.2 Offshore Reefs [1170]

Reef habitat exists outside of the site boundary and is located off shore but within Killiney Bay. These reefs will not undergo direct impacts associated with works within the footprint of the project, however, they will still be vulnerable to surface water (run-off) polluting events. (e.g., leaking or spilled hydrocarbons, concrete leachate, release of sediment) which may occur within the site, or the production of dust-based emissions that may settle within the waters of Killiney Bay.

However, in the event of accidental release of the above pollutants and silt runoff, given the very large dilution factor of Killiney Bay and settling out of particles over such a distance between the site and the Natura 2000 sites, as well as the temporary and localised nature of the project, it is not anticipated that the proposed project will have a significant effect on these Reef areas.

Therefore, in the absence of mitigation, during the construction phase, **a temporary, non-significant negative impact** is anticipated for offshore reef habitat.

6.3.2.3 Treelines (WL1) & non-Annex Scrub (WS1)

These habitats exist outside of, but are in close proximity to, the site boundary. They are not anticipated to undergo direct impacts associated with works within the footprint of the project, however, they will still be vulnerable to surface water (run-off) polluting events (e.g., leaking or spilled hydrocarbons) and the release of dust-based emissions which may occur within the site. These impacts would reduce the quality of the habitats, while also impacting on the provisions of foraging, refuge and nesting to local fauna.

Therefore, in the absence of mitigation**, a temporary negative impact of slight significance** is anticipated during the construction phase of this project as a result of pollutant spills and the release of dust-based emissions.

6.3.3 Species

6.3.3.1 Ground-dwelling Mammals - Badger, Hedgehog, Red Squirrel and Shrew

While there were no signs of Badger, Hedgehog, Red Squirrel or Shrew during the ecological walkover, this does not imply that the local mammal species do not visit the site area for foraging within the treelines and scrub.

The proposed works are located adjacent to the existing rail line, where there exists an ongoing source of vibration and noise. It has been reported by Irish Rail through the Strategic Noise Mapping (Irish Rail, 2024), that vibrations in the vicinity of the Killiney Dart Stop would frequently reach levels in excess of 70 decibels during the day.

Vibration levels and noise within Killiney Bay as a result of the proposed works is considered far below that of the general background noise created in the vicinity of the shoreline. As such there will be **no impact** on the Marine Invertebrates and Fish of Killiney Bay, due to noise and vibrations from the project.

Bearing this in mind, minor impacts may arise in the form of disturbance to foraging and commuting activities, as well as potential loss of life to individuals in the case of the accidents within the construction site (e.g. accidental trappings), after failure to exclude entry.

Therefore, in the absence of mitigation, during the construction phase, **a temporary negative impact of slight significance** is anticipated for these mammal species.

6.3.3.2 Marine Mammals

While there were no signs of aquatic mammals from the coast during the ecological walkover, this does not ensure that these species are not present off the shores and in Killiney Bay.

The threats of lower importance facing the Common Porpoise within Killiney Bay include noise nuisance and noise pollution (NPWS, 2019). The induction of behavioural changes based on acoustic disturbance is known as the Temporary Threshold Shift (TTS), which as suggested by Tougaard et al (2015) could be reached at Sound Exposure Level (SEL) of 100-110db in relation to pulses that are derived from pile driving works. A review of the EIAR for the River Poddle Flood Alleviation Scheme (OPW & O'Dwyer Ltd., 2020) and the Arklow Bank Wind Park NIS (RPS, 2021) indicates that sound level data on piling and ancillary operations in Ireland estimates typical noise levels to reach 89dB at 10m, meanwhile the TTS injury zone for porpoises is estimated to a several hundred meters. These noise estimations are provided for works that take place within the marine environment and works at the site are not anticipated to reach this level .

Common Porpoise are not restricted by artificial barriers to the site (NPWS 2019). Acting as a baseline, noise and vibration from piling has a low radius (RPS Group, 2021), and typical noise levels fall under the TTS range for Common Porpoise (Tougaard. J., et al., 2020). Given that the project is anticipated to be below these baseline noise level and radius of piling, that Common Porpoise are not confined to this limited radius of noise disturbance, and the temporary nature of the works of 25 weeks, significant impacts from noise are not anticipated for Common Porpoise.

While the proposed works are located close to the shoreline, they are located adjacent to the existing rail line, where there exists an ongoing source of vibration and noise. It has been reported by Irish Rail through the Strategic Noise Mapping (Irish Rail, 2024), that vibrations in the vicinity of the Killiney Dart Stop would frequently reach levels in excess of 70 decibels during the day.

Vibration levels and noise within Killiney Bay as a result of the proposed works is considered far below that of the general background noise level in the vicinity of the shoreline. As such there will be **no impact** on the marine mammals, due to noise and vibrations from the project.

Bearing this in mind, impacts may arise in the form of disturbance to communities in the event of pollutant spills entering the waters, however, due to the scope of the project these impacts are expected to be minimal. Given the very large dilution factor of Killiney Bay, initial filtration of topsoil in the event that small volumes of hydrocarbons were released, paired with the temporary and localised nature of the project, it is not anticipated that the proposed project will have a significant impact on these species.

Therefore, in the absence of mitigation, during the construction phase, **temporary, non-significant negative impact** is anticipated for these aquatic mammal species.

6.3.3.3 Bats

There are no bat species recorded within 2km of the site according to the NBDC records, however the BATLAS 2020 reports the presence of Common Pipistrelle, Soprano Pipistrelle Leisler's Bat and Daubenton's Bat within the 10km grid of the site. There is a low level of foraging potential within the site given the low coverage of scrub and treelines within the site, however this does not exclude bat species from visiting to the site for commuting and foraging.

The proposed development is not likely to have an adverse impact on population numbers of the bat species using the site. The site currently has low foraging and commuting suitability for bats. Potential impacts on individuals using the site could be posed by damage to surrounding habitats and use of lighting during the construction phase. Therefore, in the absence of mitigation, during the construction phase, **a temporary negative impact of slight significance** is anticipated for these mammal species.

6.3.3.4 Breeding Birds

While the proposed works are located close to the shoreline, they are located adjacent to the existing rail line, where there exists an ongoing source of vibration and noise. It has been reported by Irish Rail through the Strategic Noise Mapping (Irish Rail, 2024), that vibrations in the vicinity of the Killiney Dart Stop would frequently exceed levels in excess of 70 decibels during the day.

Vibration levels and noise within the site boundary and its immediate area resulting from the proposed works is considered far below that of the general background noise level in the vicinity of the shoreline. As such there will be **no impact** on the breeding birds, due to noise and vibrations from the project.

While there were no signs of breeding birds of conservation concern during the ecological walkover survey, this does not ensure that the local breeding bird species do not occasionally visit the site area for foraging or nesting within the adjacent treeline and scrub. Bearing this in mind, minor impacts may arise in the form of disturbance to foraging and nesting activities, as well as potential loss of life to individuals in the case of the accidents within the construction site (e.g. accidental trappings), after failure to exclude entry.

Therefore, in the absence of mitigation, during the construction phase, **a temporary negative impact of slight significance** is anticipated for these bird species.

6.3.3.5 Marine/ sea Birds and QI Terns

Gull species, Cormorant, Shag and Terns forage in the waters of Killiney Bay and they and their prey may be impacted by pollution from hydrocarbon spills, concrete leachate or release of sediment. However, due to the scope of the project, these impacts are expected to be minimal. Given the very large dilution factor of Killiney Bay, initial filtration of topsoil in the event that small number of hydrocarbons were released, paired with the temporary and localised nature of the project, it is not anticipated that the proposed project will have a significant impact on these species.

Therefore, in the absence of mitigation, during the construction phase, **a temporary, non-significant negative impact** is anticipated for these bird species, as the small scale of the pollutants is anticipated to become diluted by the large body of Killiney Bay.

6.3.3.6 Wintering Birds

While the proposed works are located close to the shoreline, they are located adjacent to the existing rail line, where there exists an ongoing source of vibration and noise. It has been reported by Irish Rail through the Strategic Noise Mapping (Irish Rail, 2024), that vibrations in the vicinity of the Killiney Dart Stop would frequently exceed levels in excess of 70 decibels during the day.

Vibration levels and noise within Killiney Bay as a result of the proposed works is considered far below that of the general background noise in the vicinity of the shoreline. As such there will be **no impact** on the wintering birds of Killiney Bay, due to noise and vibrations from the project.

While wintering birds were not surveyed, this does not ensure that the local wintering bird species do not occasionally visit the site area for foraging. Bearing this in mind, minor impacts may arise in the form of pollutants entering Killiney Bay in the area of foraging activities, however given the scope of the project these impacts are expected to be minimal. In addition to pollutant spill entering Killiney Bay, wintering birds are also at threat of potential loss of life to individuals that go on-land in the case of accidents within the construction site (e.g. accidental trappings), after failure to exclude entry.

Therefore, in the absence of mitigation, during the construction phase, **a temporary, non-significant negative impact** is anticipated for these wintering species, as the small scale of any pollutants released is anticipated to be diluted by the large body of Killiney Bay.

6.3.3.7 Terrestrial Invertebrates

Local terrestrial invertebrates will face minor impacts that may arise in the form of disturbance to foraging and commuting activities due to potential damages of the local scrub and treeline habitats.

Therefore, in the absence of mitigation, during the construction phase, **a temporary, non-significant negative impact** is anticipated for these bird species, as the small scale of any pollutants released is anticipated to be diluted by the large body of Killiney Bay

6.3.3.8 Marine Invertebrates and Fish (Sea Trout & European Eel)

While the proposed works are located close to the shoreline, they are located adjacent to the existing rail line, where there exists an ongoing source of vibration and noise. It has been reported by Irish Rail through the Strategic Noise Mapping (Irish Rail, 2024), that vibrations in the vicinity of the Killiney Dart Stop would frequently exceed levels in excess of 70 decibels during the day.

Vibration levels and noise within Killiney Bay as a result of the proposed works is considered far below that of the general background noise in the vicinity of the shoreline. As such there will be **no impact** on the Marine Invertebrates and Fish of Killiney Bay, due to noise and vibrations of the project.

Bearing this in mind, minor impacts may arise in the form of health complications pollutants entering Killiney Bay in the area of foraging activities, however given the scope of the project these impacts are expected to be minimal.

Therefore, in the absence of mitigation, during the construction phase, **a temporary, non-significant negative impact** is anticipated for marine invertebrates and fish species, as the small scale of any pollutants released is anticipated to be diluted by the large body of Killiney Bay

6.3.4 Invasive Non-native Species

Three-cornered Garlic is a non-native invasive Medium Impact Species under the third schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011 recorded by the JBA ecologists during the ecological walkover surveys. This invasive species was recorded outside of the site boundary of the project and away from the site compound or the access point and, therefore, **it is not anticipated that the project will contribute** to the spread of this invasive species.

6.4 Operation Phase

6.4.1 Designated Sites - Dalkey Coastal Zone and Killiney Hill pNHA [001206]

Dalkey Coastal Zone and Killiney Hill pNHA is not anticipated to experience any impacts during the operational phase of this project.

6.4.2 Habitats

6.4.2.1 Annex I associated Habitats: Shingle and gravel banks (CB1), Shingle and gravel shore (LS1) and Scrub (WS1)

The operation of the Killiney water-sports facility is not anticipated to directly impact these Annex I - associated habitats. An assessment of the site and the risk of flooding was conducted by JBA (2024). It was determined through this assessment that the area of the Killiney water-sports facility, at present, is anticipated to experience overtopping at the site location but the total volumes are within the risk threshold for vehicles and humans. It was found that the risk of overtopping becomes greater in future climate scenarios, however, it was also noted that these increased risks are independent of the presence of the building at this location.

However, with the inclusion of facilities consisting of showers and toiletry plumbing, along with the risk of wave overtopping, there is a potential for these waters to enter the local drainage system and cause an overspill of wastewater into local habitats including draining back into Killiney Bay. The inclusion of non-return valves and sealed manholes will prevent a backflow of sewage during rare instances of wave overtopping.

Therefore, in the absence of mitigation, during the operation phase, **a rare, non-significant temporary negative impact** is anticipated for these habitats in the instance of rare and major wave overtopping events.

With respect to climate change and sea level rise, the shingle beach is a dynamic environment that will remain in an equilibrium state with that of the sea and will rise as sea level rises so long as the sediment supply is maintained. The beach profile may change in response to this, as it does after every winter storm, but the biotopes created will remain although their locations may change. The AVDL will be unaffected by any changes in sea level or storminess, however, the area of PVSB may decline or be lost entirely if the levels of shingle on the beach become higher than the current grassy area. If this happens the sediment will then be able to be deposited across this area and eventually into the PVSB area to the north, covering it over with fresh material annually. The existence of the PVSB at Killiney Beach is intimately linked to the preservation of the made ground area which is currently covered by grassland; if this is lost, so will the area of PVSB.

In view of this, given the timescales involved, during the operational phase, there will be **no impact** on the AVDL [1210] and an impact of **negligible significance** is anticipated for the PVSB [1220].

This area of the beach is already used by local members of the public and is visited frequently. With the increased facilities in the area of the beach, there is a risk of higher visitation rates from members of the public to trample or otherwise disrupt the health of these local habitats. There is, however, no significant increase in members of the public anticipated from the construction of these facilities along the beach.

The site has been selected to make use of the existing path and ramp to the south therefore it is not anticipated that it will significantly increase numbers going north from the facility.

Therefore, in the absence of mitigation, during the operational phase, **an impact of negligible significance** is anticipated for these habitats. This is due to the visitation rate of members of the public to the beach not being anticipated to change significantly and the site makes use of existing structures south of these habitats and visitors are not expected to enter their vicinity.

6.4.2.2 Offshore Reefs [1170]

The operation of the Killiney water-sports facility is not anticipated to directly impact these Annex I - habitats. However, with the inclusion of facilities consisting of showers and toiletry plumbing, there is a potential for overtopping waves to enter the local drainage system and cause an overspill of waste water into local habitats, and to drain back into the sea, thus bringing pollutants into the bay. The inclusion of non-return valves and sealed manholes will prevent a backflow of sewage during rare instances of wave overtopping. Given the scale of the project and the very large dilution factor of Killiney Bay it is not anticipated that the proposed project will have a less than significant impact on this habitat.

However, in the absence of mitigation, during the operation phase, **a rare, non-significant temporary negative impact** is anticipated for these habitats in the instance of rare and major wave overtopping events.

This area of the beach is already used by local members of the public and is visited frequently. With the increased facilities in the area of the beach, there is a risk of higher visitation rates from members of the public to use Killiney Bay for water sport activities such as kayaking or paddle boarding. There is, however, no significant increase in members of the public visiting the beach and the bay anticipated from the construction of these facilities along the beach.

There is additional zoning in place which prohibits boats within the bathing area at Killiney Beach, which will also prevent boats from departing off the shores of Killiney Bay.

Therefore, in the absence of mitigation, during the operational phase, **an impact of negligible significance** is anticipated for these reefs from visitors of the public. This is due to the visitation rate of members of the public to the beach and the bay not being anticipated to change significantly.

6.4.2.3 Treelines (WL1) & non-Annex Scrub (WS1)

The Treelines and Scrub **not anticipated to be impacted by the operation of this project**.

Overflow from the sewage in the event of flooding is not anticipated to reach these habitats due to the project's drainage system to divert waters to the sea.

6.4.3 Species

6.4.3.1 Ground-mammals, Bats, Breeding Birds, Wintering Birds, Terrestrial Invertebrates

Overflow from the sewage in the event of wave overtopping is not anticipated to reach the habitats that these species groups benefit from due to the scheme's drainage system with designed in mitigation of inclusion of non-return valves and sealed manholes. These species groups are **not anticipated to be impacted** by the development's operational phase.

This area of the beach and the Bay is already used by local members of the public and is visited frequently. With the increased facilities in the area of the beach, there is a risk of higher visitation rates from members of the public to use Killiney Bay for water sport activities such as kayaking or paddle boarding. There is, however, no significant increase in members of the public visiting the beach and the bay anticipated from the construction of these facilities along the beach. Wintering Birds, such as Brent Goose which are present on Dalkey Island, are not anticipated to be disturbed during the Winter, as kayakers and paddle boarders originating from the sports facility are not anticipated to travel to Dalkey

Island in any great numbers during the Winter months when the conditions of the water are rougher and colder.

Therefore, in the absence of mitigation, during the operational phase, **an impact of imperceptible significance** is anticipated for these species groups from visitors of the public. This is due to the visitation rate of members of the public to the beach and the bay not being anticipated to change significantly.

There will be no additional public lighting provided along the public path.

Low level lighting (in the order of 1 – 2 lux / 4 – 5 Watts; lighting design to be developed at detailed design stage) will be provided inside the building. Light fittings will be recessed downlights to minimise light spill to surrounding areas.

Therefore, in the absence of mitigation, during the operational phase, **an impact of imperceptible significance** is anticipated for these species groups from increased public lighting. This is due to the security lighting being situated inside the building, at a low lux rate of 1-2 lux below the rate of disturbance to nocturnal species and being directed in a manner to avoid overspill.

6.4.3.2 Marine mammals, and Fish

The operation of the Killiney water-sports facility is not anticipated to directly impact these species groups. However, with the inclusion of facilities consisting of showers and toiletry plumbing along with the localised risk of wave overtopping, there is a potential for these waters to enter the local drainage system and cause an overspill of waste into local habitats, and to drain back into the sea.

The inclusion of non-return valves and sealed manholes will prevent a backflow of sewage during rare instances of wave overtopping.

However, in the absence of mitigation, during the operation phase, **a rare, temporary non-significant negative impact** is anticipated for these species in the instance of rare and major wave overtopping events which will then be diluted within the Bay.

6.4.3.3 Marine/Sea birds

The operation of the Killiney water-sports facility is not anticipated to directly impact these species groups. However, with the inclusion of facilities consisting of showers and toiletry plumbing along with the localised risk of wave overtopping, there is a potential for these waters to enter the local drainage system and cause an overspill of waste into local habitats, and to drain back into the sea.

The inclusion of non-return valves and sealed manholes will prevent a backflow of sewage during rare instances of wave overtopping.

However, in the absence of mitigation, during the operation phase, **a rare, temporary non-significant negative impact** is anticipated for these species in the instance of rare and major wave overtopping events which will then be diluted within the Bay.

This area of the beach and Killiney Bay is already used by members of the public and is visited frequently. With the increased facilities in the area of the beach, there is a risk of higher visitation rates from members of the public to use Killiney Bay. There is, however, data from DLRCC anticipating that there will be no significant increase in members of the public visiting the beach and the bay during the operational phase of these facilities. As stated earlier, average visitor numbers stand at 11,972 weekly during the summer months, rising to approx. 32, 000 on a peak week. However, even with negligible change in overall numbers, the facility may bring an increase in kayak or paddle board users.

The proposed water sports facility has a specific sport function, focused on supporting existing activity operators taking small groups out on the water. It is likely that the groups will in the main use the extent of marine waters within Killiney Bay, and avoid the very strong currents around Dalkey Island. However, if a group is taken to Dalkey Island, the only safe landing at this rocky island is at the pier and inlet, where the ferry boat and other marine craft land. This is near where the Arctic Terns have their main nesting area, and nests may be at risk of disturbance.

However the risk of disturbance to tern species on Dalkey Islands from visitation by boat users, kayakers, and paddle boarders is already present, as the island is readily accessible by users and group operators who launch from Dun Laoghaire Harbour and the nearer Coliemore and Bulloch Harbours,

as well as the popular ferry taking day-trippers to Dalkey Island from Coliemore Harbour, the latter running daily during the summer months. Any additional visitations from Killiney Beach Facility via kayak are expected to be negligible in comparison to daily ferry and other users.

A number of measures are already in place to address disturbance to nesting tern on Dalkey Island. DLRCC has a Conservation Plan for the islands in place (DLRCC, 2014), Birdwatch Ireland have a tern warden in place during the summer months, with sensitive tern nesting areas fenced off and signage advising members of the public to stay away from nest sites on the islands during the breeding season.

The protection already in place is sufficient to continue to protect the terns from any potential increase in visitor numbers, which are anticipated to be extremely low.

As there is no anticipated significant increase in persons accessing Dalkey Islands from the site, with the existing tern protection measures in place within Dalkey Islands in place.

Therefore, in the absence of mitigation, during the operational phase, **a non significant impact** is anticipated on these species from members or the public due to the very small proportion of those visitors to the beach undertaking water sports in the bay and subsequently landing on the islands. This is due to the visitation rate of members of the public to the beach and the bay not being anticipated to change significantly.

6.5 Summary

The following potential significant impacts during the construction phase have been identified below, while the necessary mitigation is discussed in the next chapter:

- Airborne pollution production and spread into Dalkey Coastal Zone and Killiney Hill pNHA
- Pollution and disturbance of Annex I - associated shingle habitats
- Pollution of waterbodies (Killiney Bay) and protected habitats and species(i.e., reefs, aquatic mammals, marine/ sea birds and fish).
- Disturbance of commuting and foraging ground-dwelling mammals, birds and bats, as well as potentially accidental fatal entrapment for these species.
- Disturbance of commuting, foraging, and nesting for local breeding and wintering birds of conservation concern.

The mitigation is based on existing guidance documentation and where necessary additional mitigation is proposed to reduce the impacts identified above.

7 Mitigation

The following mitigation is recommended to ensure that the proposed works do not adversely impact on the ecological receptors outlined in Section 6.

Mitigation measures for anticipated impacts on designated sites and ecological features are outlined below.

7.1 Project Construction Phase

The activities of the project for the construction phase shall remain within the boundary of the proposed site. Within this area, the mitigation measures outlined below shall be implemented.

- A Construction and Environment Management Plan (CEMP) will be developed at detailed design stage to ensure best practice and to minimise any potential adverse environmental impacts. The CEMP will then be submitted to Dun Laoghaire Rathdown County Council for agreement prior to site works commencing. This CEMP will incorporate the mitigation measures listed here.
- The CEMP will also strictly adhere to best practice environmental guidance including but not limited to the following:
    - CIRIA Guidance C532 *Control of water pollution from construction sites. Guidance for consultants and contractors*. (CIRIA, 2019 - www.ciria.org);
    - CIRIA Guidance C741: *Environmental good practice on site guide* (Charles & Edwards, 2015; CIRIA, 2019 - www.ciria.org);
    - CIRIA Guidance C750D: *Groundwater control: design and practice* (Preene *et al.*, 2016; CIRIA, 2019 - www.ciria.org);
- Construction method statements will be submitted to Dun Laoghaire Rathdown County Council for agreement prior to site works commencing.

7.1.1 Site Compound

- The primary work's compound will be sited within the DART car park to the west of the site, while a secondary work's compound is to be located in the north of the site, within the site's car park.
- Only plant and materials necessary for the construction of the works will be permitted to be stored at the compound located within the site boundary, while refuelling and washdown of machinery will be limited to the compound located in the DART car park.
- Site establishment by the Contractor will include the following:
    - Site facilities (e.g., toilets);
    - Secure compound for the storage of all on-site machinery and materials;
    - Temporary car parking facilities;
    - Temporary fencing;
- Site Security to restrict unauthorised entry;
- Bunded storage of fuels and refuelling area which will be located in the Contractor's compound located in the DART car park area. All tank and drum storage areas on the site will, as a minimum, be bunded to a volume not less than the following;
    - 110% of the capacity of the largest tank or drum within the bunded area, or
    - 25% of the total volume of substances which could be stored within the bunded area.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum:
    - Absorbent granules;
    - Absorbent mats/ cushions;
    - Absorbent booms;

- Track-mats, geotextile material and drain covers

- All used spill materials will be placed in a separate container which will be located in the Contractor's compound located in the DART car park area to store absorbents used to contain spillages of hazardous materials. The container will be clearly labelled, and the contents of the container will be disposed of by a licensed waste contractor at a licensed site. Records will be maintained of material taken off site for disposal.
- A maintenance programme for the bunded areas will be managed by the site Environmental Manager. The removal of rainwater from the bunded areas will be their responsibility. Records will be maintained of materials taken off site for disposal.
- The site Environmental Manager will be responsible for maintaining all training records.
- Potentially contaminated run off from plant and machinery maintenance areas will be managed within the site compound surface water collection system.
- Wherever reasonably practical, refuelling of vehicles will be carried out off site at designated refuelling areas to reduce the risk of accidental hydrocarbon pollution events. These areas will be rendered impervious and will be constructed to ensure no discharges will cause pollution to surface or ground waters.

7.1.2 Water Quality

Relevant legislation and best practice guidance that have been considered includes but not limited to the following:

- Water Framework Directive (2000/60/EC);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009;
- Local Government (Water Pollution) Acts 1977-1990;
- CIRIA C532 *Control of water pollution from construction sites*. Guidance for consultants and contractors. (www.ciria.org);
- CIRIA Guidance C750D: *Groundwater control: design and practice* (Preene *et al.*, 2016) (www.ciria.org);
- CIRIA C515 Groundwater control – design and practice, 2nd ed. (CIRIA, 2021 - www.ciria.org)
- CIRIA Guidance C741: *Environmental good practice on site guide* (Charles & Edwards, 2015; CIRIA, 2020 - www.ciria.org)
- Inland Fisheries Ireland: *Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters*
- Inland Fisheries Ireland (2021): *A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate / Flood Risk and Recreational Planning*

To prevent marine pollution:

- Adoption of a surface water plan including appropriate barrier controls to prevent any polluted surface water or silt discharge from the site reaching the adjacent marine habitats, e.g. regrading of slope to east of building
- Minimise area of exposed ground by maintaining existing vegetation in vicinity of site compound.
- Fail-safe site drainage and bunding through drip trays on plant and machinery will be provided to prevent discharge of chemical spillage from the sites to surface water.
- Stockpiling of spoil and spoil-like materials will be appropriately located to minimise risk of runoff.
- Adoption of a surface water plan with appropriate erosion and silt controls, including a berm and silt fence combination to be installed along the eastern edge of the site boundary (), in the grass before reaching the line of gabion baskets. It shall be placed here in order to safeguard the bay and beach from the increased sediment loading / run-off which will occur as result of the construction activities on. The silt fence (Figure 7-2) will be installed prior to any other

construction works commencing on site, with supervision by an EcOW at installation and removal stages.

Figure 7-1: The location of the proposed silt fence located along the fence in the east of the site

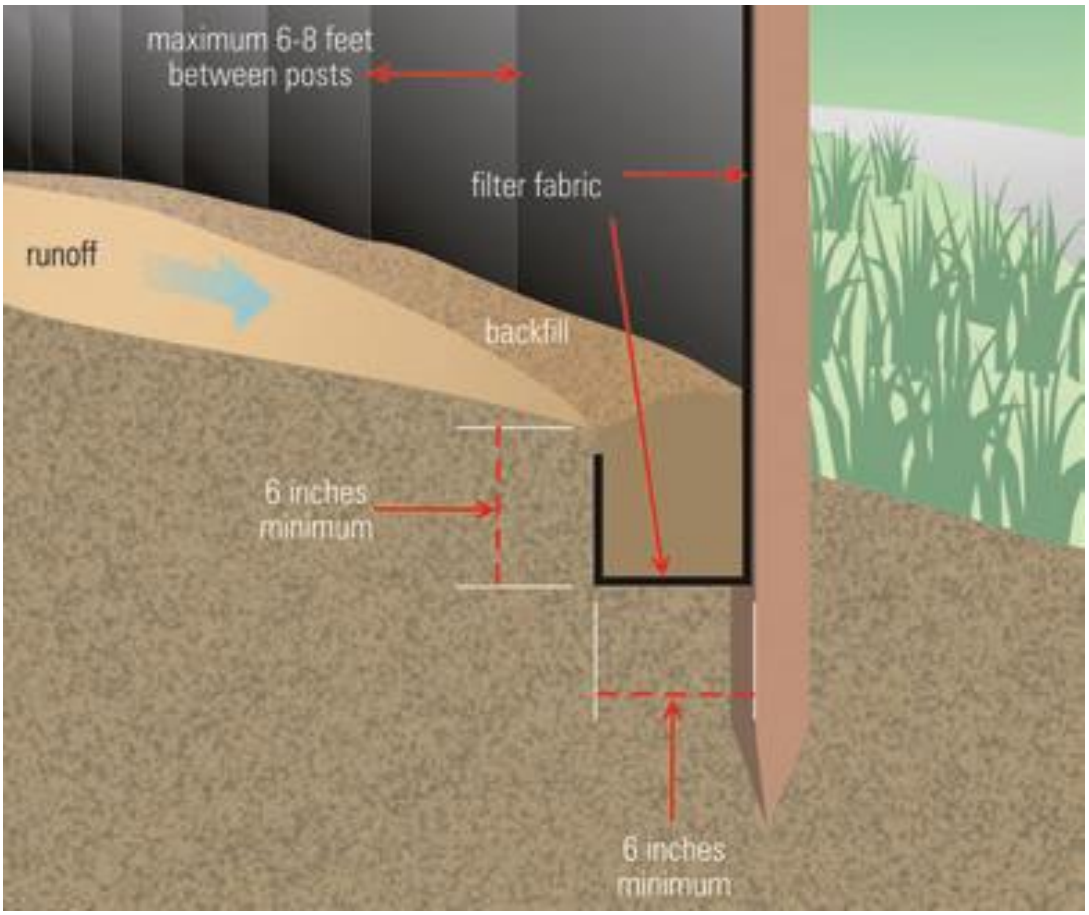


Figure 7-2: An example of suitable silt fence management ensuring maximum safeguarding efficiency

7.1.3 Dust generation management

The following measures will be implemented to prevent the generation and spread of dust from the site to nearby areas:

- Stockpiling of spoil and spoil-like materials will be appropriately located to minimise exposure to prevailing winds. Limit the breaking of the topsoil or earth stripping from occurring during dry and windy weather.
- Wheel washing of vehicles leaving the site, covering of fine dry loads or spraying of loads prior to exiting the site and, if necessary, regular cleaning of public roads in the vicinity of the entrance.
- Appropriate maintenance of vehicles and machinery to minimise any extensive release of exhaust pollutants during works (OPR, 2004).

7.1.4 Concrete Management Procedures

The following measures will be implemented to prevent liquid concrete/ cement-based dust entering the adjacent habitats of ecological value.

- Wherever reasonably possible, pre-cast concrete features should be utilised to minimise the risk of a concrete-based pollution event.
- Concrete delivery, concrete pours and related construction methodologies will be part of the procedure agreed with the contractor to mitigate any possibility of spillage or contamination of the local environment. Particular attention will be paid during the pouring process in order to avoid leakages or spills of concrete.
- Washout of concrete plant will occur off site at a designated impermeable area with waste control facilities.
- Raw, uncured or waste concrete will be stored appropriately prior to disposal by a licensed contractor.
- The contractor's construction methodology will require the use of precast elements where practical; the use of secondary protection shuttering for concrete pours; all pours to be carried out in dry weather conditions and that all trucks be cleaned prior to leaving respective depots.
- The contractor will be required to use experienced operators for the work; provide an appropriate level of continuous monitoring during any concrete pours by experienced management and have method statements approved by the client prior to commencing works. Works will be carried out using recommendations from current guidance and relevant codes of practice as outlined in **EA (2011) -** *Managing concrete wash waters on construction sites: good practice and temporary discharges to ground or to surface waters*.

7.1.5 Pollution Control and Spill Prevention

A minimum stock of spill kits will be maintained at all times and site foremen's vehicles will carry large spill kits at all times. Absorbent material will be used with pumps and generators at all times and used material disposed of in accordance with the Waste Management Plan.

Regular inspections and maintenance of plant and machinery checking for leaks, damage or vandalism will be made on all plant and equipment.

In the event of a spill the Contractor will ensure that the following procedure are in place:

- Emergency response awareness training for all project personnel on-site works.
- Appropriate and sufficient spill control materials will be installed at strategic locations within the site.
- All potentially polluting substances such as oils and chemicals used during construction will be stored in containers clearly labelled and stored with suitable precautionary measures such as bunding within the site compound.
- Oil soakage pads should be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge. These shall be disposed of correctly and records will be maintained by the Environmental Manager of the used booms and pads taken off site for disposal.

- Damaged or leaking containers will be removed from use and replaced immediately.

7.1.6 General Avoidance Measures

Although it has been identified that there will be no permanent impact through disturbance to wildlife during the work, it is advised that general avoidance measures be undertaken to protect wildlife while the works are being carried out.

General avoidance measures that should be incorporated by the contractors working on site include:

- Limit the hours of working to daylight hours, to limit disturbance to nocturnal and crepuscular animals;
- Due to the potential presence of; Red Squirrel, Hedgehog, Shrew, Badger and the potential presence of bats, the use of lighting at night should be avoided. If the use of lighting is essential, then a directional cowl should be fitted to all lights to prevent light spill and to be directed away from all treelines/ wooded areas.
- Contractors must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled; and
- Any pipes should be capped when not in use (especially at night) to prevent local fauna becoming trapped. Any excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be placed to allow animals to escape.

7.1.7 Site Lighting Design

Hours of illumination during works and operational phases:

While there is none currently scheduled, any the lighting that is to be utilised during the construction phase will be controlled by photocells which go on/ off at sunrise and sunset as per set lux levels. Additionally, Virtual Midnight dimming will also be incorporate on-site, which automatically dims the lights by 33% between midnight and 6am.

Light levels and type:

Construction site lighting that meets the lowest light levels permitted under health and safety would be preferable for bats in the vicinity. The specification and colour of light treatments, such as single bandwidth lights and no UV light are essential. LED luminaires are ideal and should be used where possible due to their sharp cut-off, lower intensity, and dimming capability. A warm white spectrum (3000K) should be used in the lighting located along the boundaries of the site to reduce the blue light component.

7.1.8 Root compaction and limb damage avoidance

In order to avoid the damage and compaction of roots and vegetation, storage and movement of machinery should be avoided in rooting zones adjacent to the trees, and fences should be in place in the areas of trees and scrub.

7.1.9 Annex Habitat Protection - Perennial vegetation of stony banks

In order to prevent damage to the local vegetation of stony banks, the movement of materials and construction equipment will adhere to the traffic management plan, with the inclusion of the storage of materials within the designated primary compound, which is located off-site and away from the shoreline.

During the construction phase, signage will be in place to guide members of the public to the beach, in a route that will not take them through the Annex 1 vegetation [1220].

7.2 Project Operational Phase

7.2.1 Drainage Systems during the Operational Phase

The external showers will drain into the closed system via drainage outlets in the shower area. The base of the shower area will be set at a lower level with graded falls towards the outlets to ensure the grey water from the showers is directed into the closed system. The surface water run-off will be separated from the shower with the surface levels outside the shower area falling away from the showers.

Additionally, facility management will discourage the use of soap/ shampoo at external showers by providing signage to that effect as has been provided in other external showers in the area.

7.2.2 Sewage Overflow

The site drainage is to have non-return valves and sealed manholes installed. In the event of a failure or blockage, this will prevent any surcharging from the public sewer from returning to the facility and spilling onto adjacent habitats. With the inclusion of these valves, the new development poses no risk of sewage overflow even in the event of extreme storm events.

7.2.3 Sowing of Remedial Grassland

Sewing of grass seed will take place to compensate for the direct removal of the amenity grassland habitat within the site boundary as part of excavations, access of machinery and utilisation of the site strip during the construction of the sports facility.

JBA recommends the introduction of coastal grassland species within this area of remedial sowing. This sowing mix combined with the natural seedbank within the soil will help replace and increase the functionality provided by the current amenity grass patch present. Ideally this grassland patch should only be cut twice seasonally, at the end of May and late August/ early September to allow for the full range of floral species to go to seed; and to allow associated invertebrates to complete their respective life-cycles. However, as the area is heavily used by the public in the summer months, this may not be feasible. An alternative is to allow a border area along the fencing to be cut less frequently.

7.2.4 Access to the beach during Operation Phase

A small quantity of information and wayfinding signage will be provided when the facility is operational. The Beaches and Traffic departments will be consulted to ensure consistency with existing signage and compliance with all relevant standards. This will minimise the risk of visitors to the beach trampling adjacent habitats.

7.2.5 Education and Signage

Given the visitation and breeding of Grey Seals onto the shore of Dalkey Island, there will be signage in place to make kayakers and paddle boarders aware of their presence, to educated them of the seals' utilisation of the shoreline, and to ensure they do not interfere with this breeding populations.

8 Residual Impact

Residual ecological impacts are those that remain once the development proposals have been implemented. The main aim of ecological mitigation, compensation and enhancement is to minimise or eliminate residual impacts.

8.1 Construction Phase

Preparatory and construction works will result in disturbance to the foraging and commuting habitat for protected species such as ground-dwelling mammals, aquatic mammals, bats, birds, and invertebrates.

Implementation of mitigation measures during the construction works phase, along with good site management and construction practices will help to minimise any significant and/ or permanent impact on the environment. This will be included in a Construction Environmental Management Plan (CEMP) which will be developed at the detailed design stage. Included in this will be best practice measures for visual and audible disturbance, as well as control of surface and ground water pollution, which will minimise any impact on local habitats and the species reliant on them.

With the proposed mitigation implemented, the residual impact during the construction phase is assessed to be of temporary negative impact on account of the disturbance to habitats of high local ecological importance, as well as the local protected species.

8.2 Operational Phase

The intended operation of the project includes the workings of the sport's facility and will not directly impact the surrounding habitats. Local habitats and Killiney Bay would be susceptible to local drainage infrastructure overflowing during stormy weather and rare wave overtopping events. Implementation of non-return valves and sealed manholes will prevent a backflow of sewage during rare flooding instances.

This area of the beach and the bay is already used by local members of the public and is visited frequently. With the increased facilities in the area of the beach, there is the potential of higher visitation rates from members of the public using Killiney Bay for water sport activities such as kayaking or paddle boarding. There is, however, no anticipated significant increase in members of the public visiting the beach and the bay anticipated from the construction of these facilities along the beach.

The proposed remedial planting within the development, i.e., sowing of grasses and wildflower species, will help maintain the overall floral and faunal biodiversity of the site. Overall, the works will have a slight positive residual impact on the biodiversity within and adjacent to the site.

With the proposed mitigation implemented, the residual impact during the operational phase of the works will have a neutral residual impact on the biodiversity within and adjacent to the site.

9 Summary of Impact Assessment

9.1 EcIA Table

Table 9-1 presents a summary of the impacts envisaged when mitigation approaches are included. Residual impacts are also described.

All other ecological impacts can be avoided, mitigated or compensated so there is no anticipated significant impact for the habitats and species considered in the assessment.

Table 9-1: Summary of Impacts; Mitigations; and Significance of Residual Impacts on ecological features

Ecological Features	Impacts	Importance of Feature	Significance of impact without Mitigation	Mitigation	Significance of Residual Impacts
Designated Sites - Dalkey Coastal Zone and Killiney Hill pNHA and	Accidental introduction of airborne and seaborne pollutants into the site, degrading its condition and its ability to support the habitats and species associated with the site.	National	**Construction Phase** Non-significant, temporary negative impacts **Operational phase** No anticipated impacts	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the prevention of the generation of airborne and surface water pollutants from impacting on the Site.	Neutral residual impacts
Annex associated Shingle and gravel banks Annex associated Shingle and gravel shore Annex associated Scrub	Accidental introduction of pollutants into the habitat, degrading its condition and its ability to support the species associated with the habitat.	National	**Construction Phase** Slight-to-moderate, temporary negative impacts. **Operational phase** Non-significant, temporary, rare impacts.	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the prevention of the generation of airborne and surface water pollutants from impacting these local habitats . -The mitigations outlined in Sub-section 7.2.1 ensuring the inclusion of non-return valves and sealed manholes to prevent a backflow of sewage during rare wave overtopping events.	Neutral residual impacts
Treelines	Accidental introduction of pollutants into the habitat, degrading its condition and its ability to support the protected species	High Local	**Construction Phase** Slight, temporary negative impacts.	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the protection of local tree and hedgerow	Neutral residual impacts

Ecological Features	Impacts	Importance of Feature	Significance of impact without Mitigation	Mitigation	Significance of Residual Impacts
Non-Annex associated Scrub	associated with the habitat.		**Operational phase** No anticipated impacts	habitats from dust, concrete and pollutant spill. - The mitigations outlined in Sub-section 7.1.8 ensuring the safeguarding of trees and scrub from root compaction and limb damage.	
Offshore Reefs [1170]	Accidental introduction of pollutants into Killiney Bay, degrading this habitat	National	**Construction Phase** Temporary non-significant negative impacts. **Operational phase** Non-significant, temporary, rare impacts during operation phase	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the prevention of the generation of airborne and surface water pollutants from entering and settling in Killiney Bay and impacting this habitat. -The mitigations outlined in Sub-section 7.2.1 ensuring the inclusion of non-return valves and sealed manholes to prevent a backflow of sewage during rare wave overtopping events	Neutral residual impacts
Mammals - Red Squirrel, Badger, Hedgehog, Shrew	Accidental introduction of pollutants into the habitats utilised by local mammal populations, reducing their ability to provide refuge, safe commuting routes and foraging opportunities.	High Local	**Construction Phase** Temporary negative impact of slight significance **Operational phase** Imperceptible negative impacts	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the protection of local habitats which are used by local mammal species. - The mitigations listed in Sub-sections 7.1.6 and 7.1.7 in relation to the prevention of	Slight, positive residual impacts

Ecological Features	Impacts	Importance of Feature	Significance of impact without Mitigation	Mitigation	Significance of Residual Impacts
	Physical, visual and audible disturbance from construction works. Accidental entrapment and/or injuries caused by on-site machinery or supplies.			disturbance and/or entrapment of local mammals. - The mitigations outlined in Sub-section 7.2.2 ensuring the remedial planting of grasses with a selection of meadow species which restores and improves resource availability within the site	
Aquatic Mammals - Bottle-nose Dolphin, Common Porpoise & Grey Seal	Accidental introduction of pollutants into Killiney Bay utilised by local aquatic mammal populations, disrupting the health of mammal communities.	High Local	**Construction Phase** Temporary non-significant negative impacts. **Operational phase** Non-significant, temporary, rare impacts during operation phase	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the prevention of the generation of airborne and surface water pollutants from entering and settling in Killiney Bay and impacting this habitat. -The mitigations outlined in Sub-section 7.2.1 ensuring the inclusion of non-return valves and sealed manholes to prevent a backflow of sewage during rare wave overtopping events - The mitigations outlined in Sub-section 7.2.5 ensuring the signage put in place to notify and educate water users of the presence of breeding Grey Seals on Dalkey Islands and to prevent them from interfering with this population.	Neutral residual impacts
Bats - Common Pipistrelle,	Accidental introduction of pollutants into the habitats utilised by local bat	High Local	**Construction Phase** Temporary negative impact of slight	Strict adherence to:	Neutral residual impacts

Ecological Features	Impacts	Importance of Feature	Significance of impact without Mitigation	Mitigation	Significance of Residual Impacts
Soprano Pipistrelle,	populations, reducing their ability to provide safe commuting routes and foraging opportunities. Physical, visual and audible disturbance from construction works.		significance **Operational phase** No anticipated impacts	- The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the protection of local habitats which are used by local bat species. - The mitigations listed in Sub-sections 7.1.6 and 7.1.7 in relation to the prevention of disturbance and/or entrapment of local bats.	
Breeding Birds	Accidental introduction of pollutants into the habitats utilised by local bird populations, reducing their ability to provide refuge, safe commuting routes and foraging opportunities. Physical, visual and audible disturbance from construction works. Accidental entrapment and/or injuries caused by on-site machinery or supplies.	High Local	**Construction Phase** Temporary negative impact of slight significance for Breeding Birds, non-significant impact for Marine/sea and Wintering birds **Operational phase** No anticipated impacts for Breeding and Wintering Birds Non-significant, temporary, rare impacts during operation phase for Marine/sea birds	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the protection of local terrestrial and aquatic habitats which are used by local bird species. - The mitigations listed in Sub-sections 7.1.6 in relation to the prevention of disturbance and/or entrapment of local bird species. - The mitigations outlined in Sub-section 7.1.8 ensuring the safeguarding of trees and scrub from root compaction and limb damage.	Neutral residual impacts
Marine/ sea birds		High Local			
Wintering Birds		High Local			
Terrestrial Invertebrates	Accidental introduction of pollutants into the habitats utilised by terrestrial invertebrates, reducing	Low Local	**Construction Phase** Temporary negative impact of slight	Strict adherence to: - The mitigations outlined in Sub-sections	Slight, positive residual impacts

Ecological Features	Impacts	Importance of Feature	Significance of impact without Mitigation	Mitigation	Significance of Residual Impacts
	their foraging opportunities.		significance **Operational phase** No anticipated impacts	7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the protection of local habitats which are used by local invertebrates' species. - The mitigations outlined in Sub-section 7.2.2 ensuring the remedial planting of grasses with a selection of meadow species which restores and improves resource availability within the site	
Fish - Brown/ Sea Trout & Eel	Accidental introduction of pollutants into Killiney Bay utilised by local fish populations, disrupting the health of local and commuting fish	High Local	**Construction Phase** Temporary non-significant negative impact **Operational phase** Non-significant, temporary, rare impacts during operation phase	Strict adherence to: - The mitigations outlined in Sub-sections 7.1.1, 7.1.2, 7.1.3, 7.1.4 and 7.1.5 ensuring the protection of Killiney Bay -The mitigations outlined in Sub-section 7.2.1 ensuring the inclusion of non-return valves and sealed manholes to prevent a backflow of sewage during rare wave overtopping events	Neutral residual impacts

9.2 Cumulative Impacts

As there are no significant residual impacts on ecological features (following mitigation measures) from this development, there is therefore no potential for other plans or projects identified in Section 5 to act in combination with it. Therefore, significant cumulative impacts are not expected to occur on the ecological features within the proposed site.

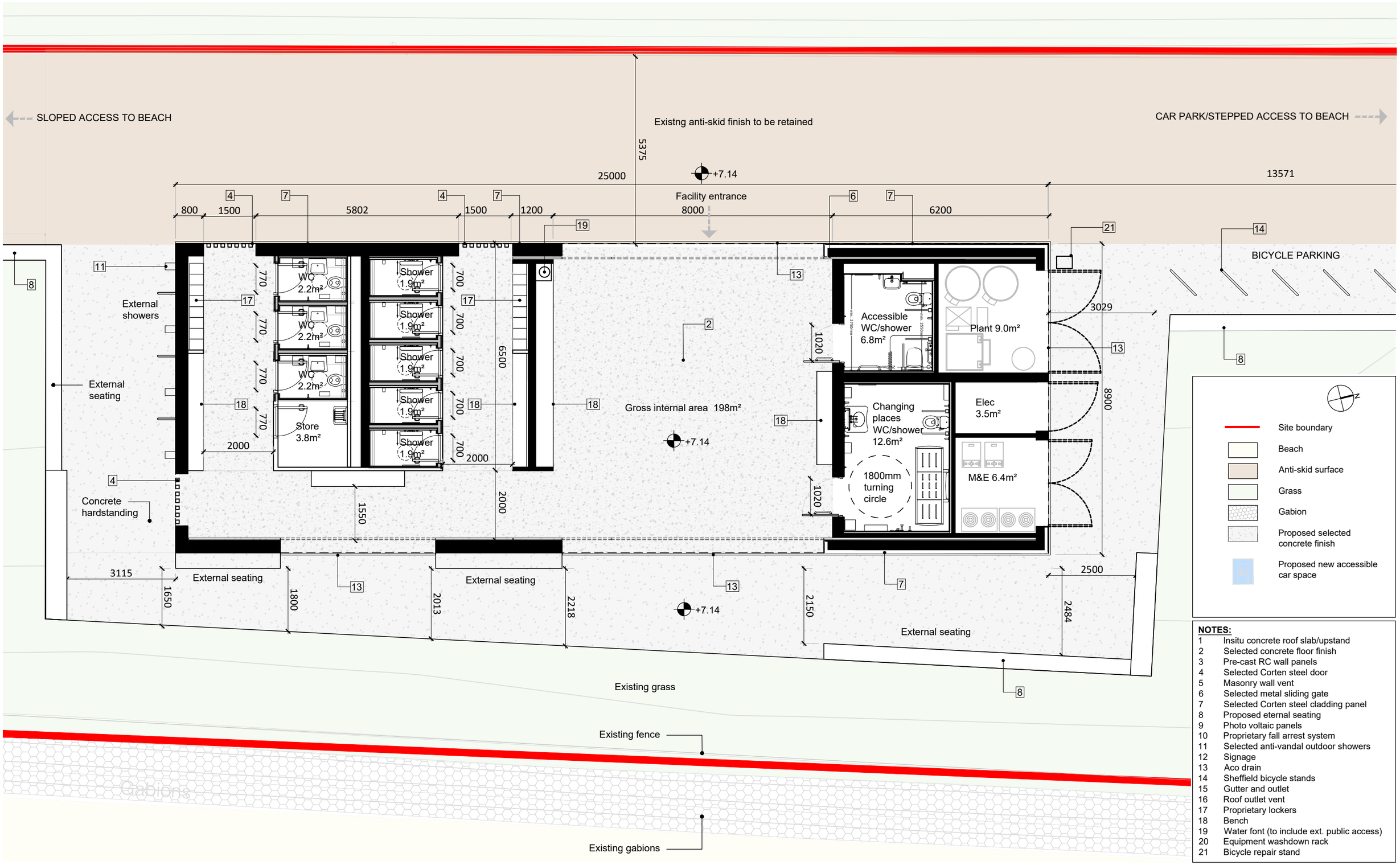
10 Conclusion

The proposed development project has been shown to potentially impact a number of different Annex I-associated habitats, Dalkey Coastal Zone and Killiney Hill pNHA; Killiney Bay and habitats with high local importance (treelines and scrub) and faunal groups (ground-dwelling mammals; aquatic mammals; bats; breeding and wintering birds; fish and terrestrial invertebrates), whose ecological importance is of high local level in the context of this proposed site.

Based upon the information supplied, regarding the site layout, drainage and landscape plans, and provided that the development is constructed in accordance with the mitigation measures outlined above, there will be no significant impacts alone or in-combination with other projects and plans, as result of the development and associated works on the ecology and local species of the area and on any designated conservation sites.

Given the scale of this development, the local ecology, including mammals, bats, birds and invertebrate species and the connected ecology including the marine habitats and faunal groups, will continue to exist through the retained ecological function of the site associated with the operational phase of this project.

A Site Layout Plan



NOTES:

1 Insitu concrete roof slab/upstand
2 Selected concrete floor finish
3 Pre-cast RC wall panels
4 Selected Corten steel door
5 Masonry wall vent
6 Selected metal sliding gate
7 Selected Corten steel cladding panel
8 Proposed eternal seating
9 Photo voltaic panels
10 Proprietary fall arrest system
11 Selected anti-vandal outdoor showers
12 Signage
13 Aco drain
14 Sheffield bicycle stands
15 Gutter and outlet
16 Roof outlet vent
17 Proprietary lockers
18 Bench
19 Water font (to include ext. public access)
20 Equipment washdown rack
21 Bicycle repair stand

Rev.	Date	Drawn	Description
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

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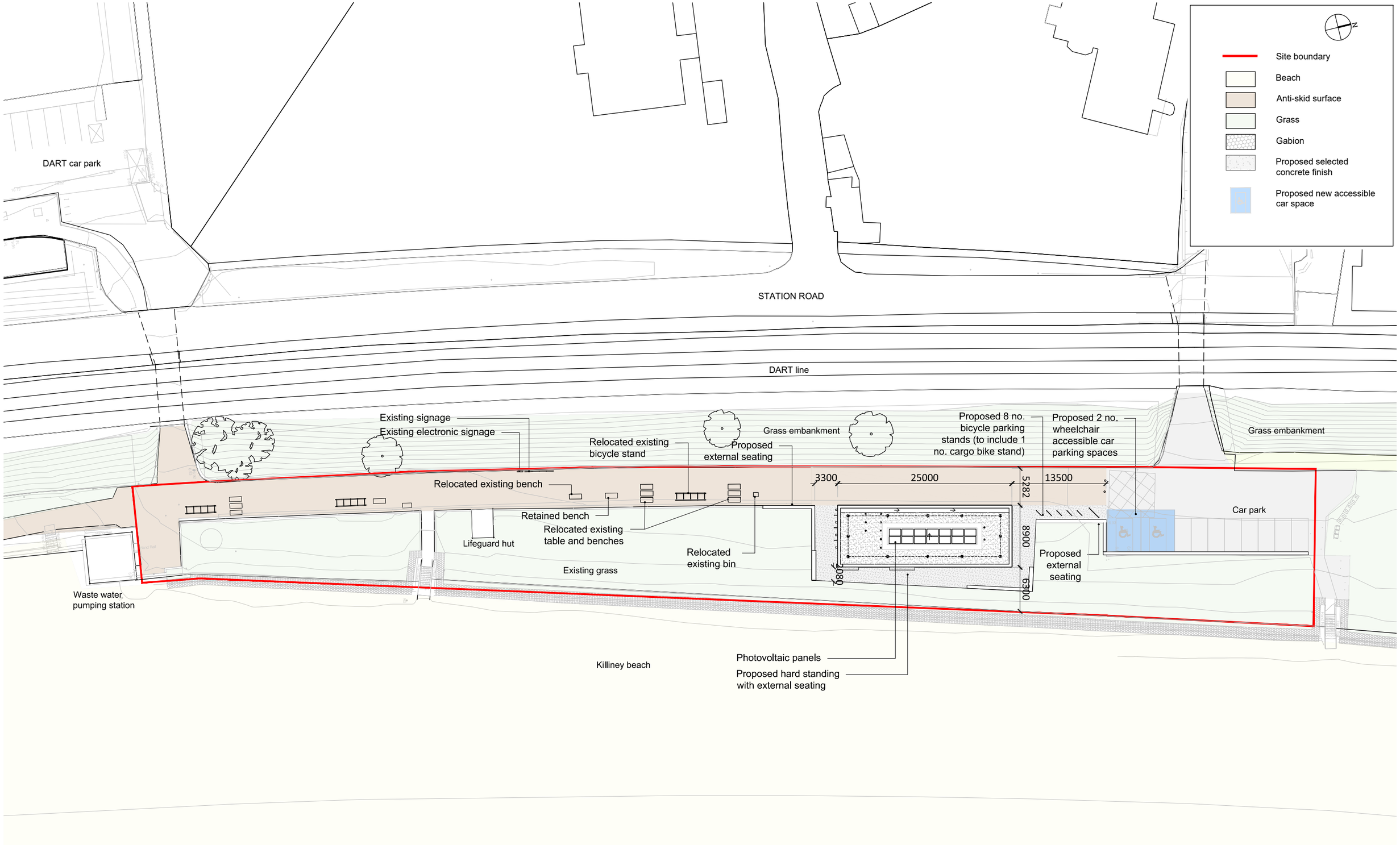
Job: Facility for Water Based Activities at Killiney Beach
Drg.: Ground Floor Plan
Drawing No.: 1914-DLR-ZZ-00-DR-A-1110

Scale @ A3 1:100
Date 24.05.2024
Job No. 1914
Drn. TW Chd. LM
Status PART 8
Rev. 01
CAD Ref. 1914-DLR-ZZ-00-DR-A-1110

Architects Department
County Hall, Marine Road, Dun Laoghaire, Co. Dublin.
Phone (01)2054700 Fax (01)2300391



Rev.	Date	Drawn	Description
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
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Job
Facility for Water Based Activities at Killiney Beach

Drg.
Proposed Site Plan

Drawing No.
1914-DLR-ZZ-ZZ-DR-A-1102

Scale @ A3 1:500
Date 24.05.2024
Job No. 1914
Drn. TW Chd. LM

Status PART 8
Rev. 01
CAD Ref. 1914-DLR-ZZ-ZZ-DR-A-1102

Architects Department
County Hall, Marine Road, Dun Laoghaire, Co. Dublin.
Phone (01)2054700 Fax (01)2300391

B Drainage layout

B.1 General area

LEGEND:

100 FW > 100 FW >	NEW 100mm Ø uPVC FW SEWER @ 1:60 MIN. FALL
150 FW > 150 FW >	NEW 150mm Ø uPVC FW SEWER @ 1:60 MIN. FALL
225 FW > 225 FW >	NEW 225mm Ø uPVC FOUL SEWER @ 1:60 MIN. FALL
C > C > C > C > C > C >	EXITING 525mm Ø COMBINED SEWER (VITRIFIED CLAY/CONCRETE)
100 SW > 100 SW >	NEW 100mm Ø uPVC SURFACE WATER @ 1:100 MIN. FALL
150 SW > 150 SW >	NEW 150mm Ø uPVC SURFACE WATER @ 1:100 MIN. FALL
SW > SW > SW >	EXISTING 225mm Ø uPVC SURFACE WATER
ACO ACO ACO ACO	NEW ACO CHANNEL 118x100mm CAST IRON SLOTTED GRATING
-W-W-W-W-W-W-W-W-W-W-	EXISTING WATER MAIN (101.6 UPVC / 180mm MDPE)
WM WM WM WM	EXISTING 100mm Ø HDPE WATER MAIN NOT SHOWN ON IW MAPS (CONFIRMED BY DL COCO)
SP SP SP SP SP SP SP	NEW 25mm SERVICE PIPE
MH	NEW PRECAST/BLOCKWORK MH AS PER IW
IC	NEW INSPECTION CHAMBER (STD-WW-13)
AJ	NEW SHALLOW ACCESS JUNCTION
RG	ROAD GULLY
B	BOUNDARY BOX
S	SILT TRAP
FP	FOUL POP-UP
RWP	RAIN WATER PIPE
NRV	UPVC 110MM ANTI-FLOOD VALVE & PRECAST CHAMBER

EXISTING MH
CL= 6.68
IL= 4.50

1:60

INSPECTION CHAMBER 5
CL= 6.72
IL= 4.61

1:80

INSPECTION CHAMBER 4
CL= 7.10
IL= 5.71

INSPECTION CHAMBER 3
CL= 7.12
IL= 5.77

INSPECTION CHAMBER 2
CL= 7.14
IL= 5.82

1:60

INSPECTION CHAMBER 1
CL= 7.14
IL= 6.06

SEE DRAWING GK22104-C101 FOR DETAILED DRAINAGE LAYOUT AT THE FACILITY

COME FROM THE BUILDING
REFER TO DRAWING
GK-22104 C101

CONNECTION TO EXISTING WATER LINE, ARCHITECT TO CONFIRM WATER CONNECTION TO LOCATION

150 SW >
1:60

CONNECTED TO EXISTING PUBLIC SW MANHOLE

SW01
CL= 7.14
IL= 6.09

SW02
CL= 6.79
IL= 6.75

SITE BOUNDARY

EXISTING SW MANHOLE

EXISTING SW MANHOLE

EXISTING SW MANHOLE

EXISTING SW MANHOLE

EXISTING WATER MAIN

EXISTING SW SEWER

PROPOSED BICYCLE PARKING

Access to carpark from Strathmore Road underpass

Existing tarmac finish

Access to beach via steps

Existing bicycle parking

Footpath

Kerb Bottom

Fence

Building

Land Drain

Centreline 10.14

Slope Bottom

Pipe Top

Bench

Sign

PROPOSED DRAINAGE LAYOUT

1:50

IRISH GRID CO-ORDINATES
EASTINGS X: 326008
NORTHINGS Y:224774

PART 8 PLANNING ISSUE

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Client		
Clerk of Works		

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P1	CRS	31.08.2022	PROGRESS
P2	DMV	31.07.2023	NEW LOCATION PROPOSAL AND DRAINAGE
P3	DMV	15.08.2023	NEW LOCATION APPROVED
P4	DMV	07.12.2023	NEW LAYOUT
PL1	DMV	02.04.2024	ISSUE FOR PART 8 PLANNING

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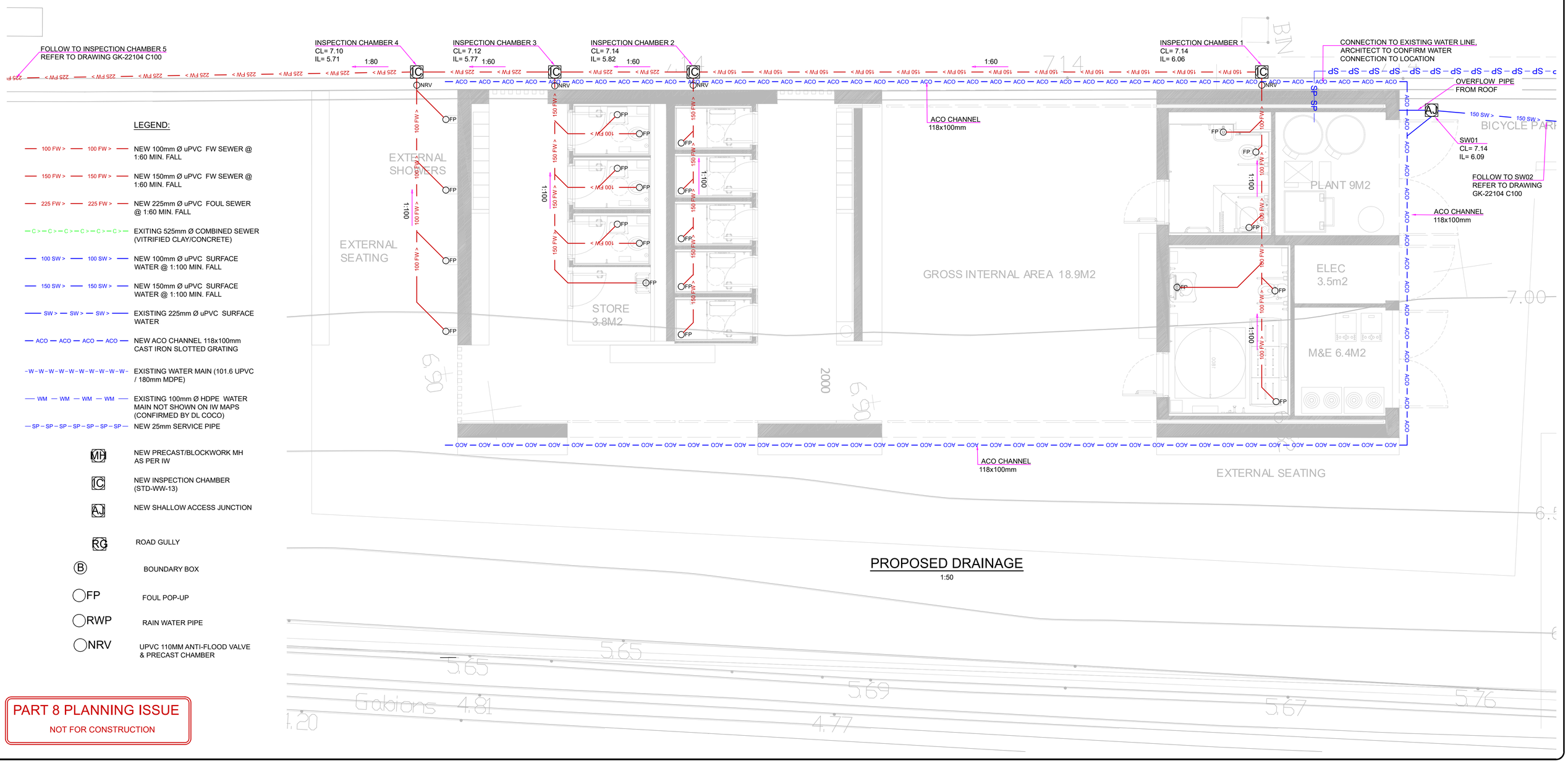
JOB TITLE
FACILITY CENTRE FOR WATER SPORTS KILLINEY BEACH

DRG. TITLE
PROPOSED SERVICES FOUL, SURFACE WATER & WATER SUPPLY, LAYOUT

GK Consulting Engineers LTD
Unit 11 Millbank Business Centre K78R261
ph 01 8749 322
email info@gkce.ie
www.gkce.ie

DRAWING NUMBER GK22104-C100 | REV. PL1

B.2 Internal drainage layout



PROPOSED DRAINAGE

1:50

LEGEND:

100 FW > 100 FW >	NEW 100mm Ø uPVC FW SEWER @ 1:60 MIN. FALL
150 FW > 150 FW >	NEW 150mm Ø uPVC FW SEWER @ 1:60 MIN. FALL
225 FW > 225 FW >	NEW 225mm Ø uPVC FOUL SEWER @ 1:60 MIN. FALL
C > C > C > C > C > C >	EXITING 525mm Ø COMBINED SEWER (VITRIFIED CLAY/CONCRETE)
100 SW > 100 SW >	NEW 100mm Ø uPVC SURFACE WATER @ 1:100 MIN. FALL
150 SW > 150 SW >	NEW 150mm Ø uPVC SURFACE WATER @ 1:100 MIN. FALL
SW > SW > SW >	EXISTING 225mm Ø uPVC SURFACE WATER
ACO ACO ACO ACO	NEW ACO CHANNEL 118x100mm CAST IRON SLOTTED GRATING
-W-W-W-W-W-W-W-W-W-W-	EXISTING WATER MAIN (101.6 UPVC / 180mm MDPE)
WM WM WM WM	EXISTING 100mm Ø HDPE WATER MAIN NOT SHOWN ON IW MAPS (CONFIRMED BY DL COCO)
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FP	FOUL POP-UP
RWP	RAIN WATER PIPE
NRV	UPVC 110MM ANTI-FLOOD VALVE & PRECAST CHAMBER

PART 8 PLANNING ISSUE

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Clerk of Works		

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P2	DMV	31.07.2023	NEW LAYOUT PROPOSAL
P3	DMV	15.08.2023	NEW LAYOUT APPROVED
P4	DMV	07.12.2023	NEW LAYOUT
P5	DMV	19.03.2024	NON-RETURN VALVE ADDED
PL1	DMV		ISSUE FOR PART 8 PLANNING

Scales AS SHOWN | A1 | Date DECEMBER 2023 | Drawn DMV | Checked

JOB TITLE
FACILITY CENTRE
FOR WATER SPORTS
KILLINEY BEACH

DRG. TITLE
PROPOSED BUILDING DRAINAGE CONNECTIONS

GK Consulting Engineers LTD
Unit 11 Millbank Business Centre K78R261
ph 01 8749 322
email info@gkce.ie
www.gkce.ie

DRAWING NUMBER	GK22104-C101	REV. PL1

C Relevant Policy and Legislation

The legislation discussed below is intended as a guide only and does not replace formal legal advice.

C.1 Biodiversity Policy Guidance

'Biodiversity: The National Biodiversity Action Plan 2017-2021 (DCHG, 2017) sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and has been developed in response to The Earth Summit, held in Rio de Janeiro in 1992 (UN Convention on Biological Diversity) and subsequent EU and International Biodiversity strategies and policies.

As part of the Action Plan process Local Authorities (LA) must produce Biodiversity Action Plans (BAP). BAPs highlight local biodiversity issues and set out a series of objectives and action plans for the conservation of priority species and habitats where they occur in each district or county.

C.2 Designated Sites and Nature Conservation

C.2.1 Statutory Designated Nature Conservation Sites

Sites with statutory designations receive varying degrees of legal protection under Irish statute (i.e. Wildlife Act 1976 and Wildlife (Amendment) Act (2000) and European Directives (i.e. the EC Birds Directive (2009/147/EC) and EC Habitats Directive (92/43/EC). The EU directives were transposed into Irish national law and subsequent amendments were revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011 and Irish Statutory Instrument 477/2011

There are a number of statutory designations used for sites of high nature conservation value in Ireland, which are applied depending upon the importance of the site in a local, regional, national or international context. These include:

- National
- Natural Heritage Area (NHA)
- Wildfowl Sanctuary
- Statutory Nature Reserve
- Refuge for Fauna
- European
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- International
- UNESCO Biosphere Reserve
- Ramsar Convention Site
- National Park (Category II) Sites

C.2.2 Non-Statutory Designations

Non-statutory sites are afforded no statutory legal protection, but are normally recognised by local planning authorities and statutory agencies as being of local nature conservation value

A proposed Natural Heritage Area (pNHA) is an area deemed to be of special interest containing important wildlife habitat and often containing rare or threatened species. They may also be selected on the basis of their geology or geomorphology.

C.2.3 Protected and Notable Species

A number of species are protected under Irish and international legislation. In Ireland, primary protection is provided under the 1976 Wildlife Act and Wildlife (Amendment) Acts (2000 & 2010) and revision 2018. Species of European importance receive additional protection in Ireland under the Birds and Natural habitats Regulations 2011.

The Flora (Protection) Order (2015) makes it illegal to cut, uproot or damage a listed species in any way. It is illegal to alter, damage or interfere in any way with their habitats.

D National Biodiversity Data Centre (2023)

D.1 Recent records (within 10 years) of protected species within the 5km of the site

Common Name	Date of Last Record	Designation
Amphibians		
Common Frog *Rana temporaria*	08/07/2020	EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
Smooth Newt *Lissotriton vulgaris*	27/09/2020	Protected Species: Wildlife Acts
Birds		
Arctic Tern *Sterna paradisaea*	14/06/2018	Protected Species: Wildlife Acts EU Birds Directive >> Annex I Birds of Conservation Concern - Amber List
Barn Owl *Tyto alba*	10/05/2021	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Barn Swallow *Hirundo rustica*	21/12/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Black Guillemot *Cepphus grylle*	07/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Black-headed Gull *Larus ridibundus*	05/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Black-legged Kittiwake *Rissa tridactyla*	19/01/2017	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Brent Goose *Branta bernicla*	31/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Guillemot *Uria aalge*	27/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Kestrel *Falco tinnunculus*	22/10/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Kingfisher *Alcedo atthis*	23/03/2023	Protected Species: Wildlife EU Birds Directive >> Annex I Birds of Conservation Concern - Amber List
Common Linnet *Carduelis cannabina*	17/07/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Pheasant *Phasianus colchicus*	25/05/2019	Protected Species: Wildlife Acts EU Birds Directive >> Annex II, Annex III
Common Redshank *Tringa totanus*	27/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Scoter *Melanitta nigra*	19/01/2017	Protected Species: Wildlife Acts EU Birds Directive >> Annex II, Annex III Birds of Conservation Concern - Red List
Common Shelduck *Tadorna tadorna*	05/06/2016	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Starling *Sturnus vulgaris*	25/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Swift *Apus apus*	07/08/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Common Tern *Sterna hirundo*	03/07/2019	Protected Species: Wildlife Acts EU Birds Directive >> Annex I Birds of Conservation Concern - Amber List
Common Wood Pigeon *Columba palumbus*	20/03/2023	Protected Species: Wildlife Acts EU Birds Directive >> Annex II, Annex III
Eurasian Curlew	23/06/2021	Protected Species: Wildlife Acts

Common Name	Date of Last Record	Designation
Numenius arquata		EU Birds Directive >> Annex II Birds of Conservation Concern - Red List
Eurasian Oystercatcher *Haematopus ostralegus*	20/02/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Eurasian Teal *Anas crecca*	16/01/2023	Protected Species: Wildlife Acts EU Birds Directive >> Annex II, Annex III Birds of Conservation Concern - Amber List
Eurasian Tree Sparrow *Passer montanus*	24/05/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
European Shag *Phalacrocorax aristotelis*	25/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Black-backed Gull *Larus marinus*	16/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Cormorant *Phalacrocorax carbo*	25/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Crested Grebe *Podiceps cristatus*	09/01/2016	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Great Northern Diver *Gavia immer*	17/03/2018	Protected Species: Wildlife Acts EU Birds Directive >> Annex I Bird Species Birds of Conservation Concern - Amber List
Herring Gull *Larus argentatus*	05/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
House Martin *Delichon urbicum*	09/09/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
House Sparrow *Passer domesticus*	05/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Lesser Black-backed Gull *Larus fuscus*	22/12/2022	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Little Egret *Egretta garzetta*	27/02/2023	Protected Species: Wildlife EU Birds Directive >> Annex I Bird Species
Mallard *Anas platyrhynchos*	28/03/2023	Protected Species: Wildlife Acts EU Birds Directive >> Annex II, Annex III Birds of Conservation Concern - Amber List
Mediterranean Gull *Larus melanocephalus*	14/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Common Gull *Larus canus*	06/08/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Mute Swan *Cygnus olor*	27/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Northern Gannet *Morus bassanus*	08/02/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Northern Lapwing *Vanellus vanellus*	20/01/2023	Protected Species: Wildlife Acts EU Birds Directive >> Annex II Birds of Conservation Concern - Red List
Northern Wheatear *Oenanthe oenanthe*	27/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Razorbill *Alca torda*	27/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Red Kite *Milvus milvus*	03/04/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Red-breasted Merganser *Mergus serrator*	09/01/2016	Protected Species: Wildlife Acts EU Birds Directive >> Annex II Birds of Conservation Concern - Amber List
Red-throated Diver	14/02/2016	Protected Species: Wildlife Acts

Common Name	Date of Last Record	Designation
Gavia stellata		EU Birds Directive >> Annex I Bird Species Birds of Conservation Concern - Amber List
Ringed Plover *Charadrius hiaticula*	07/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Rock Pigeon *Columba livia*	05/03/2023	Protected Species: Wildlife Acts EU Birds Directive >> Annex II
Sand Martin *Riparia riparia*	20/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Sandwich Tern *Sterna sandvicensis*	30/03/2022	Protected Species: Wildlife Acts EU Birds Directive >> Annex I Bird Species Birds of Conservation Concern - Amber List
Sky Lark *Alauda arvensis*	15/05/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Water Rail *Rallus aquaticus*	16/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Yellowhammer *Emberiza citrinella*	02/08/2021	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
Meadow Pipit *Anthus pratensis*	14/02/2016	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Brambling *Fringilla montifringilla*	16/03/2018	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Willow Warbler *Phylloscopus trochilus*	07/04/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Northern Fulmar *Fulmarus glacialis*	06/08/2020	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Purple Sandpiper *Calidris maritima*	14/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
European Greenfinch *Carduelis chloris*	16/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Redwing *Turdus iliacus*	20/01/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Goldcrest *Regulus regulus*	27/02/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Grey Wagtail *Motacilla cinerea*	27/02/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Ruddy Turnstone *Arenaria interpres*	27/03/2023	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
Marine Mammals		
Bottle-nosed Dolphin *Tursiops truncatus*	02/08/2020	EU Habitats Directive >> Annex II, Annex IV Protected Species: Wildlife Acts
Common Dolphin *Delphinus delphis*	10/04/2019	EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Common Porpoise *Phocoena phocoena*	08/07/2021	EU Habitats Directive >> Annex II, Annex IV Protected Species: Wildlife Acts Threatened Species: OSPAR Convention
Common Seal *Phoca vitulina*	06/09/2023	EU Habitats Directive >> Annex II, Annex V Protected Species: Wildlife Acts
Grey Seal *Halichoerus grypus*	17/05/2023	EU Habitats Directive >> Annex II, Annex V Protected Species: Wildlife Acts
Terrestrial Mammals		
Eurasian Badger *Meles meles*	18/08/2017	Protected Species: Wildlife Acts
Eurasian Pygmy Shrew	21/10/2018	Protected Species: Wildlife Acts

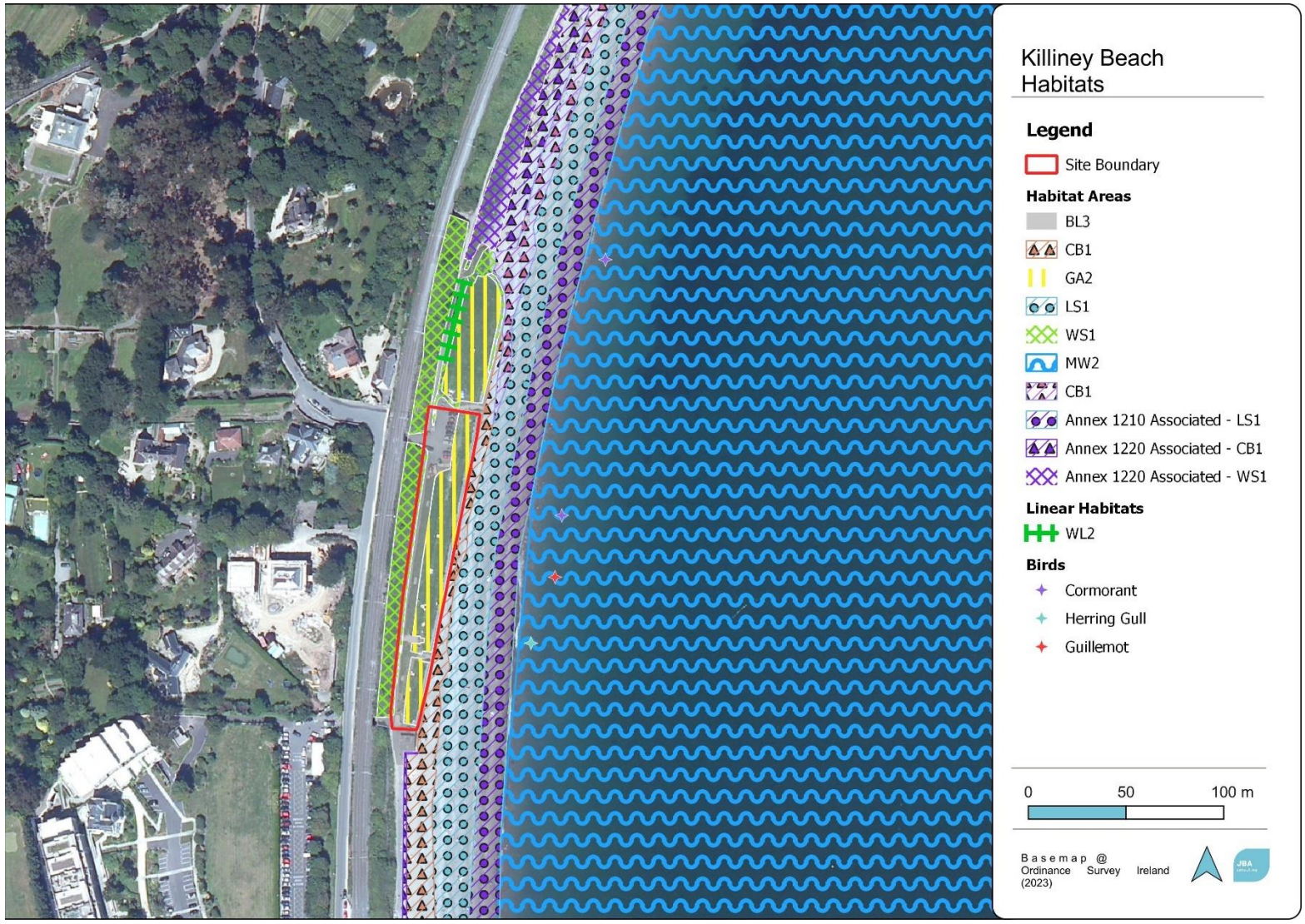
Common Name	Date of Last Record	Designation
Sorex minutus		
Eurasian Red Squirrel *Sciurus vulgaris*	07/02/2023	Protected Species: Wildlife Acts
European Otter *Lutra lutra*	12/09/2018	EU Habitats Directive >> Annex II, Annex IV Protected Species: Wildlife Acts
Pine Marten *Martes martes*	26/04/2023	EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
West European Hedgehog *Erinaceus europaeus*	23/01/2023	Protected Species: Wildlife Acts
Reptiles		
Common Lizard *Zootoca vivipara*	14/04/2023	Protected Species: Wildlife Acts

D.2 Recent records (within 10 years) of invasive species within the 2km of the site

Common Name	Date of Last Record	Designation
Flora and Algae		
Wakame *Undaria pinnatifida*	21/05/2017	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Wireweed *Sargassum muticum*	03/10/2019	High Impact Invasive Species Regulation S.I. 477 (Ireland)
New Zealand Pigmyweed *Crassula helmsii*	26/09/2014	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Least Duckweed *Lemna minuta*	11/10/2015	Medium Impact Invasive Species
Hottentot-fig *Carpobrotus edulis*	24/07/2017	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Himalayan Knotweed *Persicaria wallichii*	25/11/2017	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
Floating Pennywort *Hydrocotyle ranunculoides*	18/01/2018	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Russian-vine *Fallopia baldschuanica*	13/08/2020	Medium Impact Invasive Species
American Skunk-cabbage *Lysichiton americanus*	01/05/2021	Medium Impact Invasive Species EU Regulation No. 1143/2014 Regulation S.I. 477 (Ireland)
Common Broomrape *Orobanche minor*	25/06/2021	Medium Impact Invasive Species
Spanish Bluebell *Hyacinthoides hispanica*	09/05/2022	Low Impact Invasive Species Regulation S.I. 477 (Ireland)
Turkey Oak *Quercus cerris*	16/01/2023	Medium Impact Invasive Species
Cherry Laurel *Prunus laurocerasus*	09/04/2023	High Impact Invasive Species
Wall Cotoneaster *Cotoneaster horizontalis*	16/04/2023	Medium Impact Invasive Species
Butterfly-bush *Buddleja davidii*	04/05/2023	Medium Impact Invasive Species
Japanese Knotweed *Fallopia japonica*	27/05/2023	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Sycamore *Acer pseudoplatanus*	27/05/2023	Medium Impact Invasive Species
Three-cornered Garlic *Allium triquetrum*	27/05/2023	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
Sea-buckthorn *Hippophae rhamnoides*	22/06/2023	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
Giant Hogweed *Heracleum mantegazzianum*	29/06/2023	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Himalayan Honeysuckle *Leycesteria formosa*	29/06/2023	Medium Impact Invasive Species
Traveller's-joy *Clematis vitalba*	01/07/2023	Medium Impact Invasive Species
Invertebrates		
Arcitalitrus dorrieni	29/04/2017	Medium Impact Invasive Species
Japanese Skeleton Shrimp *Caprella mutica*	31/12/2022	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
Australoplana sanguinea	16/02/2019	Medium Impact Invasive Species

Common Name	Date of Last Record	Designation
Arthurdendyus triangulatus	26/04/2020	High Impact Invasive Species
Harlequin Ladybird *Harmonia axyridis*	01/12/2023	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Jenkins' Spire Snail *Potamopyrgus antipodarum*	19/06/2018	Medium Impact Invasive Species
Botrylloides violaceus	31/12/2022	Medium Impact Invasive Species
Didemnum vexillum	31/12/2022	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Leathery Sea Squirt *Styela clava*	31/12/2022	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Birds		
Rose-ringed Parakeet *Psittacula krameri*	12/02/2023	High Impact Invasive Species
Mammals		
European Rabbit *Oryctolagus cuniculus*	02/07/2017	Medium Impact Invasive Species
Feral Goat *Capra hircus*	02/07/2017	Medium Impact Invasive Species
Sika Deer *Cervus nippon*	16/09/2018	High Impact Invasive Species Regulation S.I. 477 (Ireland) Protected Species: Wildlife Acts
House Mouse *Mus musculus*	31/12/2018	High Impact Invasive Species
Brown Rat *Rattus norvegicus*	21/12/2022	High Impact Invasive Species Regulation S.I. 477 (Ireland)
Eastern Grey Squirrel *Sciurus carolinensis*	20/03/2023	High Impact Invasive Species EU Regulation No. 1143/2014 Regulation S.I. 477 (Ireland)

E Habitat Map



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